

## Transportation and Communication Development in Northeast Asia and Korea's Future as a Regional Hub

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### TRENDS TO STRENGTHEN ECONOMIC COOPERATION<sup>1</sup>

In his recent book "Megatrends 2000," Naisbitt lists the rise of the Pacific Rim as one of the ten main trends of different and divergent significance. However, back in 1898, John M. Hay, the U.S. Secretary of State, left the impressive words essentially to the following effect: "The Mediterranean Sea was the ocean of yesterday, the Atlantic is that of today, while the Pacific will be that of tomorrow." During the past two decades we have witnessed the center of gravity of the world's trade shifting to the Asia/Pacific Rim.

Now, on the eve of the 21st century, the spotlight is on Northeast Asia<sup>2</sup> because it has the highest economic potential and dynamism on the planet. A brief look at the Northeast Asian countries reveals such potential. Japan has become one of the three driving forces for the world's economic growth together with the U.S. and the E.C. Japan, having the second largest industrial economy next only to the U.S., is the largest creditor in the world and has an enormous accumulation of capital resulting from its trade surplus. South Korea has been enjoying high economic growth rates from its robust economic development, and China is now one of the most dynamic industrializing countries in the world. A fast industrializing China, with a population of about 1.1 billion, is expected to lead the world's biggest boom in the next 20 years as it becomes one of the globe's largest markets. Meanwhile, Russia has turned away from the doctrines of communism and is exploring the benefits of a market economy and North Korea has begun to peel off the shells of their old closed-door policy and is showing a desire to take part in a Northeast Asian economic community.

Northeast Asia, though not all countries in the region have formal diplomatic relations with each other, is expected to make progress towards enhanced and close economic cooperation. Such strengthened regional economic cooperation will undoubtedly become a major impetus for

increasing trade volume within the region owing to the trade diversion as well as to the trade creation.

It is commonly recognized that the prospects for regional economic cooperation in Northeast Asia is very bright due to the mutual complementarity among the countries. At present Japan and South Korea together lead the world in the importing of coal, iron ore and grain – by importing 120 million tons of coal, 150 million tons of iron ore, and 28 million tons of grain, mostly from remote regions. In 1990 Japan and South Korea ranked first and second in coal imports respectively while China led the world in coal production and the Russian Far East contains around one-fourth of Russia's total coal resources. Japan, China and Korea form dominant forest product import markets in the Asia-Pacific region. Though the export trade to these country is dominated by Southeast Asian nations, such as Malaysia and Indonesia, the Russian Far East has achieved greater dominance in the last few years as being one of the diminishing number of countries willing to export timber. A very high proportion of the trade consists of short distance intra-regional movements.

The future prosperity and growth of Japan and South Korea will increasingly depend on securing reliable, stable sources of raw materials and energy at acceptable prices. The fact that the Russian Far East, China and Mongolia, which are richly endowed with natural resources, are situated close to South Korea and Japan, two of the world's largest importers of energy and other resources, suggests a high potential for complementarity in economic cooperation. At present, however, trade diversion will take years because Japan and South Korea are continuing massive investments in the development of resource in other regions of the world. The infrastructure of these potential supplying countries in this region is far below the level needed to maintain competitiveness in the exporting of commodities.

Vital to the move toward greater prosperity and opportunities is the existence of an appropriate transport infrastructure and communication system which will enable cargo, people, and information to efficiently flow in this area. However, the long political and ideological confrontations among the Northeast Asian countries have prevented them from having sufficient infrastructure such as transportation and communication which would have enabled them to link themselves with one another. The insufficient infrastructure in the area has posed a serious impediment to the efficient distribution of cargo and people. At present China, for example, is involved in a trade both as exporter and as importer. Kuby (1992) shows the potential opportunities for distance

saving by redistribution of the present pattern of criss-crossing flows in Northeast Asia. China imports substantial tons of iron ore, coal, and grain despite the fact that significant proportions of production in the north of the country are forced to export to countries in this region. Poor internal transportation infrastructure such as rails and ports impedes rational shipment from the northern producing region to the southern consuming region. The solution to these problems, therefore, is to assign a high priority for preparing adequate development plans and strategies in rebuilding infrastructure.

### **CURRENT SITUATION AND CONSTRAINTS IN TRANSPORTATION AND COMMUNICATION**

The emerging infrastructural arena focusing on Northeast Asia can be analyzed by the framework adopted in Kobayashi and Okada (1989), where three different networks can be recognized as follows:

- a slow-speed transport network for the movement of resources and goods;
- a high-speed transport for the movement of people for face-to-face contact where information is structurally complex;
- a telecommunications network for the transfer of standardized information.

This section discusses the present situation and constraints of the infrastructure in each of the five prominent modes of transport – maritime transport, road transport, rail transport, air transport, and pipelines and communication sector, although transport and communication are not separate sectors but actually integral elements of the operations of the various other economic and social sectors.

#### **Maritime Transportation System**

Recently, Northeast Asia has seen its trade volume among countries in the area increase by leaps and bounds and their dependence on maritime transportation for trade become increasingly greater. Though they have the advantages of geographical proximity and of being connected landwise, South Korea, China and Russia have totally depended upon maritime transportation for their trade because of the political and ideological confrontation between South Korea and North Korea. However, in the case of the maritime trade route, a political and economic separation policy has allowed them to undertake limited maritime transportation services even under the previous confrontational climate in

the area. This has resulted in the opening of a Japan-China route, a Japan-Russian Far East route and Japan-North Korea route to move the trade goods of those countries. The easing of tensions between the East and the West has also resulted in the opening of the Korea-China route and a South Korea-Russian Far East liner service in 1991.

A continually increasing enhancement in the economic cooperation of Northeast Asia will remove tangible and intangible trade barriers. This will make "distance," i.e., transportation costs, a key factor in the determination of trade for any country in this region. In addition, a rise in the shipment of bulk cargo and neo-bulk cargo within this area might bring about a decrease in the voyage distance of existing ocean-going merchant fleets and consequently in ship tonnage demand. For example, South Korea currently imports coal by way of shipping from the Gulf Coast and Portland which requires 33-34 days and 17-19 days respectively. But it takes only 1-2 shipping days from Dalian or Qinghuangdao in China. By providing efficient and reliable services, a barrier-removed transportation system allows a reduction to be made in the level of stocks which need to be held as a contingency. This is also the initial impact of what trade diversion effects will cause. The merit of economies of scale for larger vessels will, therefore, diminish and instead frequent sailings by small- and medium-sized vessels tailored to specific needs will be the desirable approach. Increasing intra-regional seaborne trade due to growing economic exchange implies a growing significance of short sea shipping, which has not been recognized for its rightful significance of being a part of the seaborne trade for the Northeast Asian transport network.

### **Inland Transportation**

With the advance of the close economic cooperation and resulting facilitation of cargo movement, the center of gravity of transportation activities and developments will shift from the traditional maritime segment to the inland segments of the system, because there will be a greater potential shift from the presently dominant seaborne traffic to inland traffic in this area.

### **Road and Railroad Development**

As shown in Table 7.1, the ratio of the total length of roads to the total area is very low in most of the countries in Northeast Asia as compared with the standard level of developed countries. With the exception of Japan, the density of roads is far below 1,000 and that of the Russian Far East and Mongolia is only about 3.

Table 7.1 Transportation profile 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)
Russian Far East (1989)	6,216	7,941	1.3	21,158	7,727	3.4	1.3
China (1990)	9,600	1,143,330	119.1	1,028,300	53,400	107.1	5.6
Northeast	1,970	121,010	61.4	157,055	17,111	79.7	8.7
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	3,120	557.8	31.2
Japan (1990)	378	122,783	329.3	1,095,021	27,012	2,898.4	71.5
Total	17,984	1,340,944	74.6	2,227,207	98,090	123.8	5.5

Note : Northeast China includes the provinces of Heilongjiang, Jilin, Liaoning, and Inner Mongolia.

Source : Lim (1993) and *Statistical Yearbook of China, 1991*.

In order to construct an efficient transportation network in Northeast Asia, the advantages and characteristics of each transportation mode should be utilized. The choice of an appropriate transportation mode based on the applicable route and distance could maximize transportation efficiency.

As the transportation sector becomes more mature, there will be a natural split between rail and road transport. The rail transport is used more for mid- and long-distance transportation and for bulk cargoes, whereas the road transport has an advantage in the short distance transportation of freight which requires fast delivery.

Rail is the main mode of inland transportation of freight and passengers in Northeast Asia, although the density of rail networks in terms of route kilometers per 1,000 square kilometer varies from 1.2 to 71.5. Despite the marked reduction in share over the last three decades, rail transport still accounts for 57 percent of the traffic in ton-kilometers in China as of 1991. A higher share probably can be found in North Korea and the Russian Far East. Even with some possible rationalization in the transport of natural resources and industrial products, rail traffic will continue to increase to serve the demand. Similar to freight, passenger travel also makes up a substantial portion of rail traffic in Northeast Asia. With the progression of time, the transportation system in Northeast Asia is likely to evolve toward a more balanced modal distribution by reflecting the more diverse needs of the economy.

Although it is widely recognized that road transport will play a larger role, there seems to be no concrete plan to bring about this. The major problem for roads is the growing gap between demand and supply (i.e., the inadequate capacity). Even more important might be the present physical conditions of roads. The existing condition of low quality road surfaces does not allow heavily loaded trucks to use the roads in the area because the ratio of unpaved roads to total road length is very high, and even if the roads are paved, the thin pavement and the deterioration of bridge structures are not able to withstand a large volume of heavy vehicles. In addition, the poor designs and various other weaknesses make the road systems inefficient in the Northeast Asian region. The complexity of the situation will compound the burden of freight traffic by rail as its capacity is already insufficient to meet the current demand.

One of the main problems in the way of rail network in the region is the existence of various railroad gauges. They include the standard gauge (1,435 mm), the wide gauge (1,520 mm) and some narrow gauge track. This diversity of gauges requires transloading trains or exchanging bogies at the interface and that can add a couple of days to the trip as well as

cause additional handling costs. A strategy must be developed to overcome this problem; otherwise the railroad would not be able to contribute to its full potential in helping to form a unified transport system in Northeast Asia.

### **Air Transportation**

Air transportation is another mode where Northeast Asian countries are considered to be lagging behind other regions. Given the distances in Northeast Asia, there is great potential to further develop aviation. However, the ideological and political conflict among neighboring countries in the region seems to be the stumbling block to the development of air transportation. The situation of air transport among the Northeast Asian countries varies widely in terms of air transport infrastructure and ground handling facilities. Particularly, owing to the limited capacity of aircraft, inadequacy of the necessary infrastructure, and various economic and social limitations, domestic air traffic has not been able to develop an extensive network to derive potential benefits.

Turning now to intra-regional air traffic, there are many direct air routes from the airports in the region, but they are mostly to outside areas and there are few direct air routes connecting themselves. Recently, many lines have started operation between Japan and China, and between South Korea and China, but direct air routes crossing North Korea, which are vital to connect South Korea, Northeast China, the Russian Far East, and Mongolia, are far from being realized. The nonexistence of air routes in the region could only be solved by cooperation among China, North Korea and other neighboring countries (See Map 7.1).

## **CONCLUSION**

As the center of gravity of the world's economy shifts to the Pacific Rim, and strengthened economic ties among nations in Northeast Asia remove various barriers which have inhibited capitalization of the opportunities, we expect important structural changes in respect of the existing flows of people, cargo and information, which will have a direct impact on transport patterns and the communication system. The restructuring of the transportation and communication systems in Northeast Asia will offer opportunities for its seaports and airports to emerge as a hub of the world's traffic. New transportation linkages will completely change the existing geographical pattern which have been a major factor in the planning and development of infrastructural areas.





### NOTES

1. Unless otherwise indicated, the map and data in this paper are mainly drawn from Drewry (1992, 1993) and Korea Maritime Institute.
2. In this paper, Northeast Asia is defined, based on transportation geography, to include North Korea and South Korea, Japan, China, the Russian Far East and Mongolia.

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