

DESIGNING A COOPERATIVE ECONOMIC REGION THROUGH MEGA-PROJECTS IN NORTHEAST ASIA

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Introduction

Despite a continuing interest in regional economic co-operation in Northeast Asia, political and security concerns loom large in the countries concerned with the future of Northeast Asia (NEA hereafter). The inseparability of political concerns from economic issues, however, suggests the political/ security approach alone may not provide a solution for the problems at hand, for example, the issues concerning the peace in the Korean peninsula and the territorial dispute between Russia and Japan over the northern islands. To achieve regional stability, both political negotiation and economic cooperation seem necessary. The spirit of a sharing community could enhance regional stability and hence lead to regional prosperity. Although non-optimism prevails in the region, there are recently some signs of hope for a brighter future. The summit in June 2000 between North and South Korean leaders and follow-on activities for the reconciliation and cooperation on the Korean peninsula provide an impetus for renewed efforts to pursue a peaceful coexistence and cooperative economic development in Northeast Asia.

Given the unsettled security issues and low confidence level between the nations in Northeast Asia, it is recommended to begin with functional

cooperation in sectors as trade, transportation, and energy. In particular, mega-scale infrastructure projects crossing national boundaries will contribute to building confidence and the reduction of tension among the nations and local institutions in the Northeast Asian region. These projects will also promote economic cooperation and integration in the region through the provision of physical and institutional foundation, which is essential for the formation of a formal economic region like NAFTA in later time. Specifically, two mega-projects, namely transportation and gas pipeline will be examined in this paper. The paper will briefly discuss the impacts of these mega-projects on economic growth, environment, and energy security in the countries of Northeast Asia. The paper will then discuss the implications of these projects on regional and urban development in Northeast Asia.

The Political Economy of Economic Cooperation in Northeast Asia

Types of Regional Economic Cooperation

Unlike the European Union and the North America Free Trade Agreement, Northeast Asia is beset with problems and difficulties arising from political, economic, and historical origins. Major obstacles for economic cooperation are: isolationist policy in North Korea, economic instability in the transitional economies of Russia, nationalism in all countries, incompatibility of economic systems (varying legal, social, and economic standards), interest divergence between the center and the locality, lack of capital and financial infrastructure, and lack of physical infrastructure.

Because of these obstacles, regional cooperation in NEA remains insignificant and fragmented. Conceptually, we can think of the following various types of regional cooperation:

- free trade agreement such as NAFTA and AFTA
- relatively free factor movements
- regional division of labor with capital flows and technology transfer
- region-wide project-based multilateral cooperation, e. g., Northeast Asian

natural gas pipeline network, trans-Northeast Asia transportation corridors

- bilateral cooperation on various subjects

Currently, the primary type of regional cooperation in NEA is bilateral. Obstacles mentioned above, in particular, uncertain political future of North Korea, economic instability in Russia, and nationalism in the most countries tend to prohibit multilateral cooperation and inhibit a full-scale bilateral economic cooperation. Initiating and leading multilateral cooperation is risky. It could bring, however, more rewards in tangible and intangible ways (this is similar to enterprises' investment in risky environment).

Considering the differences in development stages, in economic systems, and in the perspectives of regional cooperation, an integrated economic community such as European Union or a free trade area such as NAFTA is unlikely to emerge in NEA. Rather, the region has a potential for factor-movement based integration, primarily through private capital investment (cross-border labor migration is occurring in small numbers and it may become significant as cross-national barriers are lowered by necessity). This is already happening in China and to a lesser extent in the Russian Far East and Mongolia (much less in North Korea). South Korean and Japanese investment in China has been increasing together with the rapid increase in trade volumes between them and China. It must be noted that this process of economic interdependence is largely market-led. Industrial restructuring pressure in South Korea and Japan triggered by rising wages, currency revaluation, and generally rising costs of production has been the motive force behind this market-led economic interdependence. Additional factor, which is gaining more importance now and in the future, is China as a market. More investment will be made to exploit this potential in the future. In this line of reasoning, the Russian Far East (RFE), North Korea, and Mongolia do not present much potential for investment and trade opportunity for South Korea and Japan. In other words, the market-led economic interdependence is mainly focused on China and Southeast Asia not on developing Northeast Asia.

The principal reason for regional cooperation in NEA lies in the exploitation of underutilized economic potential of the region, in particular, the joint development, use, and management of natural resources. Because of lumpy investment requirement and necessary international cooperation to resolve complex inter-state relations in the region, the region's potential cannot be utilized by market forces alone. State-directed or state-assisted economic cooperation is essential for such potential to be realized (Akaha 1995). The example of Tumenjiang project, however, illustrates the difficulties involved in multilateral cooperation in an unstable environment. National interest, which is often phrased as "different dreams in the same bed," is another dampening factor for multilateral cooperation (Scalapino 1992).

Despite these obstacles, the state-assisted regional cooperation would provide an unprecedented opportunity for economic growth in the region by creating an enlarged pool of resources and thereby enhanced market potential of Northeast Asian countries. Northeast Asia, in particular, developing part of it, has the potential in natural resources exploitation such as gas, oil, and timber and in the industrial base construction for both developed and developing parts of NEA. In particular, the development and sharing of energy resource provides a strong rationale for multilateral cooperation in NEA since South Korea, Japan, and China need to secure alternative sources of their oil and gas supply. Despite coal, oil, and natural gas reserves, Northeast China (NEC) and Russian Far East (RFE) do not have an adequate supply of energy at the moment. Considering the projected demand for energy in China, South Korea, and Japan and furthermore the environmental impact of coal and oil burning, the joint development and use of natural gas in the RFE would be very attractive.

Transportation is another area, which not only unites Northeast Asian countries but also facilitates economic development and cooperation in Northeast Asia. Transport infrastructure in general provides stimulus to economic growth and further economic cooperation. To start this positive feedback process between transport infrastructure and economic growth, it is necessary for the national/ local governments in Northeast Asia to get involved in both national and transnational infrastructure projects. Especially

for the infrastructure projects at the transnational scale like Trans-European Network, cooperation among the national governments in consultation with local governments is important to maximize the returns of investment. An examination of demand for various types of infrastructure by the constituent regions of NEA is essential to support industrial growth and redistribution.

Political rationale for regional cooperation

The potential economic complementarities of Northeast Asia, which can sharply expand Northeast Asian economic integration, cannot be materialized unless political obstacles can be overcome. These obstacles pose an especially important barrier to dynamic economic ties in NEA for two reasons: (1) economic development in the region, developing part of NEA, is likely to be capital intensive--resources development such as natural gas, coal, nonferrous metal extraction require huge amounts of capital and infrastructure development also requires huge investments; and (2) the related feature of NEA development is its heavy reliance on public capital. The second aspect is in sharp contrast to Southeast Asia and even southern part of China where the relatively developed infrastructure and local commercial networks are available and hence attracting private capital. A strong political will is essential because of the second reason.

Although the end of the Cold War has muted the geopolitical conflicts of the past, two clear political-security dangers remain in NEA. They are deepening balance of power rivalry among the heavily armed nations of NEA and the related dangers of nuclear proliferation. Expanded economic cooperation is an urgent priority but it should proceed in a manner sensitive to this security context. Several of the major nations in NEA (in particular those who do not have deep economic stakes in regional interdependence) have the history of using balance of power tactics in their regional diplomacy. This tends to be destabilizing and frustrates stable regional interdependence. More conciliatory, long-term strategies, focusing on the establishment of broader regional economic and security frameworks, are needed.

The danger of nuclear proliferation is intermittently linked to a broader

economic problem that is insufficiently recognized--the acute energy deficiencies of the region. Despite the huge untapped energy reserves in Siberia, Sakhalin, and the Tarim Basin as well as offshore, there are no significant developed oil or gas fields in Japan or Korea. The RFE and North Korea are chronically short of fuel oil, and Manchuria, as the Daqing fields decline, is also vulnerable. Nuclear power is efficient and well suited to Northeast Asia in economic terms. However, the possibility of civilian nuclear power turning into nuclear threat also exists.

These political-security problems provide a rationale for interdependence and the need for political preconditions to it. Deeper economic interdependence within the region is expected to promote greater prosperity and create disincentives (on the part of those with weak economies but powerful militaries) to disrupt the prosperity in the region. Calder (1995), however, suggests that economic interdependence, although it will lead to enhanced technical capabilities or financial power which leverage military capabilities, could increase the prospects of destabilizing proliferation of balance of power rivalry, unless mechanisms to discourage these tendencies are created in advance.

Given the divergent political systems and levels of economic development within NEA, an open regionalism is preferred. This recognizes the power of market forces in promoting high-intensity intraregional trade and economic transfers and at the same time accepting a role for national governments in the provision of public goods such as transportation and gas pipeline indispensable for trade expansion and economic cooperation. This open regionalism implies a non-exclusion principle. For example, US participation with Japanese and South Korean counterparts in joint projects such as transport, infrastructure, and energy in developing NEA is suggested to be of particular value. Because US participation is expected to provide additional economic resources and political guarantee (Calder 1995).

Energy Problem and Environmental Issues in Northeast Asia

As we are experiencing at the moment, energy price fluctuations pose a threat to energy deficit countries of Northeast Asia, especially Japan and South Korea. Energy security is thus a great national concern for the countries in Northeast Asia, which encourages them to seek a stable and cost-effective supply of energy. Furthermore, the current energy consumption pattern dependent on fossil fuels such as coal and oil in Northeast Asia generates substantial amount of air pollution, endangering people's lives and destroying natural environment. How to reduce air pollution is a major challenge for the countries in the region. Environmental protection, in other words, is an integral part of energy policy. The high level of current and projected energy-related pollution in Northeast Asia makes the adoption of such a policy a matter of extreme urgency. However, the challenge will be particularly difficult for China because of a heavy dependence on coal.

Emissions from fossil fuel combustion are a major transboundary environmental issue in Northeast Asia. Airborne pollutants such as SO₂ and NO_x combine with moisture in the atmosphere causing rain, snow, mist, etc. to acidify. The acids can travel through winds for hundreds of miles and across borders. Damage from acid deposition in Northeast Asia is already considered significant. Areas in Japan and the Korean peninsula may be recipients of transboundary pollution originated from China. In addition, greenhouse gas emissions is serious in Northeast Asia. China, Japan, and Russia are three of the world's largest emitters. Carbon dioxide is the primary greenhouse gas associated with climate change. Increased use of coal and oil, which is very likely in the future in China, North Korea, and Mongolia, will contribute to the growth in carbon dioxide emission in Northeast Asia.

Recently, attention has turned to the potential of natural gas in response to Northeast Asia's need to diversify energy sources and environmental concerns into energy strategies (Whiting 1995, Ivanov 1999, Abe 2000). The large natural gas resources of Eastern Russia are a geographically close alternative. However, large markets are needed to justify investment in capital-intensive extraction and long distance pipelines.

Northeast Asia Energy and Transport Networks

Northeast Asia Natural Gas Pipeline

Given the rapidly rising demand for energy in China and the need for cheaper and secure supply of energy in Japan and South Korea, the joint development of vast reserves of natural gas in Eastern Russia would contribute to securing a source for stable supply. Since the natural gas is known to be the most efficient and least environmentally harmless, it would substantially reduce pollution in NEA. The major projects considered or conceived of are Sakhalin, Irkutsk, and Sakha. These projects, however, require big investments, political commitments, and close coordination among many actors--governments and private organizations within and outside the region. Considering the costs and difficulties involved in the alternative natural gas development projects in the Eastern and Far East Russia, Ivanov (1999) suggests a trans-Siberian gas pipeline linking Western Siberia with the Pacific coast. According to him, this pipeline could be faster to complete because of the existing infrastructure of the Trans-Siberian Railway would be utilized. The geological and permafrost conditions in the railway vicinity are also well known and that will save time and costs of an otherwise expensive investigatory stages. This project will also satisfy Russia's domestic development needs to a maximum extent because population and economic activities gravitate towards the railway. This long-term strategic plan could integrate and facilitate the north-south gas pipeline projects currently under discussion. The gas fields in the northern areas of Krasnoyarskiy, Irkutskaya, and Yakutia could be linked step by step to this transcontinental super-pipeline in the shortest possible way. For example, the super pipeline system could be connected to the pipeline from Sakhalin – Komsomolsk – Khabarovsk – Vladivostok with the extensions to China, Mongolia, the Korean peninsula, and Japan (Figure 1).

Figure 1. The National Gas Pipeline Network

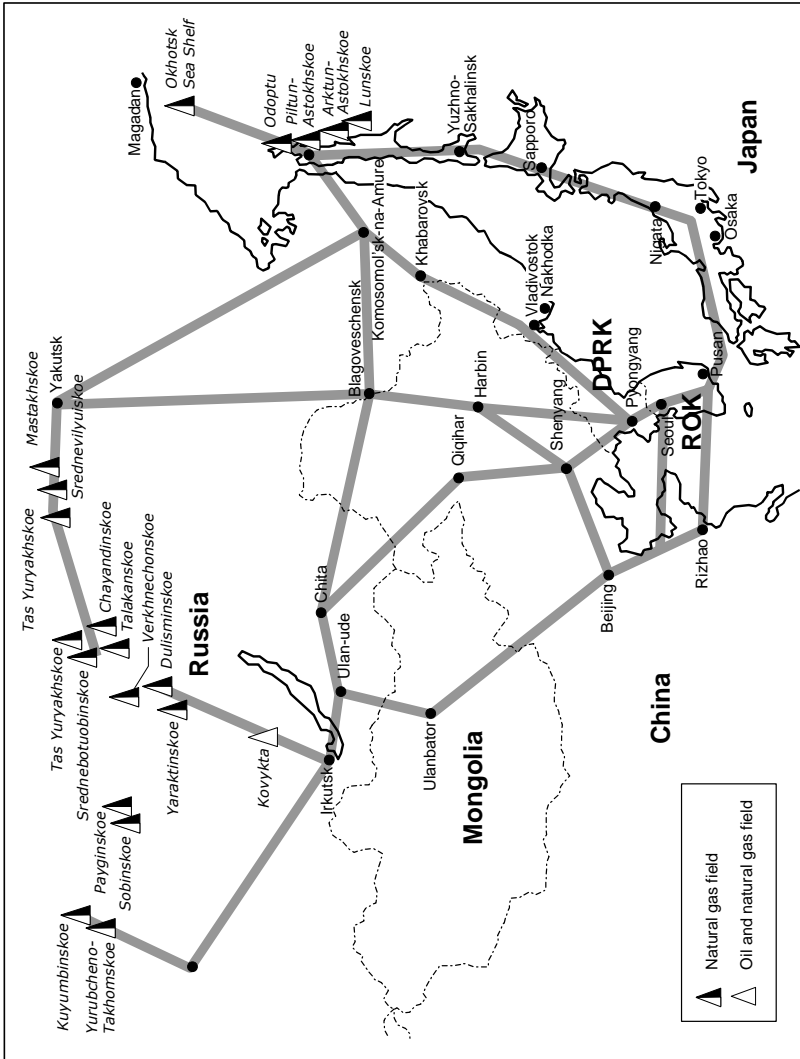


Figure 1. The National Gas Pipeline Network

This project with multiple stages of development offers a “multiple sources-multiple users” system for the production and transmission of natural gas in Eastern Russia. This pipeline network is, however, different from a system designed to simply supply resources from one nation to another. It is designed to provide a public asset for Northeast Asia, promoting better and cleaner energy policies within the region. As much as it is a public asset for Northeast Asia, cooperation and coordination among the concerned countries in Northeast Asia and the assistance of international lending agencies are essential to realize the idea.

Joint development of natural gas fields and delivering the gas by pipeline, however, involves several difficulties. Most of all these projects require vast sum of investment. They also require complex inter-state (even intra-state) negotiations over the route of gas pipelines, the share of output, and pricing. Furthermore, the guarantee over a stable and long-term supply of natural gas to importing countries must be provided.

Problems of Transport Infrastructure in NEA

There have been series of discussions and suggestions about infrastructure development in NEA (Jun 1994, Valencia 1994). The lack or inadequacy of transport infrastructure has been noted and various measures to develop transport infrastructure have been proposed. The close link between economic development and transport infrastructure has been emphasized in the regional development literature. Specifically, industrial development and its geographical distribution have direct ties with the availability of transportation infrastructure. Given the industrial structure in the continental part of NEA, infrastructure development has been closely linked with resource exploitation. For example, the resource-based economy of the RFE has been shaped by two major railways: Trans-Siberia and Baikal-Amur Mainline. Raw materials transportation between the RFE and the rest of the former Soviet Union was the priority for transportation system development. Similarly, two major trunk lines (Harbin-Dalian and Harbin-Suifenhe) in Northeast China have been closely linked with resource exploitation and

industrial development. Earlier Japanese investment in railroad development had a goal of transporting resources from Manchuria to Japan. The skeleton of transportation system in Korean peninsula (Shinuiju-Seoul-Pusan and Rajin-Seoul-Mokpo) was shaped during the Japanese colonial period and it was closely linked with resource exploitation of Manchuria and the southern part of the RFE. In brief, railways in NEA were developed to link port cities to inland resource frontiers, and few run east to west.

Resource-based industries are still the major pillar of regional economy of NEC, RFE, and North Korea. Without much processing, mineral resources and agricultural products are usually transported in bulk, either by rail or boat. Container goods traffic is a recent phenomenon in the continental part of NEA. As industrial structure is transformed toward more processing and as a consequence the commodity composition of trade changes, containerized traffic would become more prevalent within NEA. Traffic using continental connections through either trans-Siberian railway or trans-Manchuria railway is likely to be mainly containerized.

For both freight and passenger, rail is the main mode in NEA. But the density of rail networks measured by route-km per 1,000 square km area varies from 1.2 to 71.5 (Valencia 1994). Despite the marked reduction in the share of rail in all modes of transportation over the past decades, it still accounted for more than 50 percent of China's traffic (Valencia 1994). Rail has an even higher share in North Korea and the RFE. Even with some possible rationalization in the transport of natural resources and industrial products, rail traffic will continue to increase to meet demand.

Road transport development has been sluggish in NEA, especially for resource frontiers such as the RFE and NEC. Recently, however, road system investment in NEC has been increasing to support rail network. Road transport has become important for intra-regional development in NEC. Recently completed Shenyang-Dalian highway and Harbin-Shenyang connection under expansion are a good example. For both NEC and the RFE, highway system development will be required at the meso-scale as regional economies shift to a diversified industrial structure and more inter-city traffic is generated by increased manufacturing activities.

Transport Corridors in Northeast Asia

In addition to shortage of transport infrastructure, Northeast Asia faces problems of discontinuity in land transport. First, there is difference in gauge. The two Koreas and China have standard gauge, whereas Russia and Mongolia have wide gauge. Second, there are missing links: one between North and South Korea and the other between Ulanbaatar in Mongolia and Yirshi in China. Third, there are problems of technical nature. For example, there is no uniform standard about the strength of track and bridges, the height of tunnels, and so forth. Fourth, problems abound with regard to border passing, i. e., cumbersome customs clearance procedure, lack of transshipment facilities, and limited areas for tracks to allowed to enter (Jun 2000 and Mitsuhashi 2000).

Despite these region-wide problems, there are 8 transport corridors functioning or to be functioned in Northeast Asia (Figure 2). Although Trans-Siberian transport corridor functions as a route connecting Asia and Europe, container volume handled in the Port of Vostochiny amount to only 40,000 TEU. The Trans-China Rail beginning at the Port of Lianyungang is in operation. The Port of Dalian handles 500,000 TEU, while only 3% of which are brought into or out by rail. Containerization in the Tianjin Port, which connects the port to Beijing and Ulanbaatar, is low. The Chita-Harbin-Suifenhe route and the Changchun-Tumen route do not yet play a significant role as an international transport corridor.

As supported by ASEM summit in 1996, an integrated rail and road system will bring more benefits to the countries in Northeast Asia by facilitating freight and person flows. The Asian Land Transport Infrastructure Development (ALTID) Project includes three components: Asian Highway, Trans-Asian Railway, and Land Transport Facilitation Measure (Ahn 2000). Among these, Trans-Asian Railway would be the most important because it will enable to build an integrated railway system in Northeast Asia and therefore help resolve current bottlenecks in maritime transport and save time and money in freight transportation within Northeast Asia and between Northeast Asia and Europe.

Figure 2. Transport Corridors in Northeast Asia

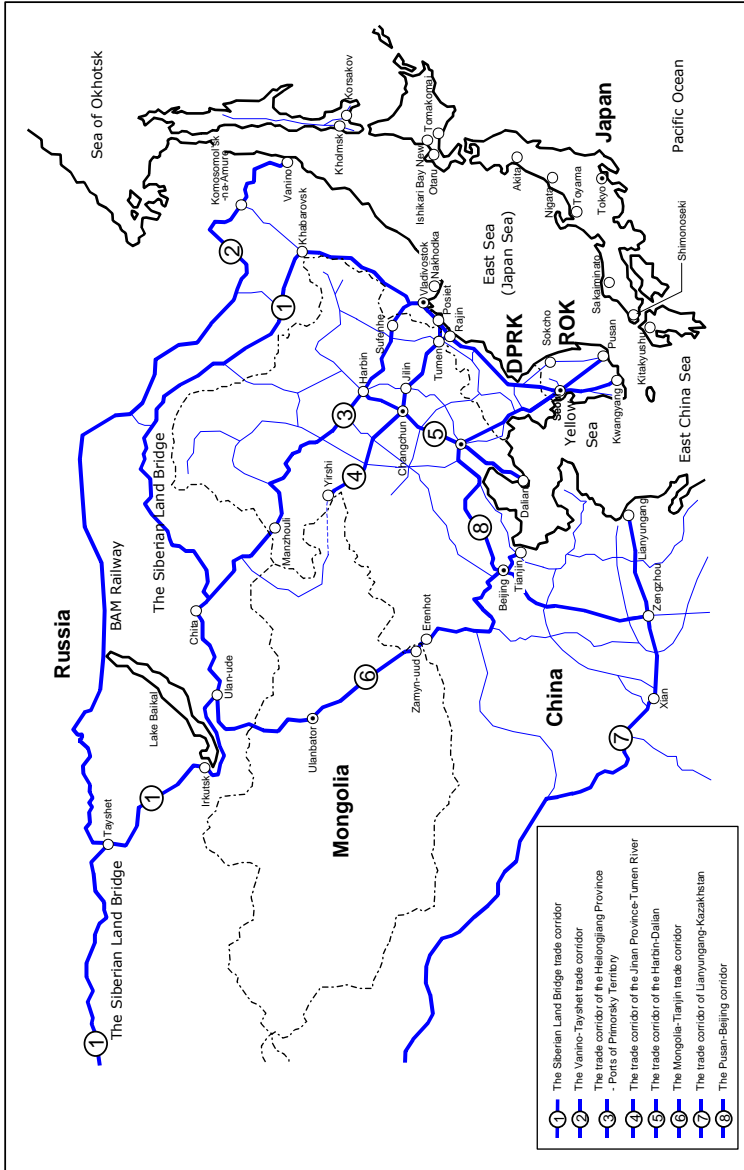


Figure 2. Transport Corridors in Northeast Asia

There was a plan by imperial Japan to have an integrated railway system in Northeast Asia in the 1940s (Rimmer 1994). The circular route was basically connecting Japan with Sakhalin, Far East Russia, Manchuria, and the Korean peninsula. Two additional routes, one from Harbin to Ulan-Ude and the other from Shenyang to China's East Coast via Tianjin, were planned to be connected with this circular route. Although in different circumstance now, there is a clearly felt need to build an integrated rail and road transport system in Northeast Asia. For example, China is planning to build a rail-ferry between Dalian and Yantai across the Bohai Sea. South Korea is also considering a highway linking major coastal cities in the Yellow Sea Rim.

In building an integrated railway network in Northeast Asia, ESCAP is considering 5 routes. They are:

- 1) Vostochiny to Europe using Trans-Siberian Rail
- 2) Lianyungang to Kazakhstan (Trans-China Railway)
- 3) Tianjin to Mongolia and TSR
- 4) Rajin in North Korea to Harbin to TSR
- 5) Pusan to Shenyang/ Harbin and TSR and Pusan to Votochiny via Rajin

Of course, two of the 8 transport corridors aforementioned, namely from Dalian to TSR via Harbin and Tumen to Yirshi via Changchun can also function as important routes. But these routes, which currently do not have further connection to TSR from Harbin or Yirshi are mainly used for intra-regional trade rather than trans-continental trade. The remaining issue, however, is how to connect Japan with the above Northeast Asian Railway Network. One possibility would be to build an undersea tunnel between Pusan and Fukuoka. But this option is costly and remains to be justified with sufficient demand. Another is to use RORO vessel or rail ferry to transport freight and person between Japan and other Northeast Asian countries.

Implications For Urban and Regional Development

I have alluded earlier the impacts of transport and natural gas network development on economic growth and environment. Although it requires a major study to analyze those impacts, we are sure that those two mega-projects will have positive impacts on economic growth and environment in Northeast Asia. In addition, transport and natural gas network development projects would have substantial impacts on urban and regional development at the national and international scale. Without doubt, they will promote on-going cross-border economic cooperation and hence the formation of cross-border economic regions. Moreover, they will accelerate the formation of development corridors in Northeast Asia.

Micro-scale cross-border cooperation has been taking place in the past decade, as a less obtrusive form of regional cooperation, through the pragmatic interests of separate communities and businesses. Actual steps far removed from central controls have been advancing from grassroots level. The most important and active are micro-level contacts elicited by border trade between the RFE and the NEC and the NEC and North Korea. Burgeoning cross-border trade at several points can become the driving force for a new regionalism. Localized spontaneous growth will continue to be a major form of cross-border regional development in NEA. This localized growth will be concentrated along the five open border cities in China. They are Manzhouli, Heihe, Suifenhe, Hunchun in the Sino-Russian border and Hunchun and Dandong along the Sino-North Korean border. Border trade will continue and small-scale economic cooperation such as building road and rail connections and joint development projects will be increasingly promoted for mutual benefits of concerned local areas. Because of their remote location and underdeveloped industrial bases in these open border cities, development impact will be largely local.

Northeast Asian transport and natural gas networks will undoubtedly strengthen existing growth corridors in Northeast Asia. The growth axis--Dalian-Harbin, which is already existent in skeleton, is believed to bring the greatest returns to NEC. Another transnational transport corridor,

Vladivostok to Manzhouli through Harbin will contribute to the growth of Heilongjiang Province in China. Heilongjiang is active in pursuing its central role in building up a major development axis. An additional lateral development axis starting from the triangle of Hunchun-Khasan-Sonbong and ending at possibly at Chita via Changchun. The Tumen Area Development is likely to pick up speed once a transnational transport corridor is established beginning from Rajin. Its impact will be largely not only within a small triangle composed of Hunchun-Khasan-Rajin/ Sonbong but a wider area of so-called the East Sea Rim (Japan Sea Rim).

With an enhanced trans-continental transport function of Trans-Siberian Rail, Vladivostok-Khabarovsk will develop into a growth axis in the future. The major natural gas line exporting to China, the Korean peninsula is likely to go through Khabarovsk-Vladivostok corridor, cities along this corridor will have an opportunity to grow if investment environment is improved simultaneously with the construction of the gas pipeline.

If the trans-Korea transport corridor is formed along the Pusan-Shinuijoo line and connected to Shenyang, it will help activate Sino-Korean trade and tourism. This corridor formation will certainly help the growth of cross-border region comprising Dandong and Shinuijoo. In a larger scale, the line can be easily linked to Shenyang and Beijing and thus enable transactions easier and cheaper between China and the Korean peninsula. Also, we can expect the rejuvenation of TSR if linked with Pusan and Kwangyang in South Korea. As a matter of fact, the Russian government is keen about connecting TSR with South Korean arterial railway system. Since North Korea is known to be interested in obtaining income from through traffic, the possibility of connection is bright.

The natural gas pipeline network is likely to reinforce the transport network. But the emphasis will be given more on North-South connections for export from Eastern Siberia. The two existing transport corridors, namely from Irkutsk to Blagoveschensk, from Ulan-Ude to Beijing, will be utilized, while new gas pipelines may have to be constructed along the corridors of Blagoveschensk to Pusan via Harbin and Khabarovsk to Pyongyang via Vladivostok. In principle, a minimum-cost approach, which utilize the

existing transport lines, is necessary for building the gas network.

As such, the natural gas network and transport networks in Northeast Asia will have significant impacts on urban and regional development. On the one hand, they may strengthen the position of the existing growth corridors such as Harbin-Dalian and Shenyang-Beijing. On the other hand, they will help build alternative growth corridors such as Manzhouli-Harbin-Vladivostok, Rajin-Hunchun-Changchun-Yirshi, Khabarovsk-Vladivostok, and Pusan-Shinuijoo-Shenyang. More important is, however, the international aspect of the two projects. They are likely to contribute to the formation of cross-border regions and international development corridors. Without presupposing an economically integrated area for NEA, they will nonetheless provide a foundation for a region building in Northeast Asia through concerted and cooperative efforts for the creation of transport and energy networks.

Conclusions

The main rationale for regional economic cooperation is argued to lie in the joint utilization of natural resources, human resources, and industrial bases in NEA. This pooled use of various resources provides an opportunity to reap the benefits of scale economies and an enlarged market. Economic growth in various parts and countries in NEA also renders a synergy effect for the region as a whole. Furthermore, deeper economic interdependence within the region is expected to promote prosperity and create incentives to keep the peace. Therefore, the essence of regional cooperation boils down to the mode of cooperation in the region. Making a free trade agreement is desirable but unlikely in the near future. I have rather suggested a formation of economic region based on mega-infrastructure projects, namely transport and energy networks. This is a departure from the currently predominant pattern of bilateral cooperation in NEA. How to proceed this multilateral cooperation? The economic cooperation committee in operation now with respect to the development of Tumenjiang area provides an example, which

can be expanded into a more substantial body to discuss the concerns of economic growth, energy security, and environment in NEA.

As has been repeatedly pointed out, system incompatibility, lack of confidence, and lack of investment capital constitute three major obstacles to economic cooperation in NEA. With regard to political will, which is essential for initiating the process of economic cooperation, in particular, carrying out the mega-projects discussed above, all the countries in the region except for North Korea seem to be committed to cooperation although their motives may not be the same. The issue is rather how to share benefits and costs (as indicated in the case of Tumenjiang development project). If participating countries can obtain more benefits through these mega-projects and they should pay more. More importantly, there should be an agreement not to use those transport and energy networks as a tool of threat against other countries.

As recent experiences of trade and investment between NEA countries suggest, confidence building has to start from action—investing in a factory or building a bridge. Abstract plans to build an economic region in NEA are needed but they will not help much in confidence building. The grounded approach, if complemented by state level agreement, will enable us overcome those obstacles eventually, thus paving the road for regional prosperity and environmental sustainability.

Considering the contingency of regional political changes, I propose here a gradual approach for regional development in general and transport and natural gas mega-projects in particular. For the immediate future, spontaneous trade and economic cooperation between the cities along the border should be encouraged and international assistance in infrastructure building at a small scale (e. g., a bridge between Heihe and Blagoveshchensk). In this respect, special economic zones are an effective mechanism at this stage of regional economic cooperation. In addition to the existing Hunchun-Rajin/ Sonbong-Khasan and Nakhodka, we may consider Dandong and Shinuiju as a strong possibility. Between China and Russia, Suifenhe--Grodekovo and Heihe--Blagoveshchensk in combination offer an opportunity for special economic zones. Cross-border railway and road connections can be

supported by international financial agencies or some special funds for Northeast Asian Infrastructure Development.

For expanded industrial cooperation, transportation linkages between regions of Northeast Asia have to be improved. In this respect, transport infrastructure improvement is very much needed to link up cities and regions. Heihe-Blagoveschensk can be easily connected with Beian and Svobodnyi. Suifenhe-Grodeko can be expanded to link between Mudanjiang and Ussuriisk. New lines of growth can be set up, for example, between Khabarovsk and Fuyuan, between Yanji and Chonjin, and between Fengcheng and Chongju.

International transport corridors are feasible when growth axes of North East Asia become mature. Candidates are Harbin-Dalian, Shenyang-Pyongyang, Harbin-Vladivostok, and Khabarovsk-Vladivostok. Among these, Harbin-Dalian is most likely in the early 21st century. The growth lines mentioned above are eventually to be connected with this Ha-Da axis. When Dalian is connected with Yantai by undersea tunnel, the Harbin-Dalian axis will become the major growth axis in NEA. By that time, international highways and high-speed railways connecting Pusan/ Seoul with Shenyang/ Beijing and Kwangyang/ Seoul (via Chongjin and Vladivostok) with Khabarovsk are possible.

The natural gas network to supply necessary energy for the industrial production and household consumption in NEA will be fully justified when countries in the region have sufficient level of confidence among themselves. To realize these mega-projects, both bilateral and multilateral assistance are necessary and government-level efforts are essential to supplement private initiatives. Some kind of multilateral organization to design and implement these projects are therefore required. Given the enormous amount of investment required to finance the infrastructure requirements of NEA, external long-term financing will be essential. Private direct investments are obviously an important source. Build-Operate-Transfer and Build-Own-Operate schemes, which have been used elsewhere, could be adapted to meet the region's requirements. However, private investments would not be sufficient to cover all the costs associated with the mega-projects. Bilateral

official assistance and multilateral international support are other sources to finance some projects, which carry commercial and political risks. Again, these sources all combined are considered to be far short of the region's required investments for infrastructure improvement to levels sufficient to support viable economic activity (Katz 1996). The idea of Northeast Asian Development Bank, which has been proposed by Northeast Asian Economic Forum, could be one mechanism to help support infrastructure building in the region.

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