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Economic Consequences of Rapprochement on the Korean Peninsula

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ABSTRACT

This paper is about the dire state of the North Korean economy explaining its causes and laying out its economic problems in the short and medium term. Then it goes on to explain the interests for both North and South to co-operate economically but which lacks an institutional framework for this. South Korean business interests in economic co-operation is laid out clearly. It then goes on to outline the areas where development and humanitarian assistance can come in in the short and medium terms. Next what foreign actors can do to assist North Korea. It outlines the fields where their contribution can come in. It ends with a conclusion which touches upon the sunshine policy with the following words :

“The Sunshine Policy proved that North Korea is not an exogenous entity, which is just given, but an endogenous object, which can be driven. The next step is to push North Korea further so that it may intensify its reforms and not turn back.”

At this point, support for the sunshine policy as the conclusion states is decreasing. An active engagement by Europe and the US should help the sunshine policy greatly.

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Economic Consequences of Rapprochement on the Korean Peninsula

Dr. Deok Ryong Yoon

I. Introduction

The Korean peninsula, where one may find the last remnants of the Cold War, is now changing rapidly. The engagement policy of the Kim Dae-jung government has encouraged North Korea's leader, Kim Jong-il, to come to the negotiating table. After the summit talks in Pyongyang in June 2000, both governments realized what the Korean people have long desired. Separated families have visited family members on the other side, and ministers and officials have engaged in meetings to improve relations between the South and North. All these political changes were motivated by economic reasons and will undoubtedly influence economic activities for the better on the Korean peninsula.

South Korea has moved to reduce the long-running tension with North Korea through increasing common economic interests. This strategy has accelerated since the implementation of the intensive engagement policy – so-called “Sunshine Policy.” The volume of inter-Korean trade reached US\$400 million for the first time in 2000. Both Koreas are planning diverse joint projects to facilitate long-term economic cooperation. However, the growing economic exchange driven by political initiatives still faces financial problems. Given its limited economic capacity, South Korea cannot shoulder all the financial burdens to pull North Korea out of the poverty trap. Financial resources at the initial stages will prove to be an immense problem. North Korea may access other possible financing sources in the medium term like Japanese compensation payments and support from the international financial organizations.

This paper deals with the economic influence of the rapprochement process on the Korean peninsula. To better understand the economic situation in North Korea, Chapter II looks into the economic problems currently facing that country. Chapter III describes the business interests of South Korea. Chapter IV explains the needs of North Korea for development and also emphasizes the importance of humanitarian aid. Chapter V views the possible involvement of other countries in North Korea's reform process, especially Europe and the U.S. Chapter VI presents conclusions.

II. The Economic Problems of North Korea in the Short to Medium Run

1. Understanding the Economic Downturn in North Korea

(1) Why did North Korea's economy start to decline?

North Korea suffered from negative economic growth for about ten years until 1998. It is puzzling why the North Korean economy has declined for such a long time

and whether economic growth in the last two years means a start of an upward economic turn. A formal analysis is needed to answer these questions. The traditional Solow model of economic growth explains that the production capacity in an economy is determined by the quantity of production factors and the technology that combines the production factors. With growing acknowledgement of the government's role, institutions and policy have become important factors in deciding the economic growth of a country. Barro & Sala-I-Martin (1995) introduced the government into the traditional Solow model of economic growth. This relation can be written as follows¹:

$$\text{Production Capacity} = \text{Technology (capital stock, labor, public goods)}$$

An economy's production decreases when capital stock is reduced and/or the quantity of labor decreases and/or technology are downgraded. Lack of infrastructure, inappropriate policy measures and an inefficient institutional framework can also cause negative economic growth.

What, then, is the main cause of North Korea's economic downturn? The process began with the decline of her capital stock. The main reason for capital decreases in North Korea was the collapse of the international cooperation network among socialist countries. The most severe shock came from the abrupt break of economic relations with the Soviet Union. The capital stock in North Korea decreased for the following reasons:

First, capital destruction through the increases of import prices. The destruction of the cooperative network among socialist countries abolished socialist friendly prices, which usually ranged between one-fourth to one-third of normal prices prevailing in the international market. Import prices rose abruptly as socialist countries demanded normal market prices. North Korea imported mainly important investment goods and necessary production materials and resources such as crude oil and coke. The three or fourfold rise in the prices of important production materials drastically raised the input value over the output value.² This had a detrimental effect on capital stock in North Korea, which intensively used cheap materials and resources from socialist countries. Because the capital-using import materials were employed mainly in the industrial sector, this capital destruction resulted in severe de-industrialization in North Korea, not unlike that in East European countries in the early 1990s.³

Second, decline of capital utilization through change of payment system. The

¹ See Barro & Sala-I-Martin (1995), p.153.

² The price of crude oil from China rose from \$60 per ton in 1989 to \$135 in 1992.

³ De-industrialization was not a result of the transformation process but a result of abrupt price increases. In particular, a rise in energy prices led to inefficient capital vintage (Falk, Raiser, Brauer, 1996).

payment system among the former socialist countries changed from a clearing system using transfer rubles to a payment system with hard currencies. North Korea was not prepared to pay for necessary import goods because of a traditional deficiency of hard currencies. This caused a decline of capital utilization, which had adverse effects on production through capital destruction.

Third, demand decline through market contraction. The cooperation network among socialist countries secured export markets by a clearing system. The breakdown of this cooperation network resulted in market contraction and a decrease in demand. The lower demand for exports constrained North Korea's capability to earn foreign currency, thereby affecting its imports -- that is, import capacity of important materials was reduced, which exacerbated the increased capital disemployment.

Fourth, capital pullout by the Soviet Union. The Soviet Union stopped providing loans in 1987. Moreover, it demanded the repayment of loans and pulled capital out off North Korea. Thus, in effect the main capital provider changed into a capital extractor.

All of these things severely reduced real capital volume in North Korea. The capital decrease initiated abrupt negative economic growth in the beginning of the 1990s.

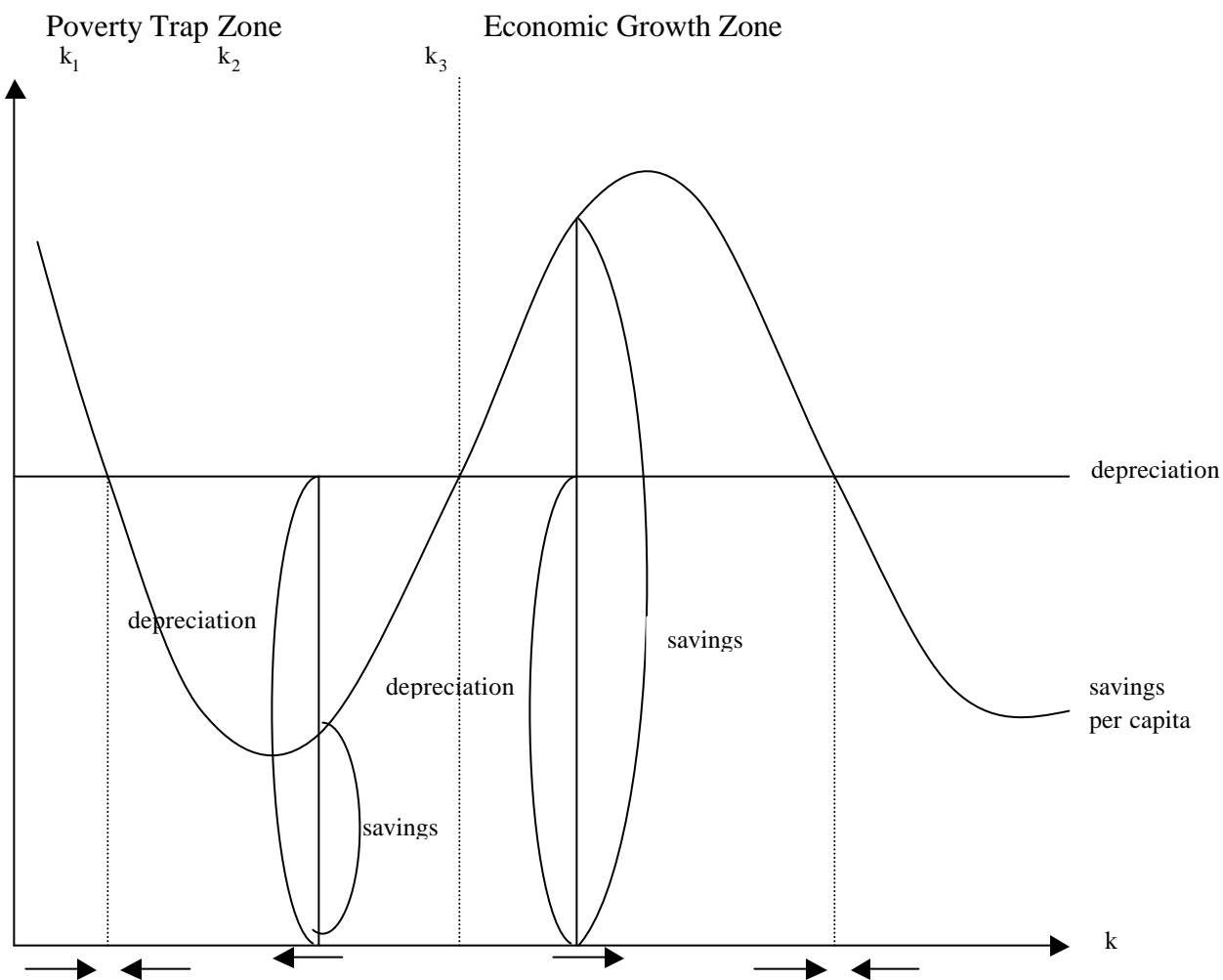
(2) Has North Korea's economy turned upward?

In 1999, North Korea realized positive economic growth after almost ten years of economic downturn. Then why did the North Korean economy continually decrease for almost ten years? The sustained negative economic growth in North Korea after the abrupt initial downfall can be explained also by the continuous decrease of capital stock. Capital has a limited lifetime because of natural decay and technical deterioration. Capital stock changes may be modeled as follows:

$$\begin{aligned} \text{Capital Stock Change} &= \text{Production} - \text{Consumption} - \text{Depreciation} \\ &= \text{Saving} - \text{Depreciation} \end{aligned}$$

This formula shows that production must be greater than the sum of depreciation and consumption if the national production is not to decrease. If domestic production is not great enough to cover depreciation and consumption, foreign capital should flow in to compensate for the capital deficiency. Otherwise, capital volume will decline and so too will domestic production.

Figure 1. Poverty Trap and Possible Equilibria



The present severe famine situation reveals that North Korea's production can not even cover her basic consumption needs, which means that capital has diminished by the volume of depreciation every year. The diminishing capital stock is the main reason for continuous negative economic growth in North Korea. Her economic situation seems to fit into what has been called the "poverty trap"⁴ The supply of domestic and foreign savings is so low that, as shown in Figure 1, the depreciation of physical stock was not replaced. In fact, GDP per capita fell to such a low value that soon North Korea reached a point where further capital decline was impossible. At this point, savings eventually become greater than k_2 .

North Korea's economic growth in 1999, and possibly in 2000, was boosted by

external capital inflow, especially from South Korea. Hyundai Group of South Korea invested over \$200 million in the Kumgang Mountain tour project in 1999, and it intends to invest a further \$150 million yearly.⁵ Furthermore, China and Russia increased economic assistance in 1999 so as not to lose their influence on North Korea. Humanitarian assistance from the U.S. and other countries increased as well. All of these contributed to the economic growth of North Korea in the last two years. North Korea, however, does not have a large enough production capacity to satisfy domestic consumption and to compensate for capital depreciation. This suggests that the recent positive economic growth in North Korea may halt at any time, in particular if external capital inflows cease.

2. Economic Problems of North Korea in the Short and Medium Run

(1) Economic problems in the short run

Food shortage is the most pressing economic problem in North Korea. According to reports by international aid organizations, the number of starving people in the 1990s was estimated to be between 300,000 and 2 million, being most serious between 1994 and 1996. The severe food shortages resulted from consecutive floods and droughts, shortages of fertilizer and oil, as well as the small amount of arable land (only 18% of North Korea's total area). Even though the food situation has improved through outside help, North Korea still reported a 1.5-million-ton grain shortage on the average every year. North Korea is reliant on imported oil to generate fuels and fertilizer. Oil imports have been squeezed by foreign exchange shortages and by the reduction in subsidized supplies from Russia and China.

Secondly, North Korea is suffering under a severe shortage of electricity. Electricity is mainly generated using coal and hydropower. North Korea's installed generating capacity was estimated at 7.14 million kilowatts in 1990, with 60 percent (4.29 million kilowatts) from hydropower and the remainder from thermal sources.⁶ Electricity generation has been hampered by difficulties in extracting the increasingly inaccessible and low quality domestic coal reserves. Beyond the problem of lack of energy inputs, the power grid (which has been largely placed underground for security purposes) is said to suffer from extraordinarily large transmission losses.

⁴ See Barro and Sala-i-Martin (1995), p.49-52.

⁵ The value of this capital injection is over 20% of North Korea's whole export volume. The export volume of North Korea in 1999 was just \$2 billion. Export volume reached just \$560 million. See The Bank of Korea (2001).

⁶ See "North Korea - A Country Study," on the website of the U.S. Library of Congress:

Thirdly, North Korea needs new production facilities. Its industrial equipment is out of date; most facilities were established with technology from the Soviet Union immediately after the Korean War and some are even from the Japanese colonial period. The use of these outdated production facilities was sustained because North Korea was dependent on subsidized production materials from the old socialist countries. North Korean specialists believe that at most only 30% of the industrial equipment would be able to run without subsidization. This implies that North Korea cannot produce enough to cover necessary consumption without new investment in production capacity.

Fourth, North Korea needs hard currency to run the economy. Any viable production facility cannot be put into production if North Korea cannot provide the necessary materials on account of the shortage of hard currency. The necessary repair components are also important, which have been declining and therefore adversely affecting the production capacity. However, prospects for North Korea to obtain hard currency remain bleak.

(2) Economic problems in the medium run

North Korea has much to do in order to develop its economy in the medium run. Important tasks are listed below.

First, infrastructure should be constructed as soon as possible. The transport and communication systems are outdated and in poor condition. North Korea uses the railroad as its main mode of transportation. Most of the railroads have just one lane that are usually very old, limiting the train speed to under 30 kilometers per hour. On the other hand, many harbors cannot handle containers over 20 feet. The telephone system is manually operated and has very limited network capacity. The poor infrastructure creates bottlenecks and lowers the productivity capacity in North Korea. Without improvements to its infrastructure, economic development will be almost impossible.

Second, the transformation of the economic system is indispensable for North Korea's economic development. A new system that contains more characteristics of a market economy is required. North Korea has, however, two restrictions. One is the incompatibility of a market economy with the authoritarian political system. The other is the guarantee of reform success. North Korea continues to maintain its authoritarian political system. This rigid system does not allow for any political risk -- that is, the authoritarian system will not take the risk of reform failure. However, it is difficult to imagine that the North Korean situation may further deteriorate -- the people already live at a very low level. However, more sacrifice would provoke the resistance of the common

people, even if the system reform demanded just normal adjustment costs.

Third, North Korea should build up a new international network. After the destruction of her international network with the old socialist countries, North Korea was unable to establish a new network because of political and economic restrictions by the U.S. However, it is important to note that North Korea cannot survive without international cooperation because its economy is not self-sufficient. The country needs to interact with international markets as well.

III. South Korea's Business Interests in North Korea and the Developing Relationship

1. General Interests

Inter-Korean economic exchange is regarded as an important instrument that will help transform the relationship between the Koreas from one of hostility to one of cooperation. With increasing economic gains each will become partners rather than foes. Economic cooperation, therefore, can be a most practical way to build confidence between the two sides because this cooperation will enable them to pursue common interests for mutual benefit. This cooperation, if expanded, will help the two sides to form a national economic community. Since 1988, after Seoul allowed economic interaction with North Korea, the two-way trade volume between the South and North has reached over \$287 million in 1995. The South has emerged as the North's third largest trade partner, next to China and Japan. Economic exchange between the two countries has had its ups and downs. Problems mainly resulted from the lack of an important institutional framework for business such as investment guarantees, a direct payment system, contracts for dispute resolution, and so on. However, during this period, a paradigm change did not occur because economic profits did not grow large enough. This stalemate demanded a breakthrough through governmental dialogue.

The summit talks last June opened up the rapprochement process between the two governments. Both sides agreed to establish a much-needed institutional framework for economic cooperation. This institutional framework will raise market transparency in North Korea. Furthermore, political stability is expected to reduce political risk as well as the combined risk premium. All these changes should contribute to the increase of economic exchange and peaceful cooperation.

2. Direct Business Interests

First, South Korea can use the relatively cheap labor force in North Korea. North Korea demands a minimum wage level of \$74 per worker in the special economic area and \$100 otherwise. Additionally, investors must pay \$20-\$30 per worker as a social insurance premium. The resulting minimum wage level then reaches around \$100 to \$130.⁷ However, the wage level in North Korea is much higher than that of Vietnam or

⁷ Cited from website of the Korea Trade-Investment Agency (KOTRA).<http://www.kotra.or.kr/nk/>

China, other Asian countries in process of reform. The average wage level in Vietnam is no more than half of North Korea's. Also, China does not demand such high wages from foreign investors and has even removed much of its system's inefficiency. Acknowledging this problem, North Korea provided investors with another way to use its labor at a cheaper wage level, namely "processing on contract." This is another form of investment in which investors pay the wage on the basis of products, not workers or working hours. The investors bring the production facilities and all the materials needed to produce into North Korea. The workers produce goods using the delivered materials and machines for a production fee. The fee for one piece of product is differentiated according to the type of good. In this system, the average level of wage per worker is under \$50 per month. This processing on contract has grown continuously and is now the main type of economic exchange between the South and North.

Second, South Korea can use the relatively abundant natural resources in North Korea. North Korea has been famous for iron and metal products. The country has abundant deposits of iron, coal, magnesite, lead, zinc, tungsten, mercury, gold and silver. There are even reports of possible oil deposits in North Korea. It would be convenient and relatively cheap for South Korea to import raw materials from the North. Third, South Korea can make use of North Korea as a transit point to other Asian countries and Europe. Even though South Korea belongs to the Asian continent, it has not been able to reach her neighbors by land, which has the potential to reduce transport costs and vitalize economic activity with other countries, especially China and Russia. For example, China is increasingly becoming an important business partner for South Korea with its increasing purchasing power. Also, Russia is providing new business capacity; for instance with the Siberian development project.

Fourth, South Korean investors want to grab a piece of the future market in North Korea. South Koreans believe that the South and North will be united, at least economically, in the near future. Investment now costs much less than it will in the future. Early investment will make it possible to find optimal location and develop good quality labor ahead of other competitors.

Fifth, the domestic market is more or less saturated in South Korea and competition in the international market is becoming more intense. North Korea, therefore, may provide new room for economic growth. Although North Korea does not have enough purchasing power, the natural resources, cheap labor, and new link to the Asian continent can be a valuable substitute for money. The possible joint Siberian natural gas development project for is an example of the potential for mutual economic benefit.

Sixth, North Korea may function as a supporting region for the South Korean economy in a similar manner as Shenzhen for Hong Kong. North Korea is like a vacant field which is ready to accept any investment. Investors can shape newly the industrial landscape. A complementary relation between the South and North could be established through new investments. According to Choi (2000), the new competitive sectors were built by investment from the South in the 1990s. The planned industrial complex in Kaeseong is an important example.

IV. Development and Humanitarian Assistance Needs in the

Short to Medium Run

1. Short-Run Development Needs

Electricity: The shortage of electricity limits economic development in North Korea. Even though the generating capacity of the North is estimated to 6.3 million kilowatts, the real generating rate is just 26.2%.⁸ Supply covers just 40-50% of demand. In addition to the shortage of electricity, the low quality of electricity causes a high rate of poor products. The North Korean government has requested South Korea supply 500,000 kilowatts of electricity at the fourth ministerial meeting in Pyongyang last December. This support should take place at the very beginning of the development process because the shortage of electricity creates bottlenecks in all other fields. South Korea is considering three steps to increase electricity production in the North. As the first step, the South can help repair and restructure present power plants in the North. Secondly, the South can deliver electricity to North Korea directly. Thirdly, the South can support the construction of power plants in the North.

Supplying raw materials and oil: North Korea cannot fully utilize existing production facilities because it cannot provide the factories with necessary materials due to the lack of hard currency. The barter system or clearing system could be helpful for early economic recovery. Both Koreas agreed to establish a clearing system for the payments between themselves.

North Korea suffers from a shortage of energy. It is reliant on imported oil to generate fuels and fertilizer for use in transportation and agriculture. Electricity is mainly generated using coal and hydropower, which has been hampered by difficulties in extracting increasingly inaccessible and low quality domestic coal reserves. Beyond this problem, the power grid (largely underground for security purposes) is said to suffer from extraordinarily large transmission losses. Lack of oil brought many machines and vehicles to a standstill. Decaying agricultural machinery can be seen in the fields.

Capital reconstruction: North Korea's capital stock decreased to one-third of the level in 1990, implying that even the full utilization of production equipment cannot guarantee production enough to cover total consumption demand. Rapid re-capitalization is needed to establish a base for further development.

Aid to the agricultural sector: Under current conditions, North Korea is running a structural food deficit of around 2 million tons on average every year. For the last five years, this gap has mainly been closed through the provision of international assistance. The North's agricultural sector is suffering from a shortage of fertilizer and the bulk of the work has to be done without agricultural machinery because of the oil shortage.

2. Development Needs in the Medium Run

Economic reform: North Korea maintains still a rigid socialist economic system. According to Gregory and Stuart (1985), a socialist system is only two-thirds as

⁸ See the interview with Tong-Il Ju, the Vice-Minister of the Ministry for Coal and Power Industries, in The Korea Economic Daily, June 2, 2000.

efficient as a capitalist market economy.⁹ This suggests that North Korean capital productivity is lower than that of market economies with similar production factors and technology. Inefficiency of the state prevents external capital flowing into North Korea. It goes without saying that the North Korean economy is in crisis. As current policies prove inadequate, policymakers may conclude that the status quo is unsustainable if there is no fundamental change, forcing them to confront the issue of whether and how to accelerate and deepen the economic reforms. However, North Korea cannot take the risk of being politically destabilized. If the economy gets worse, it would make the regime unstable, too. North Korea would then have to choose reform to stabilize its regime. In the reform process there should be liberalizing and marketizing, which the authoritarian regime would find difficult to accept. It is highly likely, therefore, that North Korea will try to minimize the scale of reform and to muddle through without taking the risk of intensive reform.

Development strategy: To get out of the economic crisis, North Korea should combine the reform strategy of China and the state leading economic growth model initiated by Park Chung Hee, ex-President of South Korea. China has shown a viable way to reform and the Park's strategy has shown the possible compatibility of a authoritarian political regime and economic growth. To prevent political instability, success should be guaranteed and further economic recession should be avoided at the very least.

Infrastructure: To accelerate economic development, the North must improve her infrastructure first. If political problems are aside, the fundamental problem for economic development in the North is inducing outside investment. Escape from the poverty trap presupposes capital inflows. Direct investment generally flows to the location where it may get the greatest reward. North Korea has some problems meeting investment conditions because of poor infrastructure. According to a survey by the Federation of Korean Industries (FKI), the most important problem besides the political problem is infrastructure. The energy problem and transportation costs especially were regarded as the greatest hindrances to investment.¹⁰

3. Humanitarian Assistance Needs

Food aid: As has been mentioned, food shortage is the most urgent problem. After two relatively stable agricultural years in 1998 and 1999, which saw moderate recovery in domestic food production following earlier disasters in 1995-1997, food production in 2000 again decreased. This was due to a combination of drought and the cumulative effects of underlying problems in agriculture, which continue to constrain tightly production. The lack of electricity and fuel has been the most important constraint, greatly hindering irrigation and water delivery. As a result of these factors, there has been a sizeable reduction in rice and maize productivity and production in 2000. North Korea as reported experienced its worst drought in 82 years and food shortages are likely to

⁹ This is the result of the empirical analysis performed by Gregory and Stuart, who compared the productivity growth between the GDR and FRG in the period from 1960 to 1981. See Gregory and Stuart (1985), p. 528.

¹⁰ See FKI (2000).

peak this year.¹¹ The World Food Program (WFP) projects that 2001 will be the most difficult year for the North in terms of food security.

According to the estimation of the WFP, overall domestic grain availability in cereal equivalent for the next marketing year is forecast at 2.92 million tons. Against this, grain demand for food and other utilization needs for 2000/01 are estimated at 4.79 million tons. This leaves an import requirement of around 1.87 million tons. Commercial imports are anticipated to cover 200,000 tons and 500,000 tons more are expected as bilateral concessionary imports. Taking this into account, the outstanding import requirement is estimated at 1.17 million tons, with which the country still needs assistance to meet minimum food needs.

The overall import requirement is the largest since 1997, although Japan and South Korea have each already pledged to provide 500,000 tons of food aid. Without these substantial contributions, there is little doubt that the overall food supply situation over the next year would have been extremely serious. This explains why food aid will continue to play a major role in ensuring food security in the short run while the prospects in the longer term will depend on North Korea's ability to rehabilitate agriculture. In this regard the country needs continued assistance from the international community to restore domestic production of its major crops to meet needs

Medical aid: Almost all medical facilities are suffering from a lack of essential drugs like antibiotics. Hospitals order patients or their families to bring the necessary medicines and patients buy them with at high cost on the farmers market. Some people even go to China to get the necessary drugs for their family members. Even basic medicines are hardly available in hospitals. For example, some operations are performed without anesthesia. Because of malnutrition, more and more people are apt to become victims of epidemics. Cholera and tuberculosis, for instance, have prevailed throughout the country, causing many deaths in the 1990s. Epidemics have spread more rapidly with the increasing number of people roaming in search of food. Medical aid should begin with the support of diagnostic devices and drugs. The support for anti-epidemic measures is needed too.

V. Possible Involvement of Non-Asian Countries, including the U.S. and the European Union.

1. Infrastructure

There are many tasks in building North Korea's infrastructure like renewing the railway system, establishing a telecommunication network, linking the roads, expanding harbor capacity, constructing power plants and so on.

Railway: Both Koreas have agreed to reconnect the cross-border railway, which is part of the Kyongui Line between Seoul and Shinuiju. This line can link both Koreas with China and Russia, as well as some European countries. When the Kyongui Line is completed, the government envisions launching new land transportation routes for Korean exports to China, Russia and Europe. Japan might be connected to this route via

¹¹ See Chosun Ilbo (May 31, 2001).

the Kyongbu Line. The two Koreas agreed to complete the reconnection of the 20-kilometer rail section across the 4-kilometer-wide demilitarized zone by the end of September this year. Technical assistance and consultation among related countries are needed for the possible construction of extensive Northeast Asian transportation networks.

The experiences of European countries would be of much help in securing interchangeability of transportation network systems between South and North Korea in the process of reconnecting the severed rail link. Changing the Kyongui Line into a two-track system is necessary if it is to be used as the main method of transport. Given North Korea's resources and economic size, the introduction of foreign funds is recommended. If Europe participates in the railway construction, it can use this railway to reach Korea and Japan. It is plausible that the interest of the U.S. would be relatively lower than European countries because it is not linked to this railway directly.

Telecommunication: The current state of the telecommunication services in North Korea is reportedly similar to conditions prevalent in the South in the mid-1970s. The telephone penetration rate in North Korea in 1998 stood at about 4.9%. North Korea has about 1.1 million telephone lines.¹² Local long distance phone services are served by about 700 exchanges, most of which are manually operated, although exchanges in Pyongyang and some cities were automated by the end of 1997. Investments are being made toward laying fiber optic cable to modernize the network. The effort has been underway since August 1990 when the United Nations Development Program (UNDP) and the North Korean government agreed on the development of fiber optics. Major cities are now reportedly connected by fiber optic cables. Fixed line, wireless and satellite communications serve the country's international phone service. It is currently possible to access international direct dial service to 170 foreign cities from Pyongyang. Mobile telecom services are very limited, and used only for military purposes. However, there is now a mobile phone and paging service in the Rajin-Sunbong free trade zone as well as in the Kumgang Mountain area.

The North Korean leader, Kim Jong-il, is ardent to introduce new technology, especially in the IT industry. In fact, the government set up in 1995 an information and technology (IT) research complex called the Eunjung Zone. It established computer technology universities in Pyongyang and Hamheung, and Kim is reported to have ordered the formation of a "Taedong IT Valley." The effort to precede IT industry is based on an industrial policy which aims to leap from a low state of technology directly to high-tech industry.

The United States leads in investment in telecommunications in North Korea. AT&T has been servicing calls between North Korea and the United States since 1995. The U.S. firm Startech provides a voice over Internet protocol (VoIP) service. Europe would have better chance in the mobile phone sector because its system is more prevalent in Asia. North Korea has great interest in wireless networks due to its mountainous landscape. ASEM could be a possible supporter according to the decision to facilitate the Trans-Eurasia high-speed telecom network if the North joins that body.

¹² See "The World Telecommunication Report," by the International Telecommunications Union (1998).

Construction of power plants: Seoul and Pyongyang have been in negotiations since late last month over the North's request for 500,000 kilowatts of electricity. The transfer of electricity from the South to the North is just a temporary solution to the electricity shortage. Plants should be repaired and newly constructed. In the electricity sector, Europe has a better chance. The North signed a contract for a "electric machinery production and modernizing electricity network" with the ABB Group on November 24, 2000. North Korea has similar electrical system to Germany's. Seoul wishes to cooperate with Germany in the repairing of North Korean power plants. The electricity problem stands as one of North Korea's most important policy tasks because Pyongyang acknowledges that the shortage of electricity creates bottlenecks in every field.

2. Technical Assistance

Pyongyang's New Year message in the form of a joint editorial this year representing ruling party, military and youth groups cited the development of up-to-date technologies and the building of infrastructure as key tasks in economic reconstruction. Pyongyang knows it is necessary to import new technology to increase productivity. With regards to the development stage, perhaps western countries do not have much to transfer in terms of production technology to the North. This implies that the possibility of direct cooperation is limited. In this case, joint investment with South Korean producers could expand the North's cooperation capacity. The North only has strength in the design and production of fine machinery essential for missile technology.

3. Support Reform Measures

New technologies and new capital stock do not guarantee a competitive position if the North chooses to remain a socialist command economy. It should by now have acknowledged the necessity of transformation. The problem might be that the political leaders cannot be certain of success because there have been many countries which have experienced many difficulties following their decision to transform. Nevertheless, North Korea should be pondering the speed and sequencing of reform measures and not about whether it should undertake reform measures or not. It will be of great help if developed countries show the way to successful reform. Some countries like the U.S. and Australia have begun to guide North Korean officials, although in limited numbers and sectors. Hopefully, this will encourage the North to take reform measures on a greater scale.

4. International Development Assistance

As we have mentioned, a main problem of the North is, in the short term, the shortage of capital. Without external financing, economic development is hardly possible. European countries and the U.S. can provide North Korea with the much-needed aid to modernize its capital stock, to construct infrastructure and to import new technologies. There is no possibility of the North financing itself because it finds itself in the poverty trap. If financing is tied to some conditions for North Korea to adopt an open door policy and reform, then Europe and the U.S. can influence the reform process.

5. Humanitarian Aid

Development policy cannot bring results in a short time. If humanitarian aid ceases in the process of economic development, the development policy cannot be carried properly and thoroughly. Financing for economic development and humanitarian aid must happen simultaneously, even though the burden is greater. Some Eastern European countries had to change their reform course because this aspect was neglected. Humanitarian aid is not less important than development assistance.

6. Other Areas

The Japanese compensation for colonial and wartime activities is a possible source of financing of the economic recovery of North Korea upon the restoration of normal diplomatic relation between the North Korea and Japan. The expected level of compensation ranges from US\$8 to 20 billion if compared to the level of payment to South Korea in 1965. This source of capital can be invested at first in the construction of infrastructure. However, the linkage effect and income effect will expand the size of the economy. Japanese compensation will also give Europe and the U.S. the chance to make profits.

There are many other sources for active investment. European countries as well as the U.S. should engage into the development of natural resources if they are certain to make a profit in a short time. The transport network, which would combine East Asia and Europe, would expand the scale and variety of economic activities. The possibility of shaping a new industrial landscape is alluring, as is the potential to use North Korea as an active and direct link to the Chinese market. The possible project for the development of Siberian gas fields would provide further opportunities to invest in East Asia.

VI. Conclusion

North Korea has fallen into a poverty trap, which cause the country to become poorer and poorer. There is no way to escape from the poverty trap other than with help from other countries - namely through external investment and financing. North Korea has decided to open itself, although cautiously, at least to introduce necessary investment. It has acknowledged that the most favorable partner would be South Korea because of many failed attempts to induce investment in the past.

South Korea is intensifying economic relations with North Korea in order to improve political and economic security. In the past, the North would not accept the South as a partner for dialogue. South Korea's active engagement through providing economic incentives has changed North Korea's policy. The rapprochement on the Korean peninsula was realized in the form of summit talks.

The Sunshine Policy proved that North Korea is not an exogenous entity, which is just given, but an endogenous object, which can be driven. The next step is to push North Korea further so that it may intensify its reforms and not turn back.

The problem that must be solved for this policy to proceed is financing. North Korea urgently needs investment and humanitarian aid, at least in the short term to stay on the road of reform. Even though South Korea initiated the rapprochement process, it has difficulties meeting North Korea's financial needs because its economic power has shrunk after the Asian economic crisis of 1997. To make things worse, the political support of South Koreans for the Sunshine Policy is decreasing due to ideological dispute. Japan, a potential financing source, also has problems to solve with North Korea before the establishment of diplomatic relations. An active engagement on the part of Europe and the U.S. should help the Sunshine Policy greatly. North Korea has, however, experienced problems in improving relations with the U.S.; the rapprochement process between the two Koreas was brought to a halt when Bush took office.

Under the present circumstances, the EU is the most probable financing source for North Korea because there are no acute political problems to hinder the diplomatic relations between them. The EU does not have to pay all the financing needs, but it would be enough if the EU maintains North Korea on its path toward an open door policy. In a poverty trap, every small amount of financing has great marginal utility and so is greatly appreciated.

The rewards will be great if North Korea joins international society. Increased cooperation with North Korea will provide new opportunities to make profits not only for South Korea but also for Europe, the U.S. and other countries.

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Table 1. Business Trade between South and North Korea
(Unit: \$1,000)

Year	Business Trade				Total	Budget of business trade
	Exports		Imports			
	Commercial trade	Processing on contract	Commercial trade	Processing on contract		
89	69	0	18,655	0	18,724	? 18,586
90	1,188	0	12,278	0	13,466	? 11,090
91	5,547	0	105,719	0	111,266	? 100,172
92	10,363	200	162,225	638	173,426	? 152,300

94								
95		217	10,778			10,995		10,995
96		1,473	12,782			14,255		14,255
97	17,842	8,398	29,019			55,250	2,788	58,048
98	3,954	15,628	19,819	37,551	1,197	78,149	105	78,254
99	14,434	43,426	39,512	40,575	6,332	144,279	121	144,400
Total	36,235	69,142	111,910	78,126	7,529	302,942	3,014	305,942