

The AREP Program and Inter-Korean Agricultural Cooperation

Kim Young-Hoon

AGRICULTURAL SITUATION IN NORTH KOREA

Supply and Demand

North Korea has suffered widespread food shortages as a result of consecutive natural disasters and the country's serious economic difficulties. The government managed to maintain production at the 4 million-ton level up until 1995, but that dropped sharply below the 3 million ton level in the next year. At that point, the food shortage reached the crisis stage. Then in 1998, the food production volume recovered to 3.4 million tons in 1998, but began to decline again afterwards.

As a temporary measure to maintain its public distribution system (PDS), the North reduced the individual food ration, and as a result, the domestic food requirement decreased to an estimated 4.79 million tons in 2001, a 20 percent drop compared to the 6 million tons required in 1996. Despite the decrease in food distribution, there is a 1.3-2 million ton deficit of grain every year. To make matters worse, North Korea is unable to purchase the needed food abroad, and this means

<Table 1> Food Needs and Shortfalls in North Korea

(Unit: Thousand tons)

	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01
Domestic Supply	4,077	2,995	2,663	3,481	3,420	2,573
Production	4,077	2,837	2,663	3,481	3,420	2,573
Inflow	N/A	158	N/A	N/A	N/A	N/A
Need	5,988	5,359	4,614	4,835	4,751	4,769
Human demand	3,688	3,798	3,874	3,925	3,814	3,871
Animal feed	1,400	600	300	300	300	300
Others	900	961	440	610	637	598
Shortfalls	1,911	2,364	1,951	1,354	1,331	2,196
Commercial imports	700	500	700	300	210	100
Food aid	630	660	760	840	586	1,532
Absolute shortfalls	581	1,204	491	214	555	564

Source: Statistics here are based on World Food Programme, "Full Report of the Evaluation of DPRK EMOPs 5959.00 and 5959.01," (September 2000), and modified and revised through various sources.

that it must continue to rely on external assistance for the bulk of the food needed. While it still depends on the annual domestic crop yield, it cannot feed the nation, with the shortage standing at more than 500,000 tons per year.

Causes of Low Agricultural Production

North Korea made continuous efforts to overcome the famine by increasing food production. Some changes have been observed in agriculture, including double-cropping, an initiative to grow more potatoes, poultry and livestock raising, and rezoning arable land. To support such efforts, available domestic resources were allocated to the agricultural sector as a top priority, however, no visible results have been seen so far.

And although 1998 saw a small improvement in the harvest, the current potential production capacity of the North Korean agricultural

sector has not reached the fundamental requirements. Specifically, what is needed is a distribution system reform that would motivate farmers, and the establishment of physical infrastructure.

(1) Failed Efforts Toward Agricultural Reform

Agricultural reform in North Korea is necessary, not only to overcome the current food crisis of North Korea, but also to ensure success of the economic reforms. Such changes in agricultural policies in other Asian countries, such as China and Vietnam, have proven to be the starting point for economic reform.¹⁾

In an effort to make its agricultural production and distribution institutions more effective, North Korea began attempts at distribution system reform in cooperative farm at the end of 1996. The symbol of those efforts was a reform in sub-work team management system for farms.²⁾ Since the 1996 reform, the size of sub-work teams was reduced, and any food surplus could be utilized by the team, an important step in providing stronger incentives to farmers.

The unique feature of the sub-work team system is that the production volume exceeding the production target at a given farm is not given to the regime, but can be utilized by the team itself. Considering the fact that the black market price is up to 300 times higher than the government purchase price, such distribution of extra food production in kind is indeed revolutionary. Therefore, the volume of surplus production that is generated is indeed noteworthy.

1) Kim Yonchul, "Food Crisis in North Korea and the Prospect of Agricultural Reform," Paper presented in the monthly seminar at the 66th Agricultural Research Forum, (1988).

2) The sub-work team on farms originate in an instruction given by Kim Il-sung when he visited Pochon Cooperative Farm in 1965. Under the system established the next year, the 150-man work team was broken down to sub-work team with 25 members each to enhance farmers' collective responsibility and increase their productivity. But the system has not paid off because of excessive output assignments and the few incentives given to the teams.

<Table 2> Changes in Sub-Work Team Management System

	Sub-Work Team System (1966~95)	New Sub-Work Team System (1996)
Composition	10-15 members, depending on capability and requirement of members	7-10 members, mainly consist of family/relatives
Production target	Set by the government every year	Production target set by averaging out the recent 3 year average production volume and the preceding 10 year average production volume
Disposal of agricultural product	Target production supplied to the government Extra production volume also purchased by the government	Target production supplied to the government Team freely uses extra production volume

Based on the criteria in <Table 2>, it appears that the production volume is on a steady increase. If so, this would generate substantial extra production output over and above the target. If not, however, there will be little or no surplus. In fact, crop production in North Korea has been falling since the late 1990s, which means that there is no surplus for team members under the new management system. Thus, unable to increase agricultural production by changing the food production and distribution system on the farm level, the reform efforts have become futile.

In addition, North Korea attempted significant system reforms in its agricultural industry, but there have been no reports indicating this new system is running at full swing. Given the circumstances, the agricultural reform attempts by North Korea seems to have fizzled out in the experimental stage.

(2) Lack of Physical Supply and Infrastructure

One of the reasons that the new sub-work team system failed to motivate farmers probably lies in the weak agricultural infrastructure. Regardless of the output target, when necessities for agricultural

<Figure 1> Comparative Analysis of Fertilizer Input and Food Production

Source: The Food and Agriculture Organization

production are supplied in a timely manner and when the agricultural infrastructure is well equipped, food production higher than target level is possible. However, due to the prolonged economic downturn, the physical supply and infrastructure in North Korea is primitive. Support for the agriculture such as fertilizers, agricultural chemicals, seeds, machinery, and energy are not efficiently provided, and infrastructure such as irrigation, embankments and afforestation is far from sufficient. It is difficult to generate the effects of the reform under these conditions, as exemplified by the recent stagnant agricultural production.

<Figure 1> shows a comparative analysis of agricultural production volume and fertilizer supplies during the period of 1990 to 2000. It clearly shows that beginning in 1994 when the fertilizer supply dropped sharply, the food production also plummeted. Consequently, the effects of the reform made in agriculture in 1996 did not materialize. Agricultural production appears to follow the same

pattern as the fertilizer supply, hard evidence showing that the fundamental impediment to increased agricultural output in North Korea is the lack of material supplies and facilities.

In short, North Korea's attempt to increase agricultural production by introducing a new sub-work team system to manage farms in the mid-1990s failed to achieve the intended results. The incentive system that the new squad system was trying to introduce could not operate effectively without infrastructure, and consequently, agricultural production still remains stagnant.

THE AGRICULTURAL RECOVERY AND ENVIRONMENTAL PROTECTION PLAN IN NORTH KOREA

Objectives and Strategies of the AREP Plan

North Korea implemented a reform in the agricultural sector back in 1996, only to realize that lack of infrastructure is an obstacle to successful reform. In other words, North Korea cannot overcome the food crisis without external support. Given such circumstances, the Agricultural Recovery and Environmental Protection (AREP) plan which North Korea introduced in 1998 can be interpreted as a rehabilitation plan for the agricultural sector, including a request for assistance from the international community.

The 1998 AREP plan, was revised in 2000, reflecting priorities in agricultural policies and possibility of support from the international society. The main initiatives are as follows:

- (a) The material input program will set the material input requirements in accordance with the new production target of 5.5 million tons, and continue to expand double-cropping and potato cultivation.
- (b) The infrastructure rehabilitation program to be established on a longer term basis for the agricultural sector, will rehabilitate or

<Table 3> Required Support for Implementation of AREP Program

(Unit: million dollars)

Sub-programs	Required support	
	1998~2000*	2000~2002**
Material input program	213	160
Infrastructure rehabilitation program	39	39
Restoration of fertilizer industry	12	N/A
Reforestation, environmental protection program	52	33
AREP support and training program	27	1
Total	344	250

Source: *FAO/UNDP, "Agricultural Recovery and Environmental Protection Programme in DPR Korea," December 1998.

**UNDP, "Second Thematic Roundtable on Agricultural Recovery and Environmental Protection Programme in DPR Korea," May 2000.

increase the basic infrastructure such as irrigation facilities and soil quality control. The main priority under this program is: to recover flood damaged irrigation and other infrastructure; to expand job-creating projects aimed at speeding up the restoration of agricultural infrastructure; and to secure food for work (FFW) to support those projects. This program also includes a plan to expand the irrigation reformation project that is currently under implementation in South Pyongan Province to other provinces as well.

- (c) The reforestation and environmental protection program aims to change the current situation in which food and energy shortages have caused immense damage to forests, and to ensure long-term environmentally sustainable agricultural activities in tandem with afforestation. Of utmost importance under this program is reforestation and securing seedlings for anti-erosion projects. Many tree nurseries which were hit by massive floods have not been restored yet, and it is imperative to get a timely supply of materials and food for work (FFW).

- (d) AREP support and training program is laying the groundwork for the other projects, such as research to enhance efficiency in agricultural management, agricultural support services, training and education and technical assistance. Among these, it is necessary to secure funds for comprehensive research and management of the agricultural sector, especially securing energy, realizing export potential and expanding gardening and greenhouse cultivation projects.

The most essential component for the success of this plan is external assistance. North Korea is looking to the international community for the financing required for the project, which the regime estimated at 344 million dollars for the original planned period (1998-2000) and an additional 250 million dollars for the extended period (2000-2002).

Support from the International Community and Challenges Ahead

A large amount of investment is required for the successful implementation of the AREP plan. In April 1998, North Korea requested the United Nations Development Programme (UNDP) to hold a thematic round table meeting on agricultural recovery and environmental protection, requesting that the international community extend financial and technical support for this plan. In response, international organizations such as the World Food Programme (WFP), the Food and Agriculture Organization (FAO), UNDP, individual governments, and international NGOs began to support the North Korean agriculture in each organization's specific area.

It was vital that the support from the international community for AREP plan be provided on a large scale and within a certain timeframe. Objectives had to be consistent and the plan well organized. However for the first two years, from 1998 until 2000, support was not well organized due to the following reasons:

<Table 4> Support Activities of the International Community for the AREP Program (1998-April 2000)
(Unit: million dollars)

Donator	Subplan for material input	Subplan for agricultural rehabilitation	Subplan for afforestation	AREP support and capacity training	Total
International organizations /EU	47.10	11.98	N/A	11.91	71.00 (55%)
National governments	48.13	N/A	0.16	1.43	49.71 (39%)
NGOs	7.70	N/A		0.03	7.73 (6%)
Total	102.92 (80%)	11.98 (9%)	0.16 (—)	13.37 (10%)	128.44 (100%)

Note: excluding food assistance from WFP and USPVO for job-creating projects

Source: UNDP, "Second Thematic Roundtable on Agricultural Recovery and Environmental Protection Programme in DPR Korea," May 2000.

Firstly, the international support stood at a mere 128 million dollars, much lower than the 340 million which North Korea requested originally. Therefore, support tended to be focused on short-term items, rather than long-term priorities which require massive capital input, such as setting up infrastructure. More than 80 percent of the support during the two years went to material input such as fertilizers, and that material input still takes up a large proportion under the newly-revised plan.

Secondly, except for the irrigation reformation project in South Pyongan Province which obtained a loan from the Organization of Petroleum Exporting Countries (OPEC), support by the international community to restore agricultural infrastructure over the past two years has been in the form of work for food (WFF) for job-creating projects. There has been no support for the modernization and operation of fertilizer plants and agricultural machinery plants, and these are even excluded in the newly revised plan.

Lastly, according to data presented by UNDP at the 2nd round table conference in 2000, the fertilizers that the South Korean

government and the South Korean Red Cross supplied as humanitarian assistance are included in the support for the AREP plan. It indicates that agricultural support by the international community has not been contributed in an organized way so as to ensure successful implementation of the AREP plan.

The AREP plan is focused on long-term objectives, "rehabilitation and development." Yet, international support for the AREP plan has been mainly food and fertilizer assistance, indicating North Korea's urgent situation.

Even though support from the international community under the current situation is important in that it earns time for North Korea, the most important initiative under the AREP program, that is, rehabilitation and development, must be accomplished initially by North Korea, using its own capability and energy. When North Korea proves its credibility to the international community, their participation in the AREP plan will be considered more sincerely. And by doing so, cooperation and support from South Korea for the AREP plan can be initiated as well.

The most important success factor for the AREP plan is the intensity of support from the international community and South Korea during the planned period. Equally important is how much viability North Korean agriculture can obtain. In other words, once the AREP plan is over, North Korea must obtain self-sufficient capabilities so it can import capital for continuous agricultural development, or attract foreign investments. This capability cannot be achieved overnight. Therefore, while North Korea is receiving international support, it should maintain commercial exchanges with the international community in order to foster such capability. In short, expanded commercial exchanges seeking mutual economic benefit are essential factors for securing the viability of the North Korean agricultural sector. Indeed, those exchanges could be even more important than the international support.

INTER-KOREAN AGRICULTURAL EXCHANGES

Types of Agricultural Cooperation

In the previous chapter, agricultural restoration in North Korea and international support for such restoration were discussed. Due to lack of support from the international community, the AREP plan has not produced substantial benefits yet. Accordingly, agricultural reforms and expansion of agricultural output in North Korea are being delayed. In order to minimize the side effects of a prolonged downturn in the North Korean agriculture, South Korea must provide appropriate support and cooperation necessary for the agricultural restoration of North Korea.

However, cooperation without firm principles is meaningless. There are many types of agricultural cooperation, and the type determines the main parties involved and the approaches to be taken. Agricultural cooperation between the two Koreas can be broadly classified into agricultural cooperation for public benefit and commercial cooperation.

Agricultural cooperation for public benefit can serve as an useful vehicle to directly support the AREP plan of North Korea. This could include cooperation aims to assist North Korea to rebuild its agricultural sector and to ultimately find a way for the two Koreas to gain mutual benefits in the agricultural sector. It would be achieved by supporting the North Korean agriculture to enhance production output or by exchanging agricultural technology. Various actors can participate this cooperation: the government, NGOs and academia.

Commercial cooperation, on the other hand, is clearly separate from public cooperation, as South Korean parties involved seek economic profit through agricultural cooperation with North Korea. Therefore, this is the type of agricultural cooperation which private firms can effectively conduct. Commercial cooperation would include trade of agricultural goods and agricultural investment projects to

<Table 5> Types of Agricultural Cooperation Between the Two Koreas
(Unit: Million dollars)

Type of cooperation		Main actor	Major projects	Government's role
Public cooperation	Agricultural support and technology cooperation	NGO (government)	Small agricultural support projects Agricultural technology exchanges project	Technical and financial support
	Agricultural rehabilitation and development support	Government (private sector)	Restore agricultural facilities Reforestation	ODA method
Commercial cooperation	Trade agricultural products	Corporations	Trade agriculture related goods	institutional infrastructure
	Joint operation of agricultural firms	Corporations	Raise agricultural goods' based on contract Investment on agriculture related industry	institutional infrastructure

jointly set up and run agricultural firms.

Public cooperation projects have significance in that they directly support North Korea in setting up agricultural infrastructure, given the economic difficulties of the North.

Current Status of South Korean Agricultural Support

(1) Support of South Korean NGOs

Support by the private sector started as humanitarian support such as food, clothes and medicine, but it recently moved toward cooperation to enhance production capacity of the North Korean agriculture and to restore the environment. Humanitarian support has been actively provided by the South Korean Red Cross, religious organizations and other welfare organizations. Support for agriculture and environmental rehabilitation in North Korea has been initiated by

<Table 6> Private Support for the Agriculture and Forestry in North Korea
(Unit: million dollars)

NGOs	Type of project	Type of support
International Corn Foundation	Exchanges of corn-raising technology and related support	Seeds, technology, etc.
KADECO	Potato-cultivation support	Seed potatoes
Korean Sharing Movement	Livestock support and partnership	Female goats, seed
World Vision	Hydroponics technology and material support	Technology, material
Good Neighbors Inc.	Milk production support	Milk cow, dairy processing facilities
Join Together Society	Food production support	Seeds, etc.
Forest for Peace	Reforestation support	Seedlings, etc.

private organizations.

Since 1998, the South Korean government has gradually lifted regulations on support by the private sector to the North. In fact, in 2000, the government even began extending financial assistance to private organizations supporting the North and the support projects, by providing the Inter-Korean Exchange and Cooperation Fund.

NGO support to the agricultural sector in the North is expected to continue to grow, backed by the strong enthusiasm of the private sector and by government support of South Korea. To this end, it is necessary to define a more professional approach to ensure more efficient private-public cooperation, and thus, to qualitatively expand agricultural support by the private sector.

(2) Government Support to North Korea

Since 1995, government support to the North has been mainly humanitarian emergency support such as food and medicine, but

starting in 1999, the government's support shifted direction toward aiding the North to secure viability. The prime example is fertilizer support. Other than fertilizer, the government has indirectly provided agricultural facilities and material through UNDP and FAO. In addition, aside from humanitarian support and emergency food support, the government provided food through WFP, to indirectly support irrigation projects to restore the agriculture and forestry in the North.

In March, 2000, President Kim Dae-jung fully committed the South Korean government to supporting the North Korean agriculture through the Berlin Declaration. This includes support for agricultural facilities and technology, as well as for agricultural infrastructure such as irrigation facilities. If such commitment of the South Korean government is to be fully realized through dialogues with the North, the South Korean government may pursue indirect or direct participation in the AREP plan of the North. Before this is possible, of course, there should be more talks between the two Koreas.

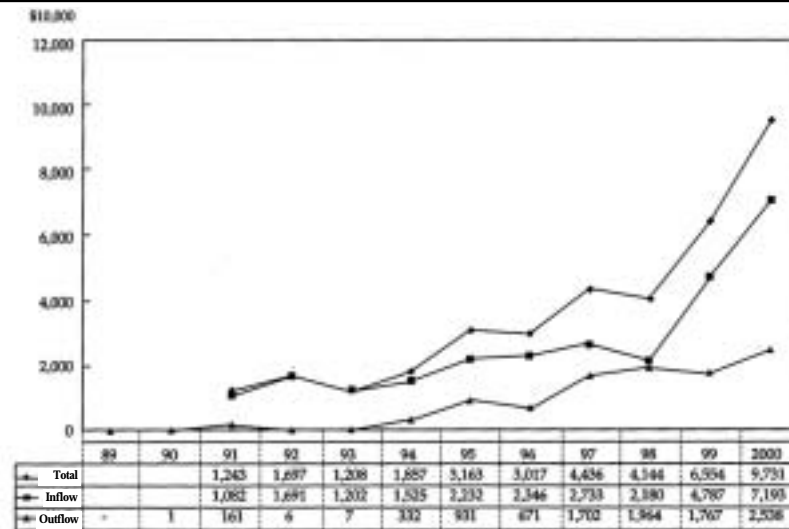
*The Current Status of Commercial Cooperation
Between South and North Koreas*

(1) Agricultural Trade

Trade between the two Koreas in agriculture, forestry and fisheries has dramatically increased almost eight-fold over the past nine years, from 12.4 million dollars in 1991 to 97.31 million in 2000. In particular, the year, 1999 and 2000 showed steep growth. The proportion of total trade volume taken up by agriculture, forestry and fisheries is on a steady increase, from 11.2 percent in 1991 to 22.9 percent in 2000.

Most noticeable in trade between South and North Korea is imports. Imports of agricultural, fisheries, and forestry goods increased more than 6.5 times, from 10.82 million dollars in 1999 to 71.93 million dollars in 2000. Its proportion out of the total import volume increased even higher, from 10.2 percent to 47.2 percent during the same period of time. Moreover, the number of imported

<Figure 2> Annual Inter-Korean Trade of Agricultural, Fishery and Forestry Products



Source: Current Trends of North Korean Agriculture, Korea Rural Economic Institute, Vol. 3, No. 1 (April 2001).

items also increased, with more than 30 import items in 1999. However, recent import trends show that only three or four items maintain an annual average import volume of more than one million dollars, which is clear evidence that agricultural, fisheries and forestry trade between the two Koreas still remains unstable.

Although there have been fluctuations, the inter-Korean relationship is continuing to improve. In response to such changes, it is necessary to redefine the position and strategies regarding the import of North Korean agricultural goods. Currently, regarding imports of North Korean agricultural, fishery, and forestry products, the South Korean government is taking two different positions: that of the government, i.e., to give more weight to improving inter-Korean relationship; and that of domestic industries, which is to prioritize the domestic economy and stabilize the agricultural

situation at home.

From the former perspective, the policy priority lies in facilitating exchanges between the two Koreas. To regard the import of North Korean agricultural goods as domestic trade is representative of the policy toward North Korea. From the latter point of view, on the other hand, the government has to implement a policy to limit the import of agricultural goods that could impact the domestic farmers, a position which is reflected in the regulation on imports of North Korean agricultural, fishery, and forestry products.

Maintaining two such contradictory policies has advantages in that it ensures a flexible response to possible problems arising in the future, when smaller amounts of products are imported. In particular, the import approval system can serve as a vehicle to check and prevent third-country products represented falsely as North Korean goods from being imported into South Korea. However, when the trade volume between the two Koreas grows in the coming years, these contradictory policies may lead to further confusion. Therefore, it is necessary to redefine the strategies and systems regarding import of North Korean goods.

On the other hand, export of agricultural, fishery, forestry products to North Korea is on a steady rise, as is shown by <figure 2>, but these are mainly humanitarian aid. From a commercial perspective, the general environment for export is still at an immature stage, and the commercial export of agricultural goods is not likely to increase in the short term, at least until the North Korean economy overcomes the current food shortage.

(2) Agricultural Investment Projects

Only two commercial investment projects to North Korea have been approved and implemented in the agricultural, fishery, and forestry industries; The Doorae-Maul Agricultural Cooperative established a joint venture operating a farming village and contract cultivation project, and Baeksan Corporation operates a joint venture, mushroom-cultivation project. Both are in the Rajin-Sonbong area.

However, the projects have been on hold since the temporary shutdown Rajin-Sonbong Free Trade Zone in 1998.

The most important element for successful agricultural investment in North Korea is to establish infrastructure. Since agreements have been signed on investment guarantee, double taxation avoidance and dispute settlement, it is safe to say that systemic infrastructure has begun. But, substructure for trade, such as transportation and telecommunications has not been fully established. Moreover, neither secure payment methods to facilitate investment and trade, nor a system to guarantee the country of origin have been put in place.

Equally important is mutual understanding between the two Koreas and further expansion in exchanges between the two. To accomplish this goal the two Koreas must accumulate a great deal of expertise through various contacts as well as through experience. Sufficient experience can be gained through agricultural support, trade in agricultural products and import and export of agriculture-related goods. In addition, a thorough investigation is vital to determine whether a market exists for products generated from agricultural investment projects to North Korea.

It takes a substantial amount of time and effort to meet such requirements. Therefore, investment projects on the North Korean agricultural sector are expected to focus on agricultural support projects for the time being, in order to identify further opportunities.

CONCLUSION

The two essential factors for increasing agricultural output in North Korea, i.e., systemic reform and establishment of infrastructure, cannot succeed without the other. Even though North Korea introduced a “new sub-work team management system” in 1996, thus, attempting a reforms to enhance farmer motivation, without the necessary infrastructure support, the reform failed to increase

agricultural output.

North Korea understands the need to strengthen its weak infrastructure environment with the support of the international community, and it has developed a mid- to long-term development strategy for agriculture. Announced as the Agricultural Recovery and Environmental Protection (AREP) plan, it was implemented 1998, and backed by UNDP. North Korea and UNDP were able to get support from the international community by holding a round table conference with international organizations, national governments, and international NGOs present. But this support fell far short of meeting North Korean requirements in terms of amount or support quality. Currently, it is assumed that the AREP plan is not being implemented as was originally planned.

If the AREP plan fails, it is likely to delay agricultural reform and expansion of agricultural production in North Korea. Consequently, if agricultural production in North Korea is not restored fully, that will put pressure on the South Korean economy for some time to come. Therefore, it is important to provide appropriate support and cooperation for agricultural rehabilitation and to work out a development plan for North Korea, so that the North's agriculture can restore viability.

Agricultural cooperation and exchanges between the two Koreas are broadly classified into public cooperation and commercial cooperation. The former is agricultural support by the government or NGOs while the latter is the import and export of agricultural goods by commercial firms and agricultural investment projects. Given the current economic situation in North Korea, public agricultural cooperation must be made a priority. The government's commitment for agricultural support has been already highlighted in the Berlin Declaration, therefore, agricultural cooperation on the government level is expected to be facilitated in accordance with further development in talks between the two Koreas.

Yet, enhancing the viability of the North Korean agriculture by facilitating the economic cycle through commercial cooperation,

cannot be ignored either. Important in commercial exchange is developing current import policy on North Korean agricultural products. Appropriate measures must be taken in order to set the government policy toward North Korea in harmony with domestic industrial policies. As for agricultural investment projects to North Korea, until the overall situation matures, the future remains unclear.