New Economy Design on the Korean Peninsula and Inter-Korean Agricultural Development Cooperation


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2. Agricultural Policy and Food Status in DPRK

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Introduction
The Panmunjom Declaration (4.27) agreed to promote the implementation of the 10.4 Declaration Agreement

Need to prepare projects that can be carried out in the agriculture sector

It is expected that the inter-Korean economic cooperation will be implemented in the framework of the Korean New Economy Design on the Korean Peninsula
Kim Jung-Eun Expessed Interest in Improving Agricultural Productivity through Modernization of Agriculture

To revive the North Korean economy, (Hankyroeh, 6.20)

Kim Jun-Eun went to a cooperative farm immediately after returning home to learn Chinese advanced agricultural technology (SPN, 7.11)
For the Formation of an Inter-Korean Economic Community

The focus of economic development

New Economy Design on the Korean Peninsula

10-year economic development plan
Agricultural Policy and Food Status in DPR Korea
## Analysis of New Year’s Greeting in DPRK (2014-2018 ; 5-year)

<table>
<thead>
<tr>
<th>SORT</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
</table>
| **Agriculture** | - Scientific farming  
- Construction of Kosan fruit farms  
- Development of reclaimed land  
- Construction of South Hwanghae Province waterway  
- Greenhouse vegetables and mushroom cultivation | - Water-saving agricultural method  
- Reinforcement of agricultural supplies  
- Normalization of greenhouse and mushroom production base  
- Completion of alpine fruit farm | - Superior species and scientific agriculture  
- Overall mechanization in rural economy  
- Measures to guarantee agricultural materials  
- Goal achievement of production in vegetable greenhouse and mushroom production base | - Superior species and scientific agriculture  
- Increase of double-cropping area  
- Introduction of agricultural machine  
- Increase of fruit, vegetable and mushroom production | - Superior species and high-yield farming  
- Agricultural machinery production and scientific farming  
- Increase of greenhouse vegetable and mushroom production  
- The 2nd-stage construction of South Hwanghae Province waterway |
| **Livestock** | - Promotion of livestock industry  
- Building of livestock base in Sepho District | - Building of livestock base in Sepho District  
- Preparation of livestock production and base operation | - Rapid development of livestock industry | - Establishment of measures for normal operation of livestock base in Sepho District | - Increase of livestock production |
| **Fishery** | - Modernization of fishing boat and gear  
- Vitalization of sea water aquaculture | - Normalization of aquaculture base  
- Development of fishing industry | - Rapid development of fishery industry | - Expansion of aquaculture  
- Modernization of fishing boat  
- Establishment of fishing production complex base in the East coast | - Development of fishing boat manufacturing and repairing  
- Vitalization of fish farming and aquaculture |
DPR Korea lacks 4.58 million tons of food (2016/17 Grain year)

The loss after harvest is about 15-20%

Table 4. Democratic People's Republic of Korea - Food balance sheet for marketing year November 2016-October 2017 ('000 tonnes)

<table>
<thead>
<tr>
<th></th>
<th>Rice (milled)</th>
<th>Maize</th>
<th>Wheat and Barley</th>
<th>Other cereals</th>
<th>Potatoes 2/</th>
<th>Soybeans 3/</th>
<th>Total</th>
</tr>
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<tbody>
<tr>
<td><strong>DOMESTIC AVAILABILITY</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Main-season farm production</td>
<td>1 674</td>
<td>2 398</td>
<td>60</td>
<td>156</td>
<td>524</td>
<td>338</td>
<td>5 150</td>
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<tr>
<td>Winter/spring production</td>
<td>1 674</td>
<td>2 195</td>
<td></td>
<td>156</td>
<td>274</td>
<td>338</td>
<td>4 637</td>
</tr>
<tr>
<td>Production on slopes</td>
<td></td>
<td></td>
<td>60</td>
<td>250</td>
<td></td>
<td></td>
<td>310</td>
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<tr>
<td>Stock draw-down</td>
<td>0</td>
<td>0</td>
<td></td>
<td>0</td>
<td>203</td>
<td></td>
<td>203</td>
</tr>
<tr>
<td><strong>TOTAL UTILIZATION</strong></td>
<td>1 800</td>
<td>2 600</td>
<td>189</td>
<td>157</td>
<td>524</td>
<td>339</td>
<td>5 608</td>
</tr>
<tr>
<td>Food use</td>
<td>1 488</td>
<td>2 008</td>
<td>164</td>
<td>120</td>
<td>336</td>
<td>310</td>
<td>4 427</td>
</tr>
<tr>
<td>Feed use</td>
<td></td>
<td></td>
<td></td>
<td>20</td>
<td></td>
<td></td>
<td>130</td>
</tr>
<tr>
<td>Seed requirement</td>
<td>51</td>
<td>74</td>
<td>16</td>
<td>11</td>
<td>89</td>
<td>12</td>
<td>252</td>
</tr>
<tr>
<td>Post harvest losses</td>
<td>260</td>
<td>408</td>
<td>10</td>
<td>26</td>
<td>79</td>
<td>17</td>
<td>799</td>
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<tr>
<td>Stock build-up</td>
<td>0</td>
<td>0</td>
<td></td>
<td>0</td>
<td>0</td>
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<td>0</td>
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<tr>
<td><strong>IMPORT REQUIREMENTS</strong></td>
<td>126</td>
<td>202</td>
<td>129</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>458</td>
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<tr>
<td>Anticipated commercial import</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>200</td>
</tr>
<tr>
<td>Uncovered deficit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>258</td>
</tr>
</tbody>
</table>

Note: Figures may not add up exactly due to rounding.

1 Paddy to rice milling rate of 66 percent.
2 Including potatoes in cereal equivalent at 25 percent conversion rate.
3 Soybeans cereal equivalent using a factor of 1.2.
Severe food shortages in rural areas (www.rfa.org) 2018.7.

Julyang generation increased

‘Home without money and food’

Serious droughts and quotas to the state are not reduced

FAO report

VOA KOREA(2017.12.08)

Include North Korea in 37 food shortages that need external support

The rate of water storage was low, which is the main source of irrigation facilities due to insufficient rainfall

FAO report

Radio Free Asia(2018.01.05)

Lowering agricultural performance, including economic sanctions by the international community and last year’s drought
Causes of Food Deficiency in DPR Korea

- Flooded farmland
- Lower farmers’ willingness to work
  - No property ownership
  - No legitimate rewards
- Juche farming
  - A centralized monolithic system
- Lack of agricultural materials
  - Long-term economic downturn restricts the supply of agricultural materials
  - Inadequate quality seeding
  - And technology development
- Deterioration of agricultural infrastructure
- Agricultural water supply disruption
- Natural (drought & flooded) disasters cause annual economic damage

Flooded farmland and drought affect agricultural production.
Structural Problems of DPR Korea’s Agricultural Infrastructure

Repeated droughts and floods

Energy-consuming pumping station

Inefficient due to water leakage from earthwork waterway

Deforestation due to natural remodeling project
Technical Problems of DPR Korea’s Agricultural Infrastructure

Inadequate quality control due to achievement of goal

Difficult maintenance due to excessive irrigation system

Degradation due to deterioration of irrigation facilities

Inadequate engineering technology considering climate characteristics
Implications of DPR Korean Agricultural Policy for Inter-Korean Agricultural Cooperation

01 Kim Jung Eun’s Agriculture policy

Kim Il sung regime: Rice + Corn
Kim Jung II regime: Rice + Potato
Kim Jung Eun regime: Rice (greenhouse, mushroom, fruit) + Livestock (shepho livestock) + Fishery (Inland water farm, modernization)

02 Need to introduce agricultural technology and capital through reform & opening

DPR Korea takes a new policy
Improving the system (2012.6.28, 2014.5.30) and making a lot of effort, but there is a limit

03 Promotion of inter-Korean agricultural development cooperation centered on agricultural infrastructure

Establishment of agricultural production infrastructure for natural disaster recovery and prevention

Promoting pilot projects linked to market production programs considering production, processing and distribution
Promotion of Inter-Korean Agricultural Development Cooperation as part of the New Economy Design on the Korean Peninsula
1. Construction of Agricultural Reservoir Infrastructure

Estimation of low capacity due to climate change and deterioration of repair facilities

Supplying stable agricultural water
Securing living water for North Korea

Estimated number of agricultural reservoir by region in DPRK (KRC, 2017)

Target Real

자료: FAO(GIEWS) SPECIAL ALERT No.340 (2017.7.20)
2. Establish Production Infrastructure Based on Cultivation Area and Crops

Improve agricultural productivity
Increased North Korean farmers income

Improvement focused on rice paddy farming

Composition of DPR Korea (2016)

<table>
<thead>
<tr>
<th>Rice paddy</th>
<th>ratio</th>
<th>Upland</th>
<th>ration</th>
</tr>
</thead>
<tbody>
<tr>
<td>571</td>
<td>29.9</td>
<td>1,339</td>
<td>70.1</td>
</tr>
</tbody>
</table>

Rice paddy distribution status

Improvement focused on upland farming

Upland distribution status
3. Developed Focusing on SEZs & EDZs (ADZs) in DPR Korea

Fostering food supply base for worker's in the background

Kaesong-Haeju-Nampo-Sinuiju
West sea agricultural cooperation belt

Suk-chun ADZ
Pukchong ADZ

Kumgangsan-Wonsan-Dancheon-Rason
East sea agricultural cooperation belt

Wonsan-Kungangsan

Kaesong
West sea stronghold area

Rason
Orang ADZ

Dancheon

Haeju

Nampo

Sinuiju

Fostering food supply base for worker’s in the background.
4. Establishment of Agricultural Infrastructure Base Centering on Climate Change Response and Specialized Cultivation

Crop planting due to climate change

Considering specialized items appropriate to the climate characteristic of North Korea and South Korea

Change of highland cabbage cultivation area

RDA (2013.2)
5. Improvement of Living Environment to Improve Human Rights of DPR Korea

- Serious housing, drinking water and energy problems in rural areas

Village entrance, off-road

Solar panel installed in private garden

Poor educational environment

Aged rural house
6. Types of Inter-Korean Trade in Agriculture

- **Direct investment**
  - Agricultural machinery, fertilizers, pesticides etc.
  - Production and processing distribution of facility vegetables

- **Contract cultivation**
  - Special crops such as ginseng, tobacco etc.

- **Consignment processing**
  - Vegetable processing
  - Livestock and aquatic products processing

**Types**
Development Cooperation Model in Major EDZs

01 Joint Survey & Research and Academic Exchange
02 Irrigation Facilities for Agroforest
03 Sukchun ADZ
04 Large-Scale Agricultural Complex Behind the Kaesong Industrial District
05 Sepho Livestock Area
Seed production and processing facilities
Genetic resource storage : Genetic resources exchange, collection, preservation
Animal and plant quarantine system : Prevention, diagnosis and treatment of livestock disease
Establishment of pig farm, fruit trees, vegetables, livestock
Agricultural science and technology : Crop production forecasting and pest management system
Basic research on cooperative farm unit cooperation
02 Establish Irrigation Facility for Agroforest

Food solution and forest restoration

Recognizing the problem of forest degradation

Emphasize the importance of forest greening and protection

Deforested areas in North Korean Forests have been planted to become forests within 10 years (‘12.04.27, Kim Jung Eun)

Composition along the contour line to prevent soil loss
Implication of Agroforest Management Case
(South Pyongan)

01 Irrigation water supply status

Use nearby rivers and wells
Difficult to operate pump equipment due to energy problem

02 Build an irrigation facility

Parker Roth (European Union food security representative in Pyongyang)

In the future, the agroforest will focus on building basic infrastructure for irrigation facilities (2016.5)
Application Model for Irrigation Facilities for Agroforest : 50 ha

Main facilities: pumping station, borehole, water tanks, farm pond, water pipe, solar & wind energy

Water source: river, valley, underground water, rainfall

Slope: 30° below

Crops: cranberry, corn, potato, bean, fruit, etc.
03 Location of Sukchun ADZ (google earth)
Project Outlook

Circular system that combines agriculture and livestock industry

An area behind which rice can be supplied to large cities such as Pyeongseong and Pyongyang

Synergy with neighboring areas: Songrim & Waudo & Jindo Export Processing Zone

IFOAM, International organic farming classes

Establish organic farming system by building agricultural infrastructure

Production of secondary products such as milk and cheese

Activate light industry

Exchange of human resources with the University of Sukchun agricultural science

Agriculture and livestock technology cooperation
Main Economy of Sukcheon ADZ

- Centered on agriculture and livestock industry

Main Economy and Institutions

Main Industry: Agriculture (61%), livestock, etc.
- Sukcheon fruit processing plant, Sukcheon youth fruit farm, fruit tree research institute,
- Sukcheon agricultural college, Unjeong cooperative farm, Yakjeon cooperative farm

Main Crops

Grain: Rice, Corn, Sorghum, etc.
Industrial crop: Leaf tobacco, etc.
Vegetables: Cabbage, White radish, Spinach

The greatest production of fruits in Pyeongan South Province: Apple, Pear, Peach, etc.
Specialty: Sukcheon 29 (strawberry), kumheung medicine water

Agriculture, Forest, Livestock

Pyeongnam Irrigation Canal Area damaged by flood,
Establishment of irrigation system in farmland of 3,000ha
4 % of Unjeong-li area: pine tree, oak tree, larch tree, nut pine tree, etc.
Livestock: cow, pig, goat, rabbit, etc.
Sericulture: silkswarm

Sub - Infra

Railway: Pyongui Line, Anju Tangwang Line, Namdong Line
Road: 1st class road between pyongui Line and Sinuiju
Data Used in the Analysis of the Situation; Sukchun

Satellite imagery: KOMPSAT-2,3 (Korea)

1/25,000 numerical map
Rice paddy 1,225 ha (55%), Upland 562 ha (25%)

Rice paddy 1 parcel average area: 0.3 ha (South Korea; large scale land consolidation 1 ha)

<Major Land Use Status>

<table>
<thead>
<tr>
<th>Utilization status</th>
<th>area (ha)</th>
<th>ratio (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>rice paddy</td>
<td>1,225</td>
<td>55.0</td>
</tr>
<tr>
<td>Upland</td>
<td>562</td>
<td>25.2</td>
</tr>
<tr>
<td>residential area</td>
<td>134</td>
<td>6.0</td>
</tr>
<tr>
<td>fruit farm</td>
<td>111</td>
<td>5.0</td>
</tr>
<tr>
<td>Road</td>
<td>49</td>
<td>2.2</td>
</tr>
<tr>
<td>River</td>
<td>16</td>
<td>0.7</td>
</tr>
</tbody>
</table>
Sukchun ADZ plan image – Step 1

- High-tech greenhouse
- Agricultural garage
- Rice processing center
- Grass plot
- Modernization of a livestock farm
- Housing and town improvement
Sukchun ADZ plan image – Final Step

- Large-scale land consolidation
- Mechanized path
- Development of a dairy farm
- Agricultural research & development station
Establishment of a Large-Scale Integrated Agricultural Complex in the back area of Kaesong Industrial District

Kaesong Industrial Park was established by the Decree No. 3419 of SPA Presidium on Nov. 13, 2002, and the DPRK Law on Kaesong Industrial Park was adopted on Nov. 20, 2002. by DPRK

01 Possible area for economic community formation
South Korea’s economic development experience
Market economy learning (200,000 people involved)
Use of infrastructure of Kaesong Industrial District

02 Specific area of base unit
Supply of major and supplementary food for workers
Increased income of DPR Korea farmers
Plan Image of a Large-Scale Integrated Agricultural Complex in the back area of Kaesong Industrial District

- Rice processing center
- Forest park
- Readjustment of land lots
- Housing and town improvement
- Ginseng complex
- Agricultural training center
- Fruit farm
- Past pilot farm
- Upland infrastructure improvement project
- Kaesong Industrial Park
05 Cooperation Plan for Sepho Livestock Area

A Large Livestock Farming Base Appears in Sepho Area

U ntil some years ago the Sepho inhabited area was known for its barren and abandoned land, because it was hit all the year round by heavy rain and unceasing and strong wind.

But now the area has been turned into a large-scale livestock farming base equipped with integrated production and anti-epizootic systems, more than 50,000 hectares of grazing lands, hundreds of hectares of windbreaks, 1,000 km grazing roads, 560 drainage channels and reservoirs. It also has thousands of blocks of breeding houses and animal pens, farm buildings, veterinary and anti-epizootic facilities, and processing centres of processed products.

This epoch-making change is a victory brought about by the might of single-hearted unity and the spirit of self-reliance and self-development of the Korean workers, farmers and people who were moved to implement the policy of the Workers’ Party of Korea of developing the country’s animal husbandry on an extensive scale.

The enormous project of the wind-breaking trees in Sepho area that began in December, 2010 has not only a grim task of changing nature by planting thousands of hectares of deforested land and turning it into the preserved, but also a heroic confrontation with the harsh conditions and in favourable natural conditions. Reducing was born to one and making continuous efforts, they devoted their all to clearing and improving more than 50,000 hectares of fields, creating windbreaks and grassland windbreaks and diggign drainage canals. They planted grass seeds and introduced scientific cultivation methods, and built animal sheds, processing and anti-epizootic facilities, dwelling houses, schools, kindergartens, nurseries, polyclinics, halls of culture and other hundreds of buildings.

The new livestock farming base that has been built in an effort to implement the WPK’s policy of developing animal husbandry will positively contribute to raising the country’s prosperity and improving the people’s living standards.

Source: KCNA, 2018

3 contain most: rain, wind, snow
Development area: 50,000 ha
Windbreak: a hundreds ha
Grazing forest: 12,600 ha
Grazing road: 2,000 km
Drain channel: 360 km
House, 1,000 household
Animal shelter, Farm building, quarantine station
Livestock processing factory

Over 50,000 hectares of grasslands have been created on Sepho tablelands that had been barren, hit by heavy rain and snowfall and strong wind.
Sepho Livestock Farming Completed. But, Far to Reach the Goal

Source: RFA(2017.11.11)
Development Cooperation Plan

Evaluation

Satellite images confirmed that the number of livestock is not large
Lack of equipment and facilities
Power shortage

Cooperation plan for infrastructure

Expansion of irrigation facilities for grassland
additional construction of pond
structuralization of water irrigation system
Improvement of access roads, grazing roads
Building renewable energy

Cooperation plan for livestock

Modernization of livestock facilities
Good seed supply
Nurturing professional manpower
Veterinary protection etc.

Source: KCNA, 2018
Conclusion
Conclusion

Sustainable Inter-Korean Agricultural Development Cooperation

Implementing cooperative agreements through restoring confidence in inter-Korean relations

Promoting agricultural development cooperation according to characteristics of DPRh Korea

Realization of New Economy Design on the Korea Peninsula

With practical and detailed planning, North Korea’s agricultural development

Provision of common prosperity and peace on the Korean peninsula
Thank you for your attention.