

**DRAFT PAPER FOR
UNIVERSITY OF CALIFORNIA/BERKELEY
SYMPOSIUM ON THE DPRK
APRIL 7, 2000**

**THE AGRICULTURE SITUATION IN THE
DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA

MARCH, 2000**

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AGRICULTURE - GENERAL SITUATION

The DPRK has 1,071,000 hectares under cultivation for grain, according to the United Nations Development Program (UNDP). Of this amount, 80% of the farm land is in the southwest (North and South Pyongan, and North and South Hwanghae Provinces). The remaining 20% of farm land is in the northeast, mostly in North and South Hamgyong provinces. The country's farms are divided into 3,000 cooperatives, 300 government or state farms and 240 other farms of various types. The area under cultivation can be increased only by terracing hills and mountain sides, but this would be very expensive and labor intensive. Another 1,000,000 hectares of land is used for orchards and pastures. The DPRK also has 7.5 million hectares of forest, but, according to DPRK official data, 480,000 hectares were deforested in 1998.

The main grain crops are: rice, maize and barley. Barley was re-introduced in 1996. Farmers prefer winter wheat over barley and often use barley to make hay, not to eat the grain. In 2000, the government has directed the planting of 55,000 hectares winter wheat and 65,000 hectares of barley, mostly in the southwest provinces.

POTATOES

Another 200,000 hectares are to be planted with potatoes, an increase from the 40,000 hectares planted in 1999. UN/FAO has started a sweet potato growing pilot project, but at present the DPRK does not grow sweet potatoes. Lentil production is small and consist mostly of soybeans planted on top of dykes between the rice paddies. Total annual production is estimated to be about 150,000 to 200,000 metric tons. Potato planting and harvesting requires the use of tractors with a 70 horse power engine, but tractors in the DPRK have 28 horse power engines. Most of the labor for potato cultivating will have to be done by hand.

Most vegetables are grown on family plots. Each measures between 30 to 90 square meters according to the size of one's family. The most common vegetables are cabbage, spinach, sweet corn, soybeans to make toufu, tomatoes, squash, onions and chili peppers.

SHORTAGES

The main problems for agriculture are water and fuel. The irrigation system is in disrepair. The system was established in the 1960's and 1970's but has not been maintained. Pumps have broken down, there are no spare parts for the Soviet designed machines and water pipes have rusted. Also, the shortage of electricity frequently interrupts the pumping of water.

Fertilizer and pesticides are also in very short supply. The nation needs 750,000 metric tons of fertilizer each year, but now only has 60,000 metric tons available to use during the spring planting season. Only The DPRK has two chemical fertilizer plants, one in Sariwon and a second in Hamhung. Only the Hamhung plant is operating and is producing some ammonium sulphate fertilizer. The Sariwon plant is designed to produce urea, but this requires petroleum

which is very scarce. The DPRK is striving to increase organic fertilizer from chickens, cows and goats.

AGRICULTURE - FOREIGNERS VIEW

The World Food Program (WFP) sees a slight improvement in food security, but a significant gap persists between domestic production and minimal need. Despite the increased harvest of 1999, the shortage of grain amounted to 700,000 to one million metric tons. The WFP and China will have to make up the difference.

The 1999 harvest amounted to 3.5 million tons (DPRK officials had expected 4.2 million metric tons of grain). This means a minimum short fall of 1.5 million metric tons of grain to supply each of the DPRK's 22.5 million people a daily minimum of 1,600 calories per day (in the US, an average size American male office worker requires 1,800 calories per day). Actual grain production may have been higher than the 3.5 million, but possible hoarding by farmers might have lowered the final figure. Also not counted is the amount of food harvested in family plots and the green corn eaten as it is harvested. There is no reason to believe that the 2000 harvest will be greater than 1999. The shortage of food is most likely to persist for at least another two to three years.

The monitoring of WFP food aid remains a problem. The WFP and NGO's believe the DPRK authorities should further and significantly reduce the remaining significant restraints on foreign food monitors. Nevertheless, the WFP has greatly improved the situation since 1995, but then in the winter of 1997/98, the situation stabilized and has not changed significantly since. Still, the WFP has access to 163 of 212 counties, the UNDP has visited all the counties of the DPRK at least once, and US NGO's just spent ten days traveling expensively in North and South Hamgyong provinces in the northeast corner of the country.

Innovation agricultural methods has vacillated since 1995. When ever the senior officials at the top of the bureaucracy are ready to promote changes, the lower echelon, uncertain whether the directives will endure or be abruptly reverse, tend to hesitate, and vice versa. Some gradual change of production methods is under way, but systemic wide reform is not likely to happen anytime soon. The official attitude toward change remains mixed.

Most innovations fall within the realm of conventional farming methods, i.e. improved seeds, field preparation, repair of flood damaged canals and dykes, and the introduction or reintroduction of some previously shunned crops. Double cropping using barley, not allowed prior to 1995 and a contentious issue in the winter of 1995-96, is now accepted without debate. The DPRK government plans to plant 200,000 hectares of barley and winter wheat in the fall. The program has ample seed but requires 530,000 metric tons of urea fertilizer. Despite the lack of donations, the DPRK apparently has decided to go ahead with the project.

OPEC has contributed \$80 million dollars for UNDP designed agricultural programs, but

these funds will apparently be invested in the South Pyongan Irrigation Project that was initiated in the fall of 1999. The main channel will carry water 160 kilometers from the Taedong River, the main river that flows from the capital of Pyongyang to the west coast port of Nampo. The gravity fed canal will allow water to flow from the western delta of the Taedong River northeast through the South Pyongan Province toward the provincial city of Kyecheon, famous in the history of the Korean War as Kunuri where the Chinese Army almost surrounded the US 8th Army in November 1950.

The new canal is the first major improvement of North Korea's irrigation system since the 1970's. Water from the Taedong River will irrigate 100,000 hectares of paddy. The project will require the movement of 15 million cubic meters of dirt and stone, the building of tunnels and a system of locks to direct the flow of water. Completion is scheduled for 2002.

Virtually everything essential for food production is scarce except for human labor. Energy, particularly fuel for machines, fertilizer, pesticides, machinery, spare parts, irrigation pumps and pipes, plastic sheeting for green houses, even oxen are all in short supply. Land erosion is pervasive because deforestation is quickening since wood is the only readily available fuel for heating homes and cooking food. Many coal mines remain flooded and the limited coal available is consumed by industries. According to DPRK sources, some 500,000 hectares of forest were destroyed during the past two years.

POLICY PRIORITIES

The DPRK, according to government sources, is encouraging the raising of poultry, the development of pasture land and the introduction of advanced agricultural technology from other countries. North Korea's mountainous topography limits the amount of land available for agriculture. Intense farming and excessive use of chemical fertilizers have depleted the soils fertility. Rather than continue to use chemical fertilizers, a shift is underway to organic fertilizer. The continuing food shortage, however, has reduced live stock and thus the availability of organic fertilizer. More chickens, cows, pigs and other small animals are needed to produce fertilizer. During the past four to five years, the number of goats and rabbits - large ones weighing 6 to 7 kilograms. Also being encouraged is the raising of geese and fish. Aqua culture is on the rise. The number of fish farms is increasing. But there has been less than normal rain and snow fall during the 1999 winter so water levels in reservoirs are low.

1999 HARVEST

The 1999 harvest was good, in the eyes of DPRK officials. The DPRK's original projection was 4.2 million metric tons of grain but the actual amount was lower because of energy problems. The mushroom harvest was below normal, (reducing exports to Japan and hard currency earnings). Nevertheless, food production increased slightly in 1999, but it is still short of need. Humanitarian assistance is helpful, and the DPRK attaches importance to it. The Public Distribution System (PDS) is operating again to distribute food.

CURRENT PRIORITIES

Water and energy are key to reinvigorating agriculture, DPRK officials say. Some local areas are able to produce all their electricity needs. Others are building small and medium scale hydro-electric generating plants. This winter's drought, however, has reduced electricity generated at hydro-electric plants. Lakes and reservoirs appear to be half full. The nuclear reactor construction at Sinpo, as provided for in the Agreed Framework signed between the DPRK and US in 1994, is behind schedule and the project's completion date remains uncertain. Official grumbling about the 1994 agreement and the slow pace of the Korea Peninsula Energy Development Organization's nuclear power plant (KEDO) project is increasingly audible in Pyongyang.

Other current DPRK priorities, government officials reported, include:

B The acquisition of high yield seeds, particular need are high yielding rice and potato seeds, and the acquisition of advanced potato seed production methods and technology.

B Fertilizer; the price of one ton of fertilizer equals the cost of 10,000 mt of rice. The DPRK would prefer to receive fertilizer over food aid.

B Mechanization: Farms have five to six tractors each but cannot use them because of the fuel shortage. Soldiers are also restructuring rice paddies in southeast Kangwon and northwest North Pyongan Provinces. This effort will shift to North Hwanghae Province in 2001.

B The irrigation system, built in the 1960's and 1970's, must be renovated. The entire system depends on electricity. The system requires about 60,000 kilowatts per hour.

FUTURE PLANS

The DPRK government is working now with United Nations Development Program (UNDP) to formulate a new strategy for agricultural recovery for presentation at the third UNDP round table in Geneva June 20-21, 2000. The program calls for a \$300 million investment to renovate the agricultural sector's infrastructure, or \$100 million per year over a three year period. In Jon's view, successful implementation of such a program would end the need for humanitarian assistance. Priorities under this new program would be improvement of irrigation, rebuilding of dykes, and other major improvements.

KUMSONG FARM, ONCHON COUNTY, SOUTH PYONGAN PROVINCE

On March 16, 2000, an Evergreen Air Cargo Boeing 747 landed at Pyongyang International Airport with 10,000 apple seedlings, 5,000 pounds of dehydrated potatoes and 500 pounds of carefully selected grass seed. Mercy Corps International, based in Portland, Oregon, had acquired the trees. The cargo flight was contributed free of charge by the Evergreen Company and the Oregon Potato Growers Association had arranged the transporting of the cargo to the departure point and donated the potato flakes. The state of Oregon provided three agricultural experts to advise on the planting and care of the trees.

Kumsong Farm, located on North Korea's west coast about a two and one half hour drive west of Pyongyang, was selected as the site for the planting because it is a state farm that will eventually serve as a model farm for orchards throughout the DPRK. The project is part of the DPRK's program to revitalize its agriculture. Another consideration was the similarities in the climatic conditions at the farm and in Oregon. The coldest winter temperature at the Kumsong Farm is zero degrees Celsius with an annual average of 900 millimeters of rain. Also, the soil fertility is similar, Ph 6.52 compared to 6.2 to 7.2 in Oregon.

The farm is under the direct management of the Ministry of Agriculture. To reach the the farm, one drives southwest from Pyongyang along the Taedong River for about one hour to Nampo, the main west coast port. After driving through the city, one heads northwest for another hour until one reaches Onchon County in South Pyongan Province. Kumsong State Farm is a mere four kilometers from the west coast and about thirty kilometers northwest of Nampo.

Fifteen hundred people live on the farm in 220 houses and apartments. There are four hundred workers, 300 men and 100 women. (Actually we saw far more women than men working in the fields). The workers are organized into functionally specialized work teams which focus on a particular aspect of farming.

Each family has its own small plot of land for growing vegetables. A small clinic provides first aid medical treatment. Seriously ill or injured people are taken to the nearby county hospital. Education from primary to high school is available at the farm, but the school building is being rebuilt.

Orchards cover most of the farms 500 hectares (one hectare equals about 2.47 acres): 300 of apples, 95 of pears and 55 other fruit. The farm also has a small population of geese, rabbits and chickens. Five tractors are allocated for every 20 hectares of land but we saw only three functioning, old tractors.

Each hectare of apple trees should yield about 20 tons of apples per year, but current production is about ten metric tons because of climatic change and the age of the trees. Many of the apple trees are 46 years old, and the pears trees are 27 years old. The 10,000 apple from the US will be planted on 55 hectares of the farm. The farm already has 10 hectares planted with apple seedlings from Japan, but the seedlings (Fuji, Sekai, Buyi and Itaredu - phonetic spellings) are not doing well. The Oregon seedlings (Gala, Granny Smith, red and yellow delicious and Fuji varieties) should yield after about seven to ten years one hundred kilos per tree.

Earnings from the sale of fruit to the county and city (no fruit is exported) are distributed among the farm workers after production costs have been deducted. Each worker receives an amount of the earnings according to the amount of time they invested in work on the farm.

Major shortages on the farm include:

- B Fertilizer and chemicals (pesticides). This is the greatest problem.
- B Transportation: need trucks and fork lifts to move the fruit from the farm to the city.
- B Seedlings: need 50 to 70,000 more trees for planting on 150 hectares of land.

HEALTH SITUATION

Health problems equal the food problem in severity. This is not just a matter of increasing the supply of medicine. Water, heating of buildings, sanitation, energy shortage are all sources of the problems. The quality of medicine is very low. For example, hospitals produce their IV fluids, about 30 to 50 litres daily which is put in used beer bottles. It would be possible to upgrade the production for only \$80,000 per hospital but the money is not available. The blood supply for transfusions is also a serious problem. There is no reliable refrigeration given the shortage of refrigerators and electricity.

The medical system is best in Pyongyang, then deteriorates rapidly the greater the distance from the capital. The priority needs are:

- B medicines and medical equipment,
- B training in the Korean language and the translation into the Korean language of medical books and manuals.

Currently, the most prevalent diseases are:

- B TB: international organizations are providing medication and training DPRK medical professions in the detection and treatment of the disease.
- B Malaria has increased rapidly, from 2,000 cases in 1998 to 100,000 in 1999. The disease has increased most likely because of the increasing amount of stagnate water and the shortage of pesticides. The disease is not deadly, but it affects people in the agriculture season.
- B Cholera has not been detected, but one NGO estimated that about 60 percent of all drinking water in the country is unfit for human consumption and is the cause of widespread dysentery..

The northeast provinces of North and South Hamgyong Provinces are accessible to international organizations and the Mercy Corps International managed US Private Voluntary Organization Consortium's (PVOC) food monitors. Recent visits by both groups confirm that the local manufacturing of IV fluid, drugs to treat TB and malaria are increasing.

Data about the public health situation and nutrition is still scarce, but the situation has improved relative to 1997. The conducting of nutritional surveys remains a contentious issue between international medical professionals and the DPRK government.

IGO/NGO RELATIONS WITH THE DPRK

NGO relations with the DPRK government are complex and often troubled. Two European

NGO's recently pulled out of the DPRK, the UK's Oxfam last December and the French Action Against Famine NGO in February for a variety of complex reasons. The US PVOC consisting of six NGO's has experienced difficulties, particularly in the fall of 1999, but relations with the central government authorities have gradually improved. Working relations between the PVOC food monitors and county level DPRK officials reportedly are excellent.

The UN agencies, particularly the WFP, have also had continuing difficult relations with the DPRK government. Despite repeated efforts by the central government to reduce the number of WFP food monitors, the number has remained constant at 46 over the past three years. Compared to 1996, this is a very significant increase from the original five monitors. The European Union maintains another nine food monitors. UNDP and WHO. Like the International Red Cross and Crescent Societies, also find it difficult to deal with the host government, but appear to have fewer crises than their UN cousins.

The EU in January diverted 20,000 metric tons of food aid to Kenya and canceled another 70,000 metric tons because of disputes with the DPRK over monitoring and related issues. The disputes were resolved in early March, the number of EU food monitors will be increased slightly and the EU has resumed shipment of its food aid to the DPRK. The EU's present nine monitors work separately from the World Food Program (WFP) and concentrated on South Pyongan Province.

The European based NGO's in the DPRK are:

- B Cesei (Italy)
- B GAA German Action (European Union funded)
- B Children's Aid Direct (UK, funded by the EU)
- B World Vision (Philippine based, South Korea funded)
- ADRA (Switzerland)
- Capanamur (German PVO, EU funded)
- Concern World Wide (Ireland, EU funded)

The DPRK now requires that any European NGO wishing to work in the DPRK have a minimum of \$700,000 for projects. If not, they are invited to leave or are not admitted.

Despite the occasional bickering and departure of three European NGO's during the past three years (two from France and one from the UK), the number of UN and NGO humanitarian workers in North Korea have increased from two in 1995 to more than one hundred in 1999. Access to the North Korean people outside Pyongyang has increased from occasional brief one day visits to the port of Nampo and selected sites near the capital, to the posting of WFP monitors in six of the eight provinces and regular, routine visits to 163 of 220 counties. The UNDP staff have visited all the counties of North Korea. WFP monitors, however, have been excluded from counties in the north central province of Chagang and the counties that border the de-militarized zone that bisects North and South Korea.