

## The Challenge of Food Insecurity in North Korea

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The nation of North Korea, also known as the Democratic People's Republic of Korea (DPRK), is a country struggling with food insecurity. The issue is more complicated than it is in some countries, because of the role of the government. On its official website, the North Korean government refers to North Korea as a "socialist independent state", but people outside the country describe the government as "Authoritarian Socialism", a "communist dictatorship", or a "nationalist dictatorship". No matter which terms are used, most people agree that both leaders of North Korea have been dictators. Kim Il Sung was premier from 1948 until his death in 1994, and his son Kim Jong Il is the current leader of North Korea. While in power, both men have played a deciding role in everything from who can enter the country to what food is planted to how much money a citizen can make, and just about everything else in the everyday life of a North Korean citizen. The goal of Authoritarian Socialism is the elimination of class distinctions and creating a new setting where everyone is equal. That is the stated goal of North Korea, to have everyone be equal but not live in poverty. So far, that's not going very well. Many of North Korea's citizens live in poverty and suffer from food insecurity, and they don't have the power to make improvements in their situation.

The nation of North Korea is located in Eastern Asia. North Korea occupies the northern half of the Korean Peninsula, with Korea Bay to the west, and the Sea of Japan to the east. The northern border of North Korea is shared with China, although Russia shares a short piece of the far northeastern border. The southern border is shared with South Korea. People lived on the Korean Peninsula well before 10,000 B.C.E., and by the first century B.C.E. three major kingdoms emerged because the many tribes became confederated. During the centuries that followed, Korea endured many invasions and occupations by the Chinese, Manchurians, and Japanese. In 1945, Koreans hailed Japan's defeat in World War II, but the country was divided when Soviet military forces occupied the north and United States military forces occupied the south. Soon, cold war politics and the emergence of the new Communist Chinese People's Republic complicated attempts to establish a unified Korean government. When the Korean War ended with a truce agreement in 1953, North and South Korea remained separate countries. Both countries suffered severe damage to their populations and their land, buildings, transportation systems, and agricultural and manufacturing systems. Since that time, the countries have chosen different pathways for recovery, and reunification seems unlikely at present.

When the Democratic People's Republic of Korea was proclaimed in 1948, Kim Il Sung was appointed premier. He imposed a communist dictatorship over North Korea, and economic progress after the Korean War was at first fairly quick and efficient under his one-man rule. Kim had a philosophy of self-reliance, called *juche*. This philosophy became a central political belief in North Korea, with the focus on political independence, economic self-reliance, and military strength. When Kim died in 1994, power passed to his son Kim Jong Il. Even with a new premier, *juche* is still a central theme. The official website of the DPRK gives information about *juche* in its section on "Politics". The website also states that the government is a "socialist independent state", but other sources classify the North Korean government as a "communist dictatorship" or a "nationalist dictatorship". According to the North Korean constitution, the highest legislative body is the Supreme People's Assembly, made up of elected representatives. However, elections are not held regularly, and the cabinet has assumed absolute power. The Workers' Party of Korea has become somewhat more representative, but there are no opposition parties and the government functions differently than the constitution directs. The North Korean judicial system is based on the Prussian civil law system with Japanese influences and Communist legal theory.

There is no judicial review of legislative acts, and North Korea has not accepted necessary International Court of Justice (ICJ) control. Pyongyang serves as the capital city of North Korea.

The early economic progress experienced under Kim Il Sung began to decline in the late 1980's. One of the causes was the collapse of the Soviet Union, which was a trading partner and supplier of many agricultural supplies and equipment. Another cause was a shortage of fuel, which affected manufacturing, transportation, and agriculture. In the mid-1990s, floods and droughts led to a major famine. Since that time, food shortages have been a chronic problem. Currently, North Korea faces constant economic problems, due in part to having one of the world's most centrally directed and least open economies. Industrial capital stock is nearly beyond repair as a result of years of underinvestment and shortages of spare parts. And North Korea spends about 28% of its gross domestic product (GDP) on military costs, to support the fourth-largest military in the world. As a comparison, the United States spends about 4% of its GDP on its military.

While North Korea must rely on imports of many materials, the country has the following exports: minerals, metallurgical products, manufactured items (including chemicals, heavy machinery, military equipment and weapons), textiles, agricultural products such as fruit, and fishery products. A much smaller part of the economy is production of consumer goods, and tourism has become more important in the last few years. Hyundai established an industrial park in 2003, and that has helped development somewhat. North Korea's main trading partners are China, South Korea, and Japan. Hydropower provides about 12% of the nation's electric power. Coal provides about 80%, and the rest is from nuclear power, oil, and natural gas. A 2008 estimate of the GDP per capita is \$1700, and the population is 22,665,345, according to a 2008 census. Other sources give population estimates of about 23,000,000.

North Korea has a total area of 20,538 sq km, which is close to the size of the state of Mississippi in the United States, and is slightly less than the total area of South Korea. The terrain of North Korea is very rugged, with mountains rising over almost 80% of the country. Only about 22% of the land is arable. Deep, narrow valleys separate the mountains, and there are wide coastal plains in the west, a narrow strip of lowlands along the east coast, and low hills that are inland from the coast. The climate is similar to that of the Upper Midwest in the United States, with cold winters and hot, humid summers. Summer is the wettest season, although winter can bring heavy snowfall, especially in the mountains.

The major famine of the 1990's has been followed by continuing problems. Severe flooding in the summer of 2007 aggravated chronic food shortages caused by on-going systemic problems including a lack of arable land, collective farming practices, and persistent shortages of tractors and fuel. Other problems that affect North Korea's agriculture and natural resources include: water pollution; inadequate supplies of potable water; waterborne disease; deforestation; and soil erosion and degradation.

The controlled economy and dictatorship form of government have a major impact on the daily life of the average North Korean. The government pays for education at all levels, and the literacy rate is 99%. The government also pays for health care, but there are shortages of medicine and equipment.

Most people now live in large apartment buildings provided by the government, even in rural areas, but utilities are undependable. Food is rationed, and eating just one or two meals each day is common. A family may feel lucky to have one chicken and a few eggs each month. Since the famine of the 1990s, food shortages have stunted the growth of many children, and infant mortality rates have been higher and life expectancy has been lower. For example, in South Korea, the average 7 year old is about 49 inches tall and weighs around 57 pounds. The average 7 year old in North Korea is only about 45 inches tall and weighs just 35 pounds. An estimated 37% of children age 6 are malnourished.

Travel in North Korea is restricted, and most people who get passes to travel must rely on trains since few ordinary citizens have cars. Plus, only about 6% of the roads are paved. The typical workweek

is 6 days with Sundays off. The constitution guarantees freedom of religion. Some people follow the traditions of Buddhism and Confucianism, and there is some influence from Christianity. However, religious worship is mostly forbidden, although the government has allowed Cheondogyo (Religion of the Heavenly Way) to grow to become the largest religion in North Korea, with about 3 million followers. The government censors all information that appears in newspapers and on radio and TV. Phones are now in many homes, but they aren't connected to all other phones in North Korea or to countries outside North Korea. Internet connections are available only for high-ranking officials. Citizens can vote when they turn 17, but elections aren't regular and candidates aren't freely selected. All males between the ages of 17 and 28 are required to serve in the military from 3 to 8 years.

In North Korea, most economic decisions are made by the central government, in the form either of economic plans or specific instructions. Agricultural policies have been closely linked with the national goals of a series of economic plans formulated by the government. All decisions concerning production targets, supply of outputs, distribution of inputs, prices and marketing were made according to these plans. One of the first acts of the North Korean government after it was established in 1946 was land reform. Under the Land Reform Act, nearly 54% of cultivated land in private ownership was confiscated. All land holdings held under continuous tenancy or in excess of 5 ha (12.3 acres) was also confiscated. By August 1958, all individual peasant farmers had been absorbed into the newly created collectives.

Today, the average farm size in North Korea is 466 ha (1,151 acres). Each farm is operated by 80—300 farm families. Cooperative farms account for 90% of cultivated land and agricultural production, and state farms for 10%. State farms are model farms run as industrial enterprises. They are generally larger and more highly mechanized than collectives, and are also managed more efficiently. Along with the expansion of farms into larger units, non-agricultural institutions such as health clinics, elementary schools, kindergartens, and community dining halls were established on each cooperative farm. Individual farmers were given small private plots to cultivate for themselves. The size of plots is limited to 30-50 pyong (100-170 m<sup>2</sup>), depending on the size of the family. Farmers are allowed to grow vegetables, fruit trees and other cash crops, and to raise poultry, pigs and bees, both for consumption at home and for sale at farmer's markets.

The current situation for the average North Korean is not very good. Most North Korean citizens work for very little money. Most citizens live in poverty. About 6.5 million or almost 30% of North Koreans live with food insecurity. The GDP in North Korea is an estimated \$1,800, compared to an estimated \$46,900 in the US, so they only have enough money to buy necessities, but most of the time, not even that.

North Korea's top 5 products in 2007, according to FAOSTAT, are: rice, vegetables, potatoes, apples and indigenous pig meat. Rice had a total value of \$442,011,000 in 2007 while producing 2,350,000 metric tons, while vegetables were worth a total of \$422,212,000 while producing 2,250,000 metric tons. Potatoes were worth a total of \$214,899,000 while producing 1,900,000 metric tons. Apples had a total amount of \$182,384,000 while producing 635,000 metric tons, and Indigenous pig meat was worth a total of \$177,213,000 while producing a total of 175,000 metric tons. Most of that money though, goes to the government because in North Korea, the government owns most of the farmland and the food that's grown on the land. About 30% of North Koreans work as farmers and most of them get paid very little and have very little or no benefits.

One reason for North Korea not having enough food is because of the available farmland. According to [cia.gov](http://cia.gov), North Korea has only approximately 22.4% of its land that is arable. When you have that little farmland, you have to be able to farm smart and get the most you can with your land. The best solution I see to improve the agriculture in North Korea is to conduct scientific research to improve yields by developing disease and drought resistant seeds and creating sustainable agricultural systems.

Another reason for North Korea's lack of food is because of the poor soil quality. Farmers used to use large quantities of chemical fertilizers, which created soil acidification. They destroyed the soil so now the soil quality isn't as good as it used to be. Also, the soil isn't very good because of not having a crop rotation and growing the same thing year after year. With crop rotation you have the chance of growing a variety of different foods. Some years one crop might be high in demand but the next year another crop is high in demand. It's easier to be flexible with your crops when you have a crop rotation. It's also better for the soil because it prevents soil erosion, maintains soil fertility, and prevents soil depletion. Cover cropping is something different. Crops are grown to cover the soil in the off season, and are used for grazing animals or are plowed into the soil to increase organic matter and make the soil more fertile. Research on crop rotations and cover crops will help farms figure out the best systems to use as they try to make agriculture more sustainable.

Programs sponsored by the American Friends Service Committee and the International Fund for Agricultural Development (IFAD) were started with the goal of improving soil fertility and developing sustainable and replicable cropping systems and environment management in North Korea, and their methods included using cover crops and crop rotation systems. They were successful, first of all, in just entering the nation of North Korea. North Korea is not an easy country to get into. Their programs were helpful and the research they started should be continued by the North Korean government and also by other non-governmental organizations.

Another reason for North Korea's lack of food is because of lack of equipment and spare parts. Most farmers in North Korea are too poor to afford the farming machinery that most modern farmers use. And if farming equipment is available, spare parts are often unavailable or unaffordable. Even if you can afford farming machinery and spare parts, the fuel is often too expensive. The North Korean government lacks the funds to import enough fuel oil, and the price of gas is twice as expensive in North Korea as in the United States. As a result, most farming is done by hand and in some cases with the assistance animals. Also, with the oil shortages, most families live in cold, dark homes. One thing that can help with the farming equipment would be if the government created programs to either create or buy farming machinery. It would benefit everyone. The farmers would benefit because it would be less labor and not as hard work. The government would benefit because they would be able to gather more of their crop than if they picked crops by hand. The citizens would benefit because there would be more food to go around. Also, to help with the oil problem, the government could promote renewable energies or more fuel efficient machines. This could be a part of the research effort.

Most of North Korea's trees were cut down in the 1950's. The wood was used for cooking, heating, and for lumber and to clear area for farmland. In the 1990's, a great famine struck North Korea. Starving people stripped trees of bark and leaves to eat. Recently, the government has established programs to replant and expand forests, and many pine and oak trees have been planted. Still, though, most rural areas remain barren. Trees are important to an ecosystem because they help with erosion, provide a natural habitat to other plants and animals, and they can provide food, as was the case in the 1990's during the great famine. Since 1990, North Korea has lost 20% of its forest area and up to 10% of the national food supply is estimated to come from the deforested areas. In 1995, there was a large flood that destroyed crops in most of southern North Korea. An estimated 3 million North Koreans died as a result of the flood, either directly from the flood or as a result of all the destroyed crops. A solution to this problem would be to plant lots of trees in the areas they were cut down. It wouldn't be expensive to finance because you could get seeds from existing trees and plant them in other areas. It would benefit everyone because it would help keep floods under control so that fewer crops die due to floods.

I think that another part of agriculture in North Korea that would benefit from research is the supply and quality of the seeds being planted. In the United States, for example, most crops have been bred to produce high yielding and disease resistant plants. In North Korea, they don't always have the luxury of having hybrid seeds or seeds from a good breeding program. One thing that could help North

Korea with its agriculture problem is to use hybrid seeds and genetically modified seeds to produce crops that are drought and disease resistant. Even though that can get pretty costly, the government could establish a breeding research program for drought and disease resistance and for higher yields in their major crops. Also, IFAD helped farms set up a system to produce disease-free potato stock, which is the kind of program that should be continued and expanded.

As you can see, the nation of North Korea has its share of problems. Since the large flood and continuous droughts in the early 1990's in North Korea, there hasn't been the same agricultural output. The flood and drought killed lots of people and killed lots and lots of crops. Agriculturally, there are many problems in North Korea, including poor soil quality, minimal arable land, lack of farming equipment, and the quality of the seeds, amongst other things. The best solution I see to improve the agriculture in North Korea is to conduct scientific research to improve yields by developing disease and drought resistant seeds and creating sustainable agricultural systems.

Most of the citizens living in North Korea are living a pretty poor quality of life with most people living in poverty. The goal of the North Korean government is to make everyone equal and to destroy social classes and have everyone live equally and not in poverty. In case you couldn't tell, that's not going very well. 37% of children age 6 and younger are malnourished. Even the average child is smaller than their counterparts in South Korea. In South Korea, the average 7 year old is about 49 inches tall and weighs around 57 pounds. The average 7 year old in North Korea is only about 45 inches tall and weighs just 35 pounds. By 2005, the government-run Public Distribution System (PDS) was supplying North Korean households with only about one-half of the minimum calories needed. World Food Programme survey data from 2004-2005 indicates that households spend at least one-third of their incomes on PDS food. If the households need another one-third of their money to cover non-food essentials, they have only one-third of their budget remaining to cover the other one-half of their food, and the non-PDS food is a lot more expensive than PDS food. To deal with it, many households gather wild foods, sell or trade personal belongings for food, maintain kitchen gardens, get assistance from rural relatives who have private plots, or just eat less and deal with the effects of malnutrition.

With that kind of food insecurity, it's crucial that the government step in and help all of the people who are starving by figuring out how to produce more food. Scientific research can help North Korea produce more of their own food and shift from food insecurity to security for all of its people.

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