
Halting the Famine in North Korea

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The Slow Motion Famine

North Korea has been facing food shortages at least since the early 1990s, and is well into a famine of unknown magnitude. US Congressional staffers who had visited the country in 1998 concluded that 300,000-800,000 people have been dying annually from starvation or hunger-related illnesses. Non-governmental organizations, extrapolating from interviews with refugees in China and observations on the ground, have produced estimates of famine-related deaths on the order of 2.8-3.5 million. One scholar recently observed that the number of delegates at the 1998 Supreme People's Assembly implied a mid-1998 population more than three million fewer than demographic projections based on the 1989 census. If these estimates are accurate, they imply that a double-digit share of the pre-crisis population of roughly 22 million has succumbed.

How did this occur?

Prior to the partition of the Korean peninsula in 1948, the colder and more industrialized North had imported food from the more fertile South. After the partition, North Korea sought food security through self-sufficiency, encouraging the production of rice in the southern most provinces, while maize, potatoes, and other staples were grown in the northern provinces.

Although some controversy surrounds the precise timing and magnitude of North Korea's agricultural decline, the consensus is that production peaked around 1989 and has fallen significantly since. This decline in agricultural production has occurred in the context of an economy-wide crisis. By the late 1980s, North Korea had exhausted its possibilities for extensive development and defaulted on its international debts, effectively foreclosing its access to international capital markets. It had fallen out with its primary patron, the Soviet Union, and the value of repayments on past aid exceeded the inflow of new assistance. The subsequent collapse of the Soviet Union and the break-up of the Eastern Bloc precipitated an enormous macroeconomic shock.

Economic data released by the DPRK to the International Monetary Fund in 1997 suggest that the economy has collapsed around agriculture — that is, the fall in agricultural output has been actually less dramatic than the decline in output in other sectors. Nevertheless, agriculture has been adversely affected by the decline in the non-agricultural part of the economy. The two primary fertilizers used in North Korea, urea and ammonium sulfate, are both petroleum-based, and shortages of petroleum feedstocks have adversely affected domestic production of fertilizer. A shortage of coal has shut down a coal-fired fertilizer plant. Periodic blights have been worsened by a shortage of agricultural chemicals. Fuel shortages and a lack of spare parts have impeded the use of agricultural machinery, forcing the reintroduction of draught animals. Electrical shortages have interfered with irrigation, which is based heavily on electric-powered water pumps.

Given the relative scarcity and low fecundity of North Korean arable land, the drive to maximize output has involved the use of environmentally unsustainable techniques. Continuous cropping has led to soil depletion and the overuse of ammonium sulfate as a nitrogen fertilizer has contributed to acidification of the soil and a reduction in yields. The need to bring more and more marginal land into production has caused deforestation which in turn has increased the rapidity of run-off, soil erosion, and river bed silting, and ultimately to flooding.

In addition to these structural problems, North Korean agricul-

ture has been beset by organizational problems including over-centralization of decision-making and an preference for large state farms. Although there have been anecdotal reports that there has been some introduction of more incentive compatible systems, such as fixed-rent tenancies, in response to the crisis, the extent of these changes is unclear.

Problems in production have been compounded by difficulties in distribution and in the use of output. Shortages of fuel and spare parts for vehicles have hampered distribution. At the same time, some outside observers have questioned the uses to which output has been put: scarce cereals appear to continue to be used to produce luxury products such as noodles, urban areas with high concentrations of Korean Workers Party members and government officials receive preferential allocations, and it has been claimed that military stockpiling continues. The end result of these difficulties has been a secular deterioration in food production and, in the absence of additional imports, a deterioration in the food balance.

Although flooding in 1995 precipitated the food crisis in North Korea, agriculture, like the rest of the economy, has been in secular decline since the beginning of the decade. Even without flooding, North Korea would have entered the mid-1990s with a substantial apparent food deficit.

Yet while there has been a decline in food production, famine in North Korea has been more due to systemic crisis and a decline in income. It reflects an "entitlement failure" for vulnerable groups that 1998 Nobel prize winner A.K. Sen has argued is characteristic of many famines. Sen identified the problem as a catastrophic decline in incomes or entitlements of vulnerable groups, who then face starvation, rather than a failure to produce or supply enough food. One could argue that vulnerable groups in North Korea initially lost their entitlement to food due to political decisions regarding rationing through the government-run Public Distribution System (PDS), rather than through market forces. As the famine has intensified and the PDS mechanism has failed, food has been increasingly allocated through informal markets, and the situation has come more closely to resemble past famines in market economies described by Sen.

Food for Meetings

While the ultimate responsibility for North Korea's predicament lies in Pyongyang, it is abundantly clear that the outside world has played politics with food. The North Korean crisis has been treated as an opportunity to extract political concessions from the North Koreans. Thus the food crisis, while having a technical component, has also been a diplomatic issue.

By 1994 North Korea had publicly admitted a food shortage, and the following year it began to appeal for international assistance. It initially turned to Japan, its former colonial master, presumably because Japan had substantial reserves in its grain stocks. Moreover, it would be less humiliating to accept assistance from Japan, which could be portrayed as a kind of reparations, than from rival South Korea, which had smaller reserves, in any event. This overture was opposed by the South Korean administration of President Kim Young Sam, whose Deputy Prime Minister Woong Bae Rha warned Japan of "soured relations" if Japan were to provide aid in the absence of South Korean participation.

Eventually South Korea and Japan agreed to provide assistance jointly to North Korea. According to the plan, South Korea would provide North Korea with 150,000 tons of rice in unmarked bags, while Japan would provide 150,000 tons gratis and another 150,000 tons on concessional terms. Observers expected that this deal would improve relations not only among North Korea and the donors, but also between North Korea and the US, especially since the latter had made improved North-South ties a condition of closer diplomatic relations. President Kim Young Sam predicted that the rice deal would pave the way for the planned North-South summit meeting which had been shelved by the death of North Korean leader Kim Il Sung the previous year.

This optimism was soon put to rest with the delivery of the first shipload of South Korean rice. The North Korean authorities, in contravention of the agreement, forced the ship to hoist a North Korean flag upon entering the harbor, and later detained the crew of another relief vessel, charging them with spying. The outrage in South Korea was predictable, and the Kim Young Sam administra-

tion, which had earlier indicated a willingness to purchase rice on the international market if additional assistance was necessary, now announced that the provision of additional rice was impossible until the government purchase of the domestic crop was completed for the year. The North Koreans quickly apologized for the incident, which was interpreted in at least some quarters as an indication of their state of desperation, but the damage had been done — the South Koreans began trying to persuade other countries not to provide additional assistance, and conditioned any further assistance to the North on the opening of bilateral talks. However, as it became apparent that the crisis in the North was not abating, South Korea reversed its stance in the summer of 1997 and began providing additional aid. The policy of assistance has continued following the election of Kim Dae Jung as President in December 1997.

A similar evolution has occurred in the US. As concern about the crisis intensified in 1996, with no diplomatic breakthroughs in sight, the US began to adopt a slightly more assertive posture than South Korea. In June, Secretary of State Warren Christopher announced that the US would make a small (\$6.2 million) additional contribution to the World Food Programme (WFP) appeal. This move was widely interpreted as an attempt to induce North Korean participation in a preparatory briefing for the Four Way Talks, a multilateral diplomatic negotiation on the future of the Korean peninsula, and adherence to the Agreed Framework, a 1994 accord with the US on the North Korean nuclear program. Although the Clinton Administration denied this intention, public statements by Representative Bill Richardson (D-NM), subsequently UN Ambassador and now Energy Secretary, who had engaged in a series of contacts with the North Koreans, seemed to bolster this interpretation. With the crisis continuing into 1997, the US made another, larger, \$25 million donation to the WFP in the spring. In July 1997, former Senator Sam Nunn and former ambassador to Seoul James Laney visited Pyongyang to pave the way for the anticipated August start of preliminary discussions to establish the agenda for the Four Way Talks. After the Nunn-Laney trip, the US announced a \$27 million (100,000 ton) donation of grain, inau-

gurating a policy of "food for meetings" that has continued to the present. Under this policy, the US provides food aid in exchange for North Korean participation in a variety of diplomatic negotiations. Indeed, we have been able to identify nine instances in which US food donations have coincided with diplomatic activity. For example, on 10 September 1998, the same day the US and North Korea announced resumption of suspended missile proliferation and Four Party Talks, the *New York Times* reported that the US had agreed to send 300,000 tons of grain to North Korea, a report that US officials were forced to publicly confirm that day. At present, an exchange of food for access to suspected nuclear-related sites is under discussion.

Looming in the background of this maneuvering has been China. After the Soviet Union withdrew support for North Korea, China emerged as its major patron, supplying in the early 1990s nearly three-quarters of its food imports. China reportedly had been providing North Korea 500,000 tons of grain for free and an additional 200,000-300,000 tons on a concessional basis. After the Chinese government indicated in 1994 that they would demand payment for future shipments, and exports to North Korea, subsequently dwindled. However, concerns about the worsening situation in the North, and growing numbers of North Koreans illegally crossing into China's Jilin province, apparently forced the Chinese authorities to reconsider. In 1996 the Chinese government announced that it would send 100,000 tons of grain, and unconfirmed reports indicated that the Chinese would resume shipping 500,000 tons annually. If these reports are true, China would be North Korea's prime benefactor. What is known is that food is entering into North Korea from China on concessional, commercial, and barter terms.

North Korea, for its part, has responded to the crisis in a variety of ways. The regime has tacitly removed some restrictions on mobility to facilitate foraging, and has acquiesced in the growth of farmers' markets. Local officials have taken a more assertive role in procuring food supplies, and there have been reports of changes in the organization of agricultural production in some local areas. Increased effort has been put into developing high yield varieties, and the North Korean government, ever masters of the grand gesture, invited Norman Borlaug, father of the "Green Revolution," to

Pyongyang. Kim Jong Il reportedly visited a military farming complex and urged the soldiers to grow more vegetables "in order to boost combat power". The government also appealed to the Group of 7 industrialized countries for assistance prior to the Lyon summit.

Resolving the Crisis*

Conceptually one can imagine at least four possible strategies that Pyongyang could adopt in attempting to resolve its current predicament. The first would be a *production-oriented* strategy. The idea here would be to solve the food shortage by growing more food domestically. This could be done by improving incentives to farmers, restoring flood-damaged lands, introducing new seed varieties, etc. Unfortunately, this approach does not deal with two fundamental problems underlying the famine. First, due to the low ratio of arable land per capita, and the northerly latitude and consequent short growing season in the North, attempting to achieve self-sufficiency in grains is a Sisyphean task. Second, a production-oriented strategy does not address this critical problem in the non-agricultural part of the economy, specifically the lack of intermediate inputs, fuel for distribution etc. North Korea would be unlikely to attain even the country's minimum human needs target as defined by the WFP under this strategy.

A second approach could be termed an *aid-oriented* strategy: North Korea simply continues to request international assistance, possibly using military provocations as leverage. The problem here is two-fold. First, one could not be confident that the international community would be prepared to provide support indefinitely: it is clear that past assistance has been motivated by donors' non-famine-related foreign policy goals. Moreover, assistance could have unintended consequences for both donors and the recipient. At some point assistance would begin to depress agricultural prices and crowd out domestic food production. The result would

* This section is based on modeling work contained in Marcus Noland, Sherman Robinson, and Tao Wang "Famine in North Korea: Causes and Cures," Working Paper Series WP-99-2, Washington: Institute for International Economics, January, 1999. Readers interested in the technical details are referred to this source. The paper can be downloaded from the IIE website, www.iie.com

be a fall in rural wages, and the wages of the low skilled urban workers, contributing to income inequality. Aid could also crowd out food imported on commercial terms and, in effect, amount to balance of payments support. This, of course, could be used to finance further military expenditures in the most militarized society on Earth.

In contrast, not only minimum human needs, but also the WFP's normal human demand target could be met under a trade-oriented strategy of freeing up trade and allowing North Korea to align itself with its pattern of comparative advantage. Under this approach, domestic production of grain would actually fall as workers leave agriculture and take up work in export sectors, such as mining and light manufactures, or other foreign exchange generating activities such as the Mt. Kumgang tourism project. However, these foreign exchange earnings could be used to purchase imported food on commercial terms. With more ambitious systemic reform, the country would be able to meet total normal demand (which includes industrial and livestock uses). Under both of the trade- and reform-oriented strategies, national income would rise significantly and wages for all labor groups would increase. (This is in contrast to the production- and aid-oriented strategies where there are identifiable groups of "losers.") The trade- and reform-oriented strategies thereby offer the possibility of recovery strategies through which everyone would gain.

The problem with the trade- and reform-oriented strategies, of course, is that they would involve significant changes in the economy — literally millions of workers would change sectors of employment — and the present regime might regard change on this scale as potentially destabilizing.

Conclusions

A famine of unknown magnitude is underway in North Korea. Only the trade- and reform-centered strategies are likely to provide a sustainable solution to North Korea's problems. Because of North Korea's lack of comparative advantage in grain production, the production-oriented strategy would fail to attain the country's

minimum human needs target. The target could be obtained through international assistance, but it appears that this assistance has been motivated by donors' non-famine-related foreign policy goals, and as a consequence, one could not be confident that this would be a sustainable famine relief strategy. Moreover, an aid-oriented strategy may have unintended consequences from both the standpoints of the donor and the recipient: high levels of aid could crowd out domestic production with deleterious internal implications, while the same aid could crowd out commercial imports, freeing resources for military activities.

In contrast, not only minimum human needs, but also the more ambitious normal human demand target for grains are met under both the narrower trade-oriented strategy and the broader reform strategy. However, the normal total demand (human and non-human uses) target could only be achieved through systemic reform. In both the trade- and reform-oriented strategies, domestic output of grains would actually fall, but this would be more than offset by increases in imports on commercial terms. In both cases, there would be significant changes in the composition of output and employment and greatly increased exposure to international trade. Sectors such as light manufacturing would expand to absorb labor released by the contracting agricultural sector, and wages for both agricultural labor and urban lower skilled labor would increase. Urban highly skilled workers would experience even larger wage increases as a result of the growing availability of complementary low-skill workers.

The current North Korean regime might regard these changes as potentially destabilizing, especially since much of the increase in trade would be with South Korea and Japan, two countries with which North Korea maintains problematic diplomatic relations. As a consequence, the North Korean regime may prefer a mixed strategy in which attempts to boost domestic food production would be supplemented by the acquisition of external assistance. Since domestic production alone is unlikely to meet even minimum human needs, such a strategy appears quite limiting. Escape from the famine will almost surely require at least some liberalization of trade policies. ■