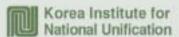
# The DPRK Famine of 1994-2000 : Existence and Impact

By Suk Lee



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The analyses, comments and other opinions contained in this monograph are those of the author and do not necessarily represent the views of Korea Institute for National Unification.

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## I. Introduction

The DPRK food crisis in the 1990s attracted the attention of outside world in many aspects. To those with humanitarian interests it seemed one of the most tragic famines in human history in which millions of people may have died of starvation. To policy makers dealing with the DPRK issues it was a challenge and opportunity to embrace and change this isolated and seemingly aggressive country into a responsible member of the international community. To researchers studying the DPRK economy it was the most compelling evidence that the last remaining Stalinist command economy had finally collapsed.

In light of those concerns, more than 2 million MT of international food aid poured into the country over three years, following the DPRK government's appeal for emergency food aid in 1995. Many western countries, including Great Britain, Australia and Italy, opened diplomatic relations with the country to support economic reforms. New political relations emerged with neighbouring countries such as South Korea (henceforth ROK), Japan and the US. It has been also reported that the country had begun to change in the wake of the food crisis. The historic South-North Korean summit meeting was held in 2000. The DPRK also frequently announced its willingness to participate in the world economy and even introduce market mechanisms, as illustrated by the economic reforms of July 2002.

Despite these concerns, however, surprisingly little is known about the food crisis. We know that the country experienced extreme food shortages in the 1990s. But we do not know when and why the shortages occurred, how severe they were, how different they were from those in other countries, what consequences they had, and even whether they have yet ended.

This analysis introduces and summarises the main findings of more comprehensive works on the food crisis, particularly focusing on two critical issues. One is whether the food crisis developed into famine, and another is how severe it was.

It has been widely argued that the food crisis caused around three million deaths in the mid and late 1990s.<sup>2</sup> Questioning

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<sup>&</sup>lt;sup>1</sup> For the comprehensive works, see Suk Lee, *The DPRK Famine of 1994-2000: Origin, impact and features* (in Korean) (Korea Institute for National Unification, 2004).

<sup>&</sup>lt;sup>2</sup> The report of great famine in the DPRK first appeared in September 1997 when World Vision, a Christian aid organisation, announced survey results on the DPRK food refugees, claiming that one in seven North Koreans starved to death during the food crisis (Reuters 16 Sep 1997). This analysis however relied on the claims of only 33 respondents, raising doubts over statistical credibility. The Korean Buddhist Sharing Movement (1998), another aid organisation that supported the DPRK food refugees in China.

the severity of the crisis may therefore appear moot. The situation is, however, much more complicated. For instance, the UN aid agencies that have organised international aid to the DPRK claim to have not witnessed any such large-scale population loss in the country.<sup>3</sup> Russian and Chinese sources that have relatively accurate information about the country have also made the similar claims. The DPRK government went further, fiercely denying such a large number of famine deaths and arguing that such claims deliberately degraded the country's socialist system to force political changes. Despite arguments over the number of deaths during the food crisis, however, there still remains the lack of firm or reasonable evidence. To understand the real face of the food crisis, therefore, it seems necessary to raise the above two questions and consider whether they could be answered in reasonable ways, given currently available data and information.

This analysis is organized as follows. Chapter 2 provides a brief chronicle of the food crisis, while Chapter 3 reviews previous studies, examines official DPRK statistics, identifies the existence of the DPRK famine and estimates its demographic impact. Finally, Chapter 4 summarises the findings of this analysis and discuss the implications.

began to conduct a similar survey in December 1997. Its results reinforced the argument that around 15-20 percent of the total DPRK population died of starvation between 1995 and 1997. Since then the DPRK food crisis has been generally described by the international media as one of the greatest famines in human history.

<sup>&</sup>lt;sup>3</sup> See Chapter 2 for the details.

## $\Pi$ . Chronology of the Food Crisis

A convenient and basic way to study the DPRK is to examine defectors' statements and outside observations. It is of course unwise to place much weight on them. They are in many cases fragmented, discontinuous, difficult to quantify, and even possibly biased. Such statements nevertheless provide a good starting point for DPRK studies. This is especially relevant when studying the DPRK food crisis about which defectors and external observers have produced disputed and confusing data and information over a decade. A brief chronicle of the food crisis based on such testimony is therefore an appropriate foundation for this analysis.

## 1. Looming Food Shortages: 1987-1993

The first signs of food shortages in the DPRK appeared to the outside world in the late 1980s as the country's Public Distribution System (PDS) or food rationing system began to falter. In 1987 the government reduced PDS rations, which had been stable since 1973, by 10%. The reduction came shortly after the DPRK leadership expressed increasing difficulties in feeding the population. Massive food imports immediately followed. According to UN Food and Agriculture Organisation (FAO), the country's (net) grain import almost tripled to 438,000 MT in 1987 from 153,000 MT in 1986, exceeding 1 million MT in the early 1990s. Since 1987 has become a net importer of grain.

Economic reforms were also launched to compensate for the reduction of food rations. In 1987 the government allowed industrial workers, who had been entirely dependent on PDS rations, to privately cultivate small lands near their work places and encouraged state firms to allocate official farming hours for their employees. Farmers were permitted to expand their private plots collectively and personally. In addition, though still illegal, the government tolerated farmers growing grains in private plots for trade at farmers' markets.

Food shortages were unmistakable in the early 1990s. The government launched a "let's eat only two meals a day" campaign in 1991; and it subsequently intensified.<sup>6</sup> In 1992 PDS rations were further reduced by 10% except for the army and heavy industrial workers.<sup>7</sup> In 1993 the government started diplomatic negotiations with South Asian countries, including Thailand and Vietnam, to obtain emergency food shipments despite grain imports already exceeding 1 million MT.<sup>8</sup> It was persistently

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<sup>&</sup>lt;sup>4</sup> Oh Gyung Chan (1997), p.145.

<sup>&</sup>lt;sup>5</sup> Naewae News Agency (1995), p.230.

<sup>&</sup>lt;sup>6</sup> Noland, Robinson and Wang (2001), p.743.

<sup>&</sup>lt;sup>7</sup> Oh Gyung Chan (1997), p.145.

reported that PDS rations were delayed or temporarily suspended in the northern part of the country. There were also unconfirmed reports of food riots. 9 In December 1993 the government officially admitted the failure of the Third Seven Year Plan and announced that it would adopt new economic policies to resolve the shortages of food and consumer goods under the slogan of "agriculture first, light industry first, foreign trade first."

Table Ⅱ-1. Changes of Food Rations in the DPRK

	Norm	* Ration for Official Worker
1955	Basic Formula: from 900 grams of daily rations for heavy industrial workers to 300 grams for children	
1973	Deduction of four days rations from monthly rations for so-called "war-time grain reserves" (average 13% deduction)	
1987	10% deduction for so-called "patriotic grain"	547 grams per day 200 kg per year
1992	10% deduction from adult rations	492 grams per day 179 kg per year
1994	Great difference between norm and actual ration supply	-

Source) Naewae News Agency (1995), p.241; Oh Gyung Chan (1997), p.145

#### 2. Worst Food Situation in 1994

The food situation became reportedly critical in 1994. A Chinese source warned that the DPRK was facing the worst

<sup>&</sup>lt;sup>8</sup> Radio Press, (Monthly) North Korean Policy Trend [in Japanese], No.12, 1993, p.36.

<sup>&</sup>lt;sup>9</sup> Kim Yeon Chul (1997) and The Economist, 18. Dec. 1993.

food shortage in its history. 10 The government suspended PDS in four Northern provinces - North and South Hamgyung, Ryanggang, Kangwon - and prohibited all internal food shipments to these provinces. 11 An official grain re-collection campaign was launched to coercively repossess 5 kg of grain per farmer from their annual rations. 12 It was in this year that the DPRK food refugees began to flee to neighbouring countries, particularly China. 13 The government however continued to deny the existence of hunger in the country. In January 1994 a spokesman for the DPRK Agricultural Commission condemned the hunger reports in the western media as "wicked deception to degrade the socialist image of the DPRK", arguing that it had filed a large amount of grain stocks as an important strategic resource. 14

## 3. Great Flood and Appeal for International Aid in 1995

The government's attitude, however, changed suddenly in early 1995. In February it announced that it received 300,000 MT of food aid from an international NGO.<sup>15</sup> In May it officially admitted that the country was facing food shortages, asking two old enemies, the ROK and Japan, for food assistance.<sup>16</sup> In June it agreed with the ROK and Japan to procure emergency food aid -150,000 MT of gratis from the

<sup>&</sup>lt;sup>10</sup> Eberstadt (1997), p.233.

<sup>&</sup>lt;sup>11</sup> Natsios (1999).

<sup>&</sup>lt;sup>12</sup> Ahn Jong Chul (1998), p.251.

<sup>&</sup>lt;sup>13</sup> Chosun Daily News (11 May 1994; 10 September 1994).

<sup>&</sup>lt;sup>14</sup> North Korean Policy Trend (1994, No.27), p.47.

<sup>&</sup>lt;sup>15</sup> North Korean Policy Trend (1995, No.4), p.52.

<sup>&</sup>lt;sup>16</sup> Noland, Robinson and Wang (1999).

ROK, plus 150,000 MT of gratis and another 150,000 MT on concessional terms from Japan. The aid was publicly announced to the DPRK public in July, while a similar appeal was made to the US.

In addition to admitting the food shortages, the government implemented a wide range of pragmatic policies in early 1995.17 At the central level, all construction projects were suspended and their resources transferred to agriculture and light industry. At the provincial level, local governments and state firms were empowered to import and trade food independently. At the county level, all the regulations on farm households' private plots were effectively lifted. Profit-pursuing activities such as personal restaurants and foodstuff sales in farmers' markets were also tolerated. In May Kim Jong II declared that boosting grain production was "the most important task in the current socialist phase of the DPRK", ordering the government to mobilise all possible resources to accomplish this task 18

To make the situation worse, however, the country faced a catastrophic flood between July and August that was officially the worst in a hundred years. According to official estimates, flood damage reached US\$ 15 billion, including 1.2 million MT of grain losses that comprised roughly 17 percent of the 1994 production. In August the government launched an official appeal for international food aid for its flood victims, which was soon followed by FAO and World Food Program (WFP)'s field visits to the country. In December the organisations

<sup>&</sup>lt;sup>17</sup> Joongang Daily News, 28 May 1995.

<sup>&</sup>lt;sup>18</sup> Yonhap News Agency, 23 June 1995.

jointly announced that 2.1 million DPRK children and 500,000 pregnant women were on the verge of starvation,<sup>19</sup> providing the first international food aid - 140 tons of rice from WFP. International aid rose thereafter, supplying around 2.2 million MT of food grains between 1995 and 1998. This accounted for approximately 14% of total national food consumption.<sup>20</sup>

## 4. Food Refugees and Destabilised Socialist Regime in 1996

The new year of 1996 began with an official announcement that PDS would cease provision of food rations until May and those stealing food and animals would be immediately executed.<sup>21</sup> The announcement was made shortly after the government reported the depletion of food stocks to WFP and FAO.<sup>22</sup> In January, as food situation worsened, the government introduced a new incentive system for cooperative farms called the "new sub-team contract system."<sup>23</sup> The new system allowed farmers to keep their surplus grain after fulfilling fixed state delivery quotas, whereas the old system had collected all production beyond their own food rations.

Despite the new incentive system, however, the 1996 autumn harvest was extremely poor. Pyongyang media announced that grain production dropped to just 2.5 million MT in 1996 - the lowest level since 1948.

<sup>&</sup>lt;sup>19</sup> FAO/WFP (22 Dec 1995).

<sup>&</sup>lt;sup>20</sup> The ROK Ministry of Unification (17 Sep 1999).

<sup>&</sup>lt;sup>21</sup> Yonhap News Agency, 3 Jan 1996.

<sup>&</sup>lt;sup>22</sup> FAO/WFP (22 Dec 1995).

<sup>&</sup>lt;sup>23</sup> Joongang Daily News, 16 June 1996.

This poor harvest produced two changes. First, the government was forced to change its basic economic structure in order to survive. In December, Kim Young Nam, the head of the Cabinet, said in an interview with a German TV that the country was facing economic collapse and the government would take all possible actions to avoid it.24 Kim Jong Woo, the vicechairman of the DPRK Foreign Economy Commission, made a similar statement that the country failed to establish a selfsufficient economy, its primary economic goal. The government would therefore change economic policies to participate in international markets and revive its economy.<sup>25</sup> Second, a growing number of food refugees travelled domestically without official permission and even fled into China, raising great security concerns for the government. In December, for instance, Kim Jong II warned that such population movement was causing chaos and disorder in the country, which the government was ordered to immediately take all necessary actions to prevent.26

Due to the refugees, however, international attention for the DPRK food situation was growing fast. They commonly stated that a large number of the population was starving to death in the country and cannibalism was even occurring in some areas.27 Quoting such statements, from mid 1996 the international media began to report the full-scale famine in the DPRK.

<sup>&</sup>lt;sup>24</sup> North Korean Policy Trend (1997: No.1), p.1.

North Korean Policy Trend (1996: No.6), pp.56-7.

<sup>&</sup>lt;sup>26</sup> Natsios (1997).

<sup>&</sup>lt;sup>27</sup> North Korean Policy Trend (1996, No.10), p.31; Kyodo News Agency, 24 Oct.1996; Yonhap News Agency, 4 July 1996.

#### 5. Killer Famine in 1997

The claim of famine became wide spread in 1997 as the food situation was reportedly at its worst. Late that year some NGOs supporting the DPRK food refugees in China shocked the world by revealing survey results claiming around 20% of the refugees' family members had died of starvation in 1995-1997.28 On the basis of those survey results, they argued that the DPRK was experiencing one of the worst famines in human history that could destroy all younger generations without appropriate international intervention. News of such high mortality figures spread quickly through the international media, which played a pivot role in generating a general image of the DPRK food crisis.

The DPRK government immediately rejected the allegation of famine. Lee Jong Wha, the Chairman of the DPRK Flood Damage Rehabilitation Committee, criticised the claim as "pure fiction", stating that it would not accept any politically-motivated food aid intended to degrade national pride or demand economic and political reforms.<sup>29</sup> The UN aid organisations and even some donor countries, including the ROK, were also sceptical of such high mortality figures.<sup>30</sup> Some Russian sources claimed that although the DPRK was suffering food shortages the situation was far from being a famine <sup>31</sup>

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<sup>&</sup>lt;sup>28</sup> KBSM (1998); Reuters, 16 Sep. 1997.

<sup>&</sup>lt;sup>29</sup> Gustavson and Lee Rudolf (1997), p.142.

For instance, see ROK National Statistical Office's (1999) estimate of the number of deaths in the DPRK between 1995 and 1997 in Table 3-1 in Chapter 3.

<sup>&</sup>lt;sup>31</sup> A number of Russian delegates who visited the DPRK in late 1997 said that their impression was that, in at least the cities and towns, there was

In these circumstances, in April 1997 WFP produced its first evewitness accounts of the DPRK children's nutrition status. It described the country as being "on the knife edge of a major famine".32 In May 1998, the eyewitness accounts were corroborated by joint FAO/WFP/EU research that claimed 60% of DPRK children were stunted and 50% were malnourished.

In 1997-99, facing widespread hunger, the DPRK government implemented a wide range of agricultural reforms. The reforms followed the removal of Seo Gwan Whi as Party Agricultural Secretary, and the chairmen of six Provincial Rural Economic Commissions in January 1997.33 The purge meant that Kim Jong II began to intensify his personal control over agriculture and introduced a new perspective of Juche Nongbub [Juche farming method]. As a result, several important changes occurred in agriculture. Firstly, the country's outdated crop husbandry began to change. The government encouraged potato production instead of maize that had dominated agriculture for the last four decades. A double cropping system and new grain hybrids were imported, land was rented to foreigners, and UN Agricultural Development and Recovery Funds were accessed. Secondly, cooperative farm management began to be deregulated. Farm households were allowed to keep a portion

no famine. Food supply was very limited and there were cases of malnutrition, but most people had the minimum sufficient for survival. From these sources it seems North Koreans had become accustomed to Spartan conditions that might seem intolerable to Western observers. That is, although the food situation was very grave and the ruling regime was backed into a corner, this was nothing new for the DPRK (The Centre for Contemporary International Problems, The DPRK Report No.9: September-October 1997, Nautilus Institute).

<sup>&</sup>lt;sup>32</sup> WFP (18 April 1997).

North Korean Policy Trend (1997, No.2), p.32.

of their surplus products and given back their rights to elect the chairman of co-operative farms.<sup>34</sup> In some cases, they gained complete autonomy in farm management from choosing crop items to marketing surplus products. Thirdly, the government repeatedly announced its willingness to introduce market mechanism in agriculture. For example, in May 1998, the Vice-Minister of the DPRK Agricultural Commission stated that the country was considering the introduction of a so-called Chinese style "contract production system with farmers," planting export-oriented-crops, liberalising grain prices, and gradually replacing state food rationing with the market mechanism.<sup>35</sup>

## 6. Concerns and Disputes Since 1998

The food situation reportedly improved slightly in 1998 and 1999. In January 1999, the government announced that 1998 grain production was significantly increased from the lowest levels in 1995-97 and that the economy had begun to revive. 36 Both UN aid organisations and the ROK government also observed that PDS recovered in many areas and food rations continued to increase. 37 In particular, farm households were now reported to have a very improved food situation. Nevertheless, the food crisis was far from over. WFP continued to appeal for emergency food aid of 1.2 million MT in 1998 and 1.1 million MT in 1999 to ease the country's dire food situation.

Between 1998 and 2000, other concerns resulted from the

<sup>&</sup>lt;sup>34</sup> FAO/WFP (8 Nov. 1999).

<sup>&</sup>lt;sup>35</sup> Hwang Dong Un (1998).

<sup>&</sup>lt;sup>36</sup> ROK Ministry of Unification (8 Oct.1999).

<sup>&</sup>lt;sup>37</sup> Yonhap News Agency, 19 Jan.1998.

food crisis. Firstly, the DPRK food refugees in China provoked international disputes. While international NGOs demanded China accept their refugee status and provide appropriate support, the Chinese government arrested and deported them. Secondly, it became apparent that emergency food aid was not a durable solution to the DPRK food shortages. International concerns therefore gradually shifted to long-term agricultural recovery. Thirdly, the DPRK became more politically and economically open to outside world. New diplomatic relations developed with many European and Asian countries. Government officials gained more knowledge about the international economy and increasingly encouraged foreign investment. The government also revealed a willingness to negotiate any political and military issues with neighbouring countries in return for food and hard currencies. In consequence, international society began to pay attention to the way the food crisis change this isolated and formerly aggressive communist country in Far East.

## **Ⅲ. The DPRK Famine of 1994-2000** : Existence and Impact

In the previous chapter we have seen that the DPRK suffered great food shortages in the 1990s that may have developed into famine with a large population loss. How can we however see whether the food crisis really developed into famine and assess how severe it was? In this chapter we provide a possible answer to this question.

To put the question into context, it helps to consider the definition of famine. Common usage allows two distinctive definitions of famine 38 One is that famine entails an extreme and general scarcity of food while the other sees it as widespread, unusually life-threatening, hunger. The basic difference between the definitions is that the latter does not require a contraction in the aggregate availability of food for famine to occur. Modern economics of famine has tended to follow the latter

<sup>38</sup> Ravallion (1997), P.1205. See also Chapter 1 of Devereux (1993) for a general discussion of famine definition.

definition. It has proved quite useful not only in studying historically reported famines without significant food availability decline, but also in developing a general theory of famine.<sup>39</sup> We follow this latter definition, for mainly practical reasons though, too. There is no argument that the DPRK experienced a general scarcity of food in the 1990s. There is, however, great dispute over whether this scarcity of food produced significant demographic changes. On one extreme, the official Pyongyang media claimed that there were no such demographic changes.<sup>40</sup> On other extreme, as discussed below, some NGOs argued that more than three million people, comprising around 15% of total DPRK population, died of hunger over 2-3 years in the mid- to late-1990s.<sup>41</sup> To understand this dispute famine is defined as life-threatening hunger.

#### 1. Previous Studies

A significant feature of previous studies about the DPRK food crisis is the focus on demographic impact. Previous Studies have assumed that the food crisis was in reality a famine, seeking to prove it by measuring the size of the demographic loss during the crisis. A variety of techniques have been developed for this purpose. Of them, the following are particularly worth noting. Firstly, Eberstadt (2000) studied the DPRK population size implied by the number of delegates at the 1998 Supreme

<sup>39</sup> See Sen (1977:1981:1993), Dreze and Sen (1989:1990:1991) and Dreze (1999) for modern economics of famine.

Pyongyang TV News, 5 October 1997, quoted by North Korean Policy Trend (1997 no.14: P.26); Pyongyang TV News, 13 November 1998, quoted by North Korean Policy Trend (1998 no.14: pp.42-43).

<sup>&</sup>lt;sup>41</sup> KBSM (1998) and KSM (1999).

People's Assembly (SPA), observing that 3 million people were missing between 1990 and 1998. Secondly, Natsios (1999), ROK National Statistical Office (1999) and Choi Eui Chul (1999) examined the statements of defectors and concluded that the number of excess deaths between 1995 and 1997 ranged from 270,000 up to 3 million. Thirdly, Korean Buddhist Sharing Movement (KBSM) (1998), Korean Sharing Movement (KSM) (1999) and Robinson, Lee, Hill and Burnham (1999) collected household demographic data from the DPRK food refugees in China, showing that death rates increased at least 8 times during the food crisis, compared to the normal level. Fourthly, Goodkind and West (2001) assumed that the DPRK experienced similar mortality increases during the food crisis to those of China during the Great Leap Forward, arguing that famine deaths in the DPRK most likely numbered between 600,000 and 1 million

Table III-1. Estimations on the Demographic Impacts of the DPRK Food Crisis

			Normal Demographic Trend I		Demograp During The	hic Trend Food Crisis	
	Data Used	Estimated Period	Population Growth rate (%)	Mortality (per 1000)	Population Growth rate (%)	Mortality (per 1000)	Estimated Loss
KBSM	Household data of the DPRK food Refugees	1996- 1997	-	-	-11.58	124.8	Total deaths, not excess deaths, in 1995-97: 3.5 million
Johns Hopkins Research Team	Household data of the DPRK food Refugees	1995- 1997	1.5	5.5	-3.18	42.8	Death: 8times more than normal Birth rate: half of normal
Eberstadt	Indirect Indicator (the 1998 SPA Election)	1998	the projected population of 1998 using 1987 data: 24 million		the population of 1998 implied by SPA election: 21 million		Total population loss: 3 million
The ROK Govern- ment	Defectors' Statements etc	1995- 1998	1.27	8.8	0.58	12.1	Total excess deaths in 1995-98: 270,000 (7-800,000 per year in 1995-97 & 40,000 in 1998)
Goodkind and West	China's experience in the 1959-61 famine	1995- 2000	-	6.3	-	15.3-21.4 at the peak in 1997	Total excess deaths in 1995-2000: 605,000-1,040,000
Others	Information from the DPRK Defectors etc	various	-	-	-	-	At least a million famine deaths in a single year of 1996 etc.

- 3. For Eberstadt, Eberstadt (2000)
- 4. For Goodkind and West, Goodkind and West (2001)
  5. For the ROK Government, National Statistical Office (1999)
- 6. For others, for instance, Choi Eui Chul (1999), Natsios (1999) and US Congress North Korean Research Group (1999) etc.

Source) 1. For Korean Buddhist Sharing Movement, KBSM (1998) 2. For Johns Hopkins Research Team, Robinson, Lee, Hill and Burnhan (1999)

As summarised in Table III-1, previous estimates differ greatly by estimation periods, methods, and results. For instance, ROK National Statistical Office (1999) estimated that the number of excess deaths should be about 70-80,000 per year between 1995 and 1998.42 This figure is less than one tenth of that which KBSM (1999) assessed. What makes the matter worse is that all those previous estimates stand either on false assumptions or biased data.

Consider the estimate based on the 1998 SPA election results Eberstadt observed that the DPRK election law assigned one SPA delegate for every 30,000 population. On this basis, he argued that the DPRK population did not change significantly between 1990 and 1998 because both years elected the same number of SPA delegates. Population projection using the 1987 household registration data however suggested that the country's population should increase by around 3 million for the period. He interpreted those missing 3 million as representing the demographic impact of the food crisis. At first glance, this argument seems quite plausible. Indeed the number of SPA delegates had been frequently used to approximate the country's population size.43 Note however that the 1998 SPA election was conducted under the new election law, which deleted the article defining one SPA delegate for every 30,000 population. It simply states that the number of SPA delegates

<sup>&</sup>lt;sup>42</sup> In fact, ROK National Statistical Office (1999) is the result of co-works of many ROK government agencies, including National Security Planning Agency and Ministry of Unification. It utilises two sources of information: the DPRK 1993 census data and the information provided by defectors who had been previously engaged in DPRK public health sector. It is, however, not known how many defectors were engaged in the estimations and how their information was processed.

<sup>&</sup>lt;sup>43</sup> For instance, see Eberstadt and Bannister (1992).

should be decided proportionately to population size, not providing any firm rules.<sup>44</sup> The estimate based on the number of 1998 SPA delegates therefore does not seem well founded.

How about the estimates based on defectors' statements? It is well known that many defectors had suffered immense food shortages and witnessed large-scale famine deaths in the DPRK. It is, however, unlikely they were aware of the overall demographic situation of the country as the government withholds statistics from the public arena and controls all population movement. Defector statements can therefore only be regarded as personal experiences largely influenced by their individual locations and social status. Unfortunately, these personal experiences are too diverse to extract a reliable general trend, while their numbers are too small to statistically control the diversity. Some defectors claim to have witnessed two or three neighbours dying of starvation every day, while others report that there were no famine deaths where they lived. Due to this diversity, the estimates based on their statements have produced unreasonable differences. For instance, Choi Eui Chul put the number of famine deaths between 1995 and 1998 as high as 3 million, while the ROK government estimates the number as 300,000.

Take a look at the estimates by the household demographic data from the DPRK food refugees in China. KBSM, KSM and Robinson, Lee, Hill, and Burnham each surveyed the food refugees in China about deaths and births in their families, finding that refugee households had experienced abnormally

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<sup>&</sup>lt;sup>44</sup> See Jang Myung Bong (1999) for the development of the DPRK election law.

high mortality and low fertility since 1994. Based on such household data, they argued that the DPRK suffered millions of death during the food crisis. These findings are regarded as the most convincing evidence to support the existence of great famine in the country. It is, however, important to note that the household data is inevitably biased. A common feature of the DPRK food refugees in China is their similar regional backgrounds: mostly from the north-eastern part of the country, notably Hamgyung provinces. Whenever collecting their household data, therefore, one must have a regionally biased sample. Indeed, around 80% of respondents in KSBM (1998) and KSM (1999) were from North and South Hamgyung. while this ratio rises to 90% in Robinson, Lee, Hill, and Burnham (1999).

**Table Ⅲ-2** Provincial Births and Deaths in the DPRK 1993

	Birt	ths	Dea	ıths
	(Per 1000)	(DPRK=100)	(Per 1000)	(DPRK=100)
North Hamgyung	18.40	90	6.50	115
South Hamgyung	19.10	93	6.40	114
Chagang	21.00	102	5.80	103
North Pyongan	20.40	100	5.90	105
South Pyongan	20.50	100	5.40	96
Ryanggang	21.50	105	6.20	110
Nampo City	16.70	81	4.50	80
Kangwon	22.70	111	6.10	108
North Hwanghae	22.60	110	5.40	96
South Hwanghae	22.80	111	5.40	96
Kaesung City	21.00	102	5.70	101
Pyongyang City	20.20	99	4.40	78
The DPRK	20.49	100	5.63	100

Source: DPRK Central Bureau of Statistics (1995)

**Table III-3**. Grain (Rice + Maize) Production in Hamgyung Provinces, 1993-1997

					(Mıl	lion MT)
	89-92*	93	94	95	96	97
North Hamgyung	0.44	0.22	0.25	0.22	0.14	0.11
South Hamgyung	0.90	0.57	0.71	0.36	0.23	0.11
Sub-total (89-92 = 100)	1.34 (100)	0.79 (59)	0.96 (72)	0.58 (43)	0.37 (28)	0.22 (16)
DPRK total (89-92 = 100)	8.38 (100)	8.69 (104)	6.66 (80)	3.37 (40)	2.24 (27)	2.58 (31)

<sup>\*</sup> Average between 1989 and 1992

Source: DPRK/UNDP (1998); DPRK Central Bureau of Statistics (1995)

**Table Ⅲ-4**. Per Capita Food Availability in Hamgyung Provinces, 1994-1998

	Population of 1993 (Million)	Grain (rice + maize) Production on Annual Average in 93-97 (Million MT) (B)	B/A (Kg)
North Hamgyung	2.06	0.188	91
South Hamgyung	2.73	0.396	145
DPRK Total	21.21	4.708	222

Source: DPRK/UNDP (1998); DPRK Central Bureau of Statistics (1995)

According to the 1993 DPRK population census, however, North and South Hamgyung had had the highest mortality and the lowest fertility in the country even before the food crisis influenced the country's demographic trends. Furthermore, they faced the worst food situation during the food crisis. In both provinces grain production began to dramatically fall from

1993 - a year earlier than other provinces. These provinces also suffered the lowest food availability during the food crisis. Per capita grain production was only 91kg in North Hamgyung on annual average between 1993 and 1997, while the national average reached 222kg. It is therefore not surprising that most DPRK food refugees came from these two provinces. The implication is clear: the refugee household data most likely exaggerates the country's demographic loss during the food crisis

But how about using the data to estimate the loss of only a certain region such as Hamgyung provinces, not the whole country? Unfortunately the answer also seems negative. The refugee households represent those who had the weakest entitlements even in their provinces. For example, the respondents quoted in Robinson, Lee, Hill, and Burnham (1999) claimed that by the end of 1997, official food rations for their households averaged 30g per person per day. According to official statistics, however, food supply for the residents in North and South Hamgyung, not including food aid, exceeded 440g per person per day for farmers and 210g for non-farmers. The daily ration for an average refugee family was only one seventh of the ration for an average non-farming household in South Hamgyung. It is therefore difficult to accept that data from those refugee households could produce a reasonable estimate for the population trend of even Hamgyung Provinces.

Table III-5. Official Food Distribution in Hamgyung Provinces at the end of 1997

#### A. Farmer

	Annual Grain Allocation in Nov.97-Oct.98 (1000 MT) [1]	Daily Grain Allocation at the end of 1997 (MT) [2] = [1]/365	Population of 31 Aug. 1999 (Thousand) [3]	Daily Grain Allocation at the end of 1997 (gram) [4]= [2]/[3]
N.Hamgyung	79.6	218.1	490	445
S.Hamgyung	149.3	409.0	909	450

#### B. Non-Farmer (PDS Population)

	Monthly Food Ration In Dec.1997 (1000 MT) [5]	Daily Food Ration at the end of 1997 (MT) [6] = [5] / 31days	Population of 31 Aug. 1999 (Thousand) [7]	Daily Food Ration at the end of 1997 (gram) [8]= [6]/[7]
N.Hamgyung	13.1	422.6	1737	243
S.Hamgyung	13.6	438.7	2023	217

#### C. Defectors' Daily Rations

	Per Defector	30 grams at the end of 1997	
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Source: DPRK/UNDP (1998); FAO/WFP (8 Nov.1999)

Finally, Goodkind and West assumed that peak increases in mortality during the DPRK food crisis matched those of China during the Great Leap Forward. Based on this assumption, they grafted the absolute increase in Chinese death rates in 1958-61 onto the 1994 death rates in the DPRK, concluding that the number of famine deaths in the DPRK reached 1.04 million from 1995 to 2000. In addition, based on a linear relationship between child malnutrition and infant mortality in most Asian countries, they compared the 1998 DPRK children's nutritional data obtained by EU/FAO/WFP survey with those of other Asian countries. This led to an estimated DPRK infant death rate of 87 per thousand during the food crisis. Because this figure was significantly lower than the estimated peak death rates directly calculated from China's experience (136 per thousand), they scaled-back it. This method produced an estimate of 605,000 famine deaths between 1995 and 2000. Their final conclusion was therefore that the DPRK food crisis caused 605,000-1.04 million excess deaths.

Note that this estimation depends entirely on a single assumption: the DPRK food crisis created similar mortality increases to those of the 1958-61 Chinese famine. To justify this assumption Goodkind and West(2001:229) emphasized:

Both famines resulted from a series of climatic calamities interacting with overzealous attempts to transform social institutions in line with Marxist ideals. Both famines persisted for several years because secretive governments were initially reluctant to admit the existence of adverse conditions and were opposed to relief efforts being undertaken earlier

But this argument is misleading. Compared to the 1958-61 Chinese famine, the DPRK food crisis developed quite differently. For instance, China had bumper harvests prior to famine. Together with overzealous political ambitions, those bumper harvests led to the radical commune movement at the final stage of agricultural collectivisation in 1958. This sudden institutional change produced successive grain production failures in 1959-61, eventually leading to the famine. The Chinese government was over-confident from pre-famine bumper harvests, ignoring famine reports from rural areas shortly after the 1958

autumn harvest. Grain exports continued and little effort was made to alleviate the growing famine. By contrast, the DPRK had experienced ongoing food shortages long before famine situation reportedly appeared in the mid 1990s. The government had begun to monitor the national food situation and make various efforts to increase grain imports from the late 1980s onwards. In addition, there was no institutional change contributing to the famine. Moreover, when the food situation worsened in the mid-1990s, the government immediately appealed for international food aid and opened the country to westerners for the first time in its history. It implemented various reform policies to encourage private food production and trade that had been prohibited for almost four decades. It is therefore difficult to conclude that the DPRK food crisis was similar to the 1958-61 Chinese famine.

In addition to these differences, there are two solid arguments that suggest the DPRK mortality trends during the food crisis were different to those of China in 1958-61. Firstly, the main victims of the DPRK food crisis were different from those of the Chinese famine. In China, the famine was more severe in rural areas because the urban population was protected by state food rations while the agricultural population was not. By contrast, as Lee (2003) pointed out, the DPRK food crisis was more severe in urban areas, even though the urban population was protected by state food ration as in China. Secondly, the duration of the DPRK food crisis was much longer than that of the Chinese famine. The Chinese famine lasted for around three years. In the DPRK, however, famine conditions reportedly continued at least for six years from 1994 to 1999. Considering pre-famine food shortages, in reality the food crisis endured for more than ten years. In short, the

DPRK food crisis was different from the Chinese famine in terms of its causation, pre-famine conditions, government response, main victims, and duration. It seems therefore inappropriate to directly apply China's famine mortality experiences to the DPRK.

## 2. Official DPRK Population Statistics

Previous studies have failed to produce appropriate estimates for the number of famine deaths during the DPRK food crisis. A reason is that they relied on nonofficial information too much. It is difficult and perhaps unwise to construct a country's demographic situation without official population statistics, particularly when the country has been isolated from outside world for more than five decades. Are there however official DPRK population statistics in fact available?

**Table Ⅲ-6**. Official Birth and Death Rates, 1990-2000

						(Per t	housand)
	1990	1993	1994	1996	1998	1999	2000
Crude Birth Rate	22	20	-	20.1	18.2	17.8	17.5
Crude Death Rate	5.9	5.5	6.8	6.8	9.3	8.9	8.8
Under 5 Mortality*	-	27	28(31)	40(58)	50	48	-
Population (million)	-	21.21	-	22.11	-	22.75	22.96

<sup>\*</sup>Mortality per 1000 live births; ( ) refers to DPRK Ministry of Health's submission Source: Watts (1999); USCDC (1997); DPRK CSB (1995); DPRK (2002b)

## A. Availability

Official DPRK population statistics are extremely hard to obtain. Since 1962, the DPRK government has only twice published detailed demographic data. In November 1987, the DPRK Central Bureau of Statistics (CSB) provided household registration data to UNFPA.45 In 1993, the CSB submitted the 1993 population census data to the UN.46 No detailed official data has been published since this date. Moreover, the Pyongyang media has frequently claimed that despite the food crisis, the country's population continued to grow at the official annual rate of 1.5%, as revealed by the 1993 census. Together with the lack of available data, this government attitude has generated a perception that it is impossible to study the country's demographic situation since 1993 using official data.

Despite this overall statistical blackout, however, some pieces of official DPRK population statistics are still available. And the data clearly suggests that the country's demographic situation was significantly influenced by the food crisis. In 1997, for instance, the DPRK Ministry of Public Health provided updated child mortality figures to the US Centre for Disease Control and Prevention (USCDC) delegates. It said that due to the food crisis, child mortality under age five increased to 31 per thousand in 1994 and 58 in 1996. In September 1999, a high-ranking official in the DPRK Ministry of Foreign Affairs informed UN aid organisations in Pyongyang that the crude death rate had increased to 6.8 in 1994 and 9.3 in 1998. In November 1999, the DPRK government provided FAO with official population figures dated 31 August 1999. The figures included total and provincial population, revealing

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<sup>&</sup>lt;sup>45</sup> The data are available from Eberstadt and Banister (1992).

<sup>&</sup>lt;sup>46</sup> DPRK Central Bureau of Statistics (1995).

<sup>&</sup>lt;sup>47</sup> USCDC (1997).

<sup>48</sup> Watts (1999), p.1773.

<sup>&</sup>lt;sup>49</sup> FAO/WFP (8 November 1999).

that the country's population grew by an average 1.09% per annum between 1994 and 1999. Prior to this submission, the DPRK People's Service Commission (PSC) in charge of food rationing also provided population figures that seem to reflect the population situation of the early 1996.50 Finally, the DPRK government submitted to the UN relatively detailed population statistics in 2002, including crude birth and death rates, life expectancy, and total and provincial population between 1990 and 2000. The data also showed that the death rates rose throughout the 1990s while the birth rate fell significantly.

### **B.** Reliability

The official statistics provided the only opportunity so far to examine the food crisis in factual terms. In order to utilise the data, however, their reliability must first be established. There are two questions that have been or can be raised concerning the reliability of official DPRK statistics. First, does the DPRK government deliberately manipulate the statistics? Second, are they accurate even if they are not manipulated?

Consider the first question. In 1997, as mentioned above, the DPRK Ministry of Public Health reported that child mortality under 5 was 31 per thousand in 1994 and 58 in 1996. But the figures submitted to the UN in 2002 were different, claiming rates of 28 per thousand in 1994 and 40 in 1996. If the figures of Ministry of Public Health were genuine, the figures submitted to the UN must have been manipulated. Similarly, it could be argued that the official population figures of 1999 and 2000 were manipulated. Both figures were submitted to secure

<sup>&</sup>lt;sup>50</sup> Lautze (1996).

more food aid for the DPRK government and respond to international attention on the country's humanitarian situation. Exaggerating population size would serve both purposes.

**Table Ⅲ-7**. Official DPRK Population: 1987-1999

		1		(Thousand)
	1987	1993	2000	Cf. Aug.1999
Special Cities				
Pyongyang	2,355	2,742	3,084	3,044
Kaesung	331	335	363	386
Nampo	715	731	792	814
North West				
S. Pyongan	2,653	2,867	3,051	3,100
N. Pyongan	2,408	2,437	2,437	2,625
Chagang	1,156	1,152	1,239	1,232
North East				
S.Hamgyung	2,547	2,732	2,930	2,932
N.Hamgyung	2,003	2,061	2,221	2,227
Ryanggang	628	638	687	703
South West				
S.Hwanghae	1,914	2,011	2,224	2,290
N.Hwanghae	1,409	1,512	1,665	1,734
South East				
Kangwon	1,227	1,305	1,406	1,467
Subtotal	19,346	20,523	22,100	22,554
Unallocated	-	691	863	-
Total Population	-	21,214	22,963	22,554

Source: Eberstadt and Banister (1992); DPRK Central Bureau of Statistics (1995); FAO/WFP (8 Nov. 1999); DPRK (2002a)

The evidence of manipulation is undoubtedly compelling. An equally convincing counter-argument, however, can be made. Official DPRK population statistics were reportedly collected through the household registration system, the main purpose of which is to maintain the country's food rationing system. In normal years, population figures are calculated by the differences between reported births and deaths. When there is a birth (or death), the head of household should obtain birth (or death) certificate from hospital, have it stamped by local police station, and finally submit it to local food rationing body (via his workplace) in order to list (or withdraw) the name of birth (or death) on (or from) rationing books.<sup>51</sup> Three administrative hierarchies therefore have been engaged in the collection of statistics: Ministry of Public Health; Ministry of Interior; and the PSC. This implies that officially collected population statistics could differ by their collection bodies and collection timings due to both time lags and intentional omissions in reporting. For example, DPRK households may prefer to delay or avoid reporting the deaths of family members to the authorities during the food crisis, particularly to local rationing bodies to protect their food rations. The child mortality figures collected by the PSC may then be lower than those collected by other administrative hierarchies, such as the Ministry of Health. If the PSC figures were submitted to the UN, this would explain the discrepancy despite neither authority intending statistical manipulation. Similarly, it can be argued that the population figures of 1999 and 2000 could not be severely manipulated. An exaggerated population size would imply that the country had effectively survived very low food availability, hence hindering efforts to secure additional food aid from abroad

The fundamental problem is insufficient data or information to judge competing arguments. Hence, though further studies

<sup>&</sup>lt;sup>51</sup> Seo (1995), pp.35-47.

are required, we simply assume that although officially released population statistics since 1993 may be manipulated, the degree of manipulation is probably not significant.

Now consider whether the data are accurate even when they are not manipulated. In contrast to the difficulties of assessing degree of data manipulation, it seems evident that most of the data collected is inherently inaccurate. There are two reasons for this assumption. Firstly, as discussed above, there is inconsistency in the data itself. Secondly, most official population statistics available since 1993 seem to originate from the PSC, which tends to collect the most biased figures of the collection bodies. For instance, the population figures of 1999 divide the country's population into PDS and non-PDS population by regions, suggesting that they have been made for rationing purposes by the PSC. For these reasons, we utilize the data in the following ways. Firstly, when we draw a certain conclusion from the data, we try to see whether the same conclusion can be drawn from other nonofficial data and information. Secondly, if this is not feasible, we consider the conclusion as unconfirmed one with possibly great errors. As such it easily be reversed as any new evidence or data become available.

## 3. The DPRK Famine of 1994-2000: Existence and Impact

In this section we discuss the DPRK food crisis using the official population data. We examine whether the food crisis developed into famine, and if so when, and then estimate its demographic impact. Naturally this discussion is not free from the reliability problems of the official data discussed above. Hence we also examine the food crisis using another completely separate data from the UN aid organizations and EU nutrition survey. The final conclusion of this chapter is reached after comparing both results.

#### A. Existence and Duration of Famine

Previous studies of the DPRK food crisis have implicitly assumed that it developed into famine in 1995 [see Table III-1]. This may reflect the first DPRK government appeal for international food aid. Official statistics, however, provide a slightly different picture, suggesting that the food crisis became a famine in 1994, not in 1995.

Table III-6 shows the country's crude death rate had fallen from 5.9 in 1990 to 5.5 in 1993, but started to increase again to 6.8 in 1994. The under 5 child mortality rate also went up to 31 in 1994 from 27 in 1993. It was therefore in 1994 that the country's death rates began to deviate from the exiting downward trend. The question is: whether this deviation was caused by the country's worsening food situation.

According to official DPRK statistics, the 1993 autumn harvest that determined the 1994 food situation was reasonably good, compared with the 1989-92 level: it increased by 4%. This successful harvest however did not produce an increase in overall grain supply in 1994, as grain imports drastically fell that year. In the early 1990s, the DPRK had imported an average of 1.5 million MT of grain, most of which had been Chinese maize. China was the only country that offered 'friendly prices' to the DPRK and supplied all the maize that the country imported. In 1993, however, Chinese maize production was severely damaged by cold weather. In addition, there were even political conflicts between the two countries in 1994 as the DPRK approached Taiwan for economic purposes. Consequently, Chinese maize exports to the DPRK fell by 80% in 1994.52 Due to this sudden cessation of Chinese maize exports the DPRK grain imports declined to just 0.5 million MT, lowering total grain supply by 2-6% in 1994.

**Table Ⅲ-8**. Grain Production, Import and Supply in the DPRK, 1990-2000

					(Mil	lion MT)
		Productio	n	Net Import		Supply
	Official	(A) Pyongyan Media	g Agricultural Commission	(B)	(A) -	+ (B)
	(Grain)	(Grain)	(Rice+Maize)	(FAO Est.)	Max.	Min.
1990	-	9.49	7.58	0.55	10.04	8.13
1991	9.10	9.00	7.26	1.56	10.66	8.82
1992	-	8.90	7.27	1.15	10.05	8.42
1993	-	8.80	7.06	1.54	10.34	8.6
1994	-	9.00	7.5	0.56	9.56	8.06
1995	7.08	7.10	5.73	1.01	8.11	6.74
1996	3.50	3.50	2.77	1.11	4.61	3.88
1997	2.50	2.50	1.82	1.45	3.95	3.27
1998	2.69	2.70	2.11	1.50	4.2	3.61
1999	3.20	-	-	1.19	4.39	4.39
2000	4.28	-	-	1.47	5.75	5.75

<sup>\*</sup> Production figures are for the previous year's performance Source: DPRK (16 July 2002); Hirata (1998); DPRK/UNDP (1998); FAO Statistical DB

Is it however reasonable to conclude that the country's death rates began to jump in 1994 simply because its grain supply fell by 2-6 percent? Perhaps the 1993 provincial harvest figures provide a good answer. The DPRK regional grain production

<sup>52</sup> Kim, Lee and Sumner (1999) p.531.

varied immensely in 1993. Due to favourable weather conditions and sufficient fertilizer supply, the national breadbaskets such as Hwanghae and Pyongan Provinces increased grain production by over 10% compared to 1989-92 levels. By contrast, provinces such as Hamgyung and Kangwon suffered cold weather and up to 50% falls in production. Consequently these areas suffered great difficulties in providing adequate food rations to their residents. For example, according to the DPRK census data North and South Hamgyung had 4.8 million residents at the end of 1993. Per capita grain production in both provinces should therefore be around 165kg in 1993, far below the normal 179kg food ration for an average North Korean in 1994. To provide the ration, therefore, both Provinces had to seek emergency food shipments from the central government or other provinces. The entire country, however, was facing increasing food shortages following the sudden cessation of Chinese maize exports in 1994. As pointed out in the previous chapter, the central government repossessed 5kg of grain from each farmer's annual food ration, suspended all internal food deliveries to the northern part of the country, and suspended the local PDS. As a result, many residents in the northern part of the country faced entitlement failures. KBSM (1998) reports that most food refugees from North and South Hamgyung Provinces experienced temporary cessation of food rations and received only 60% of their rations in 1994. It is therefore not surprising that the national death rates began to rise that year.

Famine is defined as life-threatening hunger. And now four facts have been established about the 1994 DPRK food situation: significant mortality increase; overall food availability decline; dramatic grain production failures; and individual households' entitlement failures. It therefore seems reasonable to conclude that the DPRK food crisis began to develop into famine from 1994.

By the same token, the famine clearly continued across the country at least until 1998. Between 1994 and 1998, the country's death rates almost doubled, grain supply halved, and entitlement failures extended to most DPRK households. But how about after 1998? Grain production rebounded in 1999. reaching the highest level since 1995 in 2000. The DPRK government also began to express confidence in overcoming the food crisis after 1999. The national death rate, however, had not fallen significantly by 2000. Indeed, the crude death rate reached 8.8 per thousand in 2000, far exceeding the 1996 level. This suggests that, although the country's food situation improved slightly in 1999-2000, the famine was not completely finished. It seems therefore logical to say that, if the DPRK food situation of 1996 is defined as famine, so was the situation of 1999-2000

**Table III-9**. Rice and Maize Production by Province: 1989-97 (Million MT)

					(Mill	ion MT)
	vg. 89-92	93	94	95	96	97
Special Cities						
Pyongyang	0.46	0.55	0.32	0.21	0.16	0.16
Kaesung	0.15	0.16	0.06	0.07	0.04	0.05
Nampo	0.20	0.23	0.18	0.11	0.09	0.09
Sub-total	0.81	0.94	0.56	0.39	0.29	0.3
(89-92=100)	(100)	(116)	(69)	(48)	(36)	(37)
North West						
S. Pyongan	1.41	1.59	1.34	0.54	0.34	0.42
N. Pyongan	1.35	1.56	1.13	0.36	0.3	0.35
Chagang	0.20	0.19	0.22	0.08	0.08	0.09
Sub-total	2.96	3.34	2.69	0.98	0.72	0.86
(89-92=100)	(100)	(113)	(91)	(33)	(24)	(29)
North East						
S.Hamgyung	0.90	0.57	0.71	0.36	0.23	0.11
N.Hamgyung	0.44	0.22	0.25	0.22	0.14	0.11
Ryanggang	0.03	0.04	0.04	0.02	0.01	0.02
Sub-total	1.37	0.83	1	0.6	0.38	0.24
(89-92=100)	(100)	(61)	(73)	(44)	(28)	(18)
South West						
S.Hwanghae	1.86	2.11	1.39	0.84	0.49	0.78
N.Hwanghae	0.83	0.87	0.49	0.29	0.19	0.24
Sub-total	2.69	2.98	1.88	1.13	0.68	1.02
(89-92=100)	(100)	(111)	(70)	(42)	(25)	(38)
South East						
Kangwon	0.36	0.31	0.32	0.18	0.08	0.07
Sub-total	0.36	0.31	0.32	0.18	0.08	0.07
(89-92=100)	(100)	(86)	(89)	(50)	(22)	(19)
DPRK Total	8.38	8.69	6.66	3.37	2.24	2.58
(89-92=100)	(100)	(104)	(80)	(40)	(27)	(31)

Source: DPRK/UNDP (1998)

# B. Demographic Impact of Famine - Estimation by Official Population Statistics

So far we have made two findings. First, official DPRK population statistics have entailed the demographic impact of the food crisis. Second, they suggest that the food crisis developed into full-scale famine between 1994 and 2000. These findings enable an estimation of the scale of population loss caused by the famine.

Given that the famine began in 1994, the 1993 DPRK census data should imply the country's normal demographic trends. Using the data it is possible to project population size for 2000 in the absence of famine. And the official population size in 2000 that has entailed the demographic impact of the famine has been also published. The difference between these two figures therefore should provide a reasonable estimate for the population loss caused by the famine.

It is, however, important to keep in mind that the population projection based on the 1993 census data should be carried out not for total population but for civilian population. There are two reasons. One is purely technical while another concerns the reliability of the data.

Consider the first reason. The 1993 census data provides two different figures about the country's population size. One is the sum of provincial populations, and another is this sum plus so-called 'unallocated' population. Both types of figures are also found in the 2000 population data that include 860,000 unallocated personnel. A widely accepted assumption is that unallocated population refers to the military and thus the sum of provincial populations is the civilian population. Note that

all population statistics provided by the 1993 census data. including age and sex-specific death (or birth) rates, are based on civilian population alone. Thus the population projection based on the 1993 census data could be applicable only to the civilian population and not for total population.

In addition, Lee (2004b) shows that the DPRK government is more likely to manipulate unallocated population rather than civilian population. This suggests that the population projection for total population including the unallocated would be more likely to underestimate the demographic loss caused by the famine. Due to this reliability problem of the data the population projection should be also carried out for the civilian population.

The DPRK population can be projected in two different ways. Firstly, a simple projection can be derived from crude death (birth) rate obtained in the 1993 census. Secondly, a more sophisticated projection base on "component method" can be undertaken, using age and sex-specific death (birth) rates calculated from the 1993 census. Both projections adopt the assumption that there is no population movement across the DPRK national borders

**Table III-10.** DPRK Population Projection on the Basis of the 1993 Census Data

2000
2,791
129
468
2,679
152
430

Table III-10 reports the results. Estimation I, based on the 1993 crude birth (death) rate, show that if the normal population trend were maintained (i.e. no famine) the DPRK population would grow on an annual average rate of 1.51% between 1994 and 2000, reaching 22.79 million in 2000. During this period, the average number of deaths would be 123,000 annually and 863,000 in total, while the average number of births 447,000 annually and 3.13 million in total. In consequence, total (civilian) population would increase annually by an average 327,000 and 2.26 million in total.

Estimation II, based on the component method, leads to a similar conclusion. If the normal population trend were maintained, the DPRK population would grow at an annual average rate of 1.44% between 1994 and 2000, reaching 22.68 million in 2000. During this period, the average number of deaths would be 134,000 per annum and 938,000 in total, while the average number of births would be 442,000 annually and 3.09 million in total. In consequence, total (civilian) population would increase by an average 308,000 per annum and 2.16 million in total.

Table III-11 compares Estimation I and II with the actual population size of 2000. According to official statistics, the actual DPRK population was 22.10 million in 2000. By contrast, Estimation I and II suggest that the number should be between 22.68 million and 22.79 million if there were no famine. The actual population is 580,000 - 690.000 less than the projected populations.

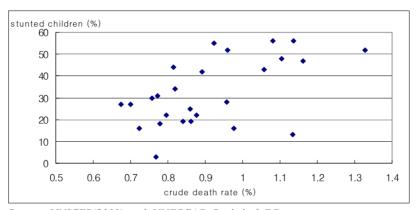
**Table Ⅲ-11**. Population Loss Caused by the 1994-2000 DPRK Famine (A)

				(Thousand)
Official population of 2000	Projected Pousing the 1	pulation of 2000 993 census data		Loss by the nine
(1)	Max.	Min. (2)	Max. (3)=(	Min. 2)-(1)
22,100	22,791	22,679	691	579

# C. Demographic Impact of Famine - Estimation by DPRK Children's Nutrition Survey Data

As already examined, the estimations above are not free from the possible inaccuracy and manipulation of official population statistics. A further estimation excluding official population statistics is therefore necessary for comparison.

Fig. III-1. Children's Chronic Malutrition and Crude Death Rates in Asia Pacific Countries



Source: UNICEP(2000) and UNESCAP Statistical DB

Fig. III-1 describes the proportions of chronically malnourished children and crude death rates in Asia-Pacific countries, suggesting there is a linear relationship between the two variables. Intuitively, this linear relationship is quite plausible, as children tend to constitute the most protected social group in many nations in terms of food consumption. The higher the rate of chronically malnourished children, therefore, the higher must be the crude death rate. If this relationship can be applied to any nation, it is possible to estimate the demographic loss caused by the DPRK famine without employing official

population statistics.

During the food crisis, external organisations, including UN aid agencies and the EU, conducted several nutrition surveys on the DPRK children. Survey results have been published for 1998 and 2002. As mentioned above, the DPRK famine continued at least until 1998. The 1998 survey results must therefore reflect the DPRK children's nutrition status during the famine. It is of course unclear whether the famine lasted until 2002, but chronic malnutrition does not improve quickly. This means that the 2002 survey results are also relevant for DPRK children's chronic malnutrition during the famine. Hence, following the general linear relationship identified in other Asia-Pacific countries, estimates of the overall DPRK crude death rate during the famine period can be obtained. These two crude death rates make it possible to estimate the DPRK population size influenced by the famine. Note that the 1993 census data provided an estimate of the projected national population size if there were no famine. Comparing both population sizes therefore gives another reasonable estimates on the demographic loss caused by the famine, which is relatively free from the possible inaccuracy and manipulation of official population statistics for the famine period.

Table III-12 shows the estimation results. Estimation III, based on the 1998 DPRK children's nutrition survey data, shows that the DPRK crude death rates rose to 12.87 per thousand during the 1994-2000 famine, population growth rate declined by an average of 0.79% per annum, and consequently population was only 21.69 million in 2000. Estimation IV, based on the 2002 nutrition survey data, provides slightly different figures. During the famine, the crude death rate rose to 10.51

per thousand, population growth rate declined to 1.02%, and population size reached 22.05 million in 2000. To sum up, the estimation results based on the DPRK children's nutrition survey put the country's population size in 2000 as 21.69-22.05 million, lower than the official population size of 22.10 million.

**Table Ⅲ-12**. DPRK Population Projection On the Basis of Children's Nutrition Survey

					(Ye	arend, T	housand)
	94	95	96	97	98	99	2000
[Est. Ⅲ: Esti	mated cr	ude deat	h rate is	12.87 p	er 1000]		
Population	20,686	20,850	21,015	21,181	21,349	21,518	21,689
Death	264	266	268	271	273	275	277
Birth	427	430	434	437	441	444	448
[Est. IV: Esti	mated cr	ude deat	h rate is	10.51 p	er 1000]		
Population	20,734	20,947	21,163	21,380	21,600	21,822	22,046
Death	216	218	220	223	225	227	230
Birth	427	431	436	440	445	449	454

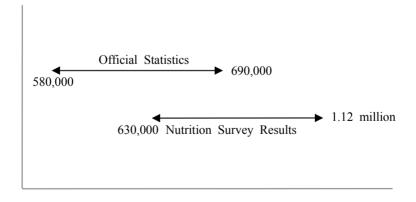
**Table Ⅲ-13**. Population Loss Caused by the 1994-2000 DPRK Famine (B)

				(	Thousand)
	opulation of 2000 993 census data	2000 using		Population the F	
Max.	Min.	Max.	Min.	Max.	Min.
	(1)	(	(2)	(3)=(	1)-(2)
22,791	22,679	22,046	21,689	1,102	632

Finally, Table III-13 compares the above results with previous Estimations I and II that projected the DPRK population without famine. It suggests that the population loss caused by the 1994-2000 DPRK famine should range between 632,000 and 1.1 million. Of course, as shown by Fig. III-2, it may be greater than 580,000-690,000, the population loss estimated by official population statistics. Nonetheless, the differences are hardly irreconcilable.

This analysis supports several conclusions. First, considering currently available data and information, it is reasonable to conclude that the DPRK food crisis developed into famine between 1994 and 2000. Second, the population loss caused by the famine was between 580,000 and 1.1mllion. Third, until additional data and evidence are available, it seems reasonable to reject the hypothesis that the famine destroyed up to 3 million lives in the mid- and late-1990s.

Fig. III-2. Estimation Results on the Demographic Loss Caused by the 1994-2000 DPRK Famine



## **IV.** Conclusion

The preceding text considers whether the DPRK food crisis developed into full-scale famine and assesses the severity. Analysis suggests that although the food crisis indeed developed into famine, the effect was not as severe in terms of population loss as generally conceived. These conclusions are derived from the limited available data. Nonetheless, they are enough to show that previous perceptions of the food crisis were not well-founded: they were based on unreliable rumors, biased data, superficial observations, and even prejudicial hypotheses.

Despite the analysis above, however, many important issues about the food crisis still open to further investigation. For instance, the main immediate factor that led to the food crisis remains unclear. Natural disaster may have been the cause. as the DPRK government claimed. Equally, the cause may have been the breakdown of international socialist blocs that had supplied economic aid to the country, or the inefficiency of its socialist economic system. How about the main features of the DPRK famine, compared to those in other former socialist countries? In many former socialist countries, the government failed to properly respond to famine. It initiated sudden institutional changes that generated agricultural stagnation and famine, ignored famine reports from below, paid little attention to save victims and sometimes even exported food during the famine. The DPRK government faced similar blames during the food crisis. Why did those blames come out and how reasonable were they? All these questions are not considered in the preceding text. Nonetheless, it seems to make an important point: if we want to know the real face of the food crisis, we may have to answer the questions far more carefully than we have done until this time

A common problem facing DPRK studies is that little data and information are available. This has tended to generate more arguments than evidence to support them. Previous perceptions of the DPRK food crisis probably developed in this way. If so, it may be time to try to find more evidence, rather than more arguments.

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