

SPECIAL REPORT

FAO/WFP CROP AND FOOD SUPPLY ASSESSMENT MISSION TO THE DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA

27 July 2001

1. OVERVIEW

Following the coldest winter in decades, DPR Korea was hit by a prolonged severe drought in the spring of 2001. By May, it was clear that the drought had ravaged the winter/spring wheat, barley and potato crops and that the consequent production shortfall would have dire consequences for the food security of the population, particularly in the lean supply months of June to October. This would further aggravate the already precarious food situation caused by successive natural hazards in recent years and persistent economic problems facing the country. Against the backdrop of this unfavourable outlook, FAO and WFP jointly mounted a mid-year Crop and Food Supply Assessment Mission to DPR Korea in June 2001.

The Mission visited the country from 23 June to 3 July to review the food supply situation for the current marketing year (Nov. 2000 to Oct. 2001) and assess early prospects for the 2001 main crops, including paddy, maize, and potatoes. The Mission held discussions with concerned Government authorities, UN and bilateral aid agencies, international NGOs and made field trips to observe standing crop, and irrigation reservoirs in four provinces and one municipality (North and South Hwanghae, North and South Pyongan and Pyongyang). In the field, the Mission interviewed staff of cooperative farms and local Flood Damage Rehabilitation Committees (FDRC) as well as managers of irrigation reservoirs. Vegetation index (NDVI) images at one kilometre resolution from the SPOT-4 satellite since 1998, which depict vegetation vigour and extent, were used to compare vegetation conditions for the current growing period to those of recent years.

The Mission found that spring rains had virtually failed in the period March to mid-June 2001. In many places, the drought lasted for 100 days, reportedly the longest spring drought in recorded history. This led to acute loss of soil moisture, depletion of reservoirs and crippling of irrigation systems. The 2000/01 winter/spring crops of wheat, barley and potato were seriously affected. About 10 percent of planted area was estimated to have been abandoned, while yields on the remaining areas were well below normal. Wheat and barley yields dropped to 0.85 tonnes/hectare against the usual 2 tonnes/hectare, while potato yield was reduced to 3.77 tonnes/hectare against the recent past average of 10 tonnes/hectare. The aggregate production of winter/spring crops, estimated at 172 000 tonnes, was sharply below the expected output of about 493 000 tonnes.

Besides reducing the spring harvests, the long drawn out and extensive drought degraded planting conditions for the main cereals and potato crops. Some 45 percent of the maize crop was affected by the drought, a significant proportion of the original plantings failed and two subsequent replantings took place. The Mission observed unhealthy and uneven maize stands in many areas, pointing to unfavourable prospects for maize harvest in September. Paddy transplantings were also delayed somewhat, but the crop appeared to be generally in good condition. On the positive side, rains from mid-June onwards were regular; fertilizers, fuel and electricity supplies though still critically short of requirements, showed slight recovery over the previous years. Although the final production outcome will crucially depend on weather conditions in the coming months, especially on rainfall in July and August period, in which the country receives the bulk of its



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annual precipitation, early indications point to a poor production outlook this year. The outlook for the short to medium term remains bleak, reflecting significant shortfalls in fertilizers and agricultural chemical supplies, as well as a serious deterioration and ageing of agricultural infrastructure, machinery and equipment. Until these constraints are overcome with adequate international assistance, the country will find it difficult to reverse the declining trends in agricultural productivity.

The food supply situation, though still precarious, has shown signs of some recovery over last year, mainly due to increased humanitarian assistance and concessionary imports. Between November 2000 and June 2001, an average quantity of 215 grams/caput/day had been channelled to 15 million non-farm consumers through the Public Distribution System (PDS) against 200 grams/caput/day for the corresponding period in the previous year. However, the ration rate is expected to be reduced to 150 grams for the same number of beneficiaries in July-September period. Supplies in the lean period would come from procurement of part of the 2001 spring harvest and from pipeline imports.

As a result of the production loss in winter/spring crops, the October 2000 Mission production estimate of 2.92 million tonnes (in cereal equivalent) had to be revised down to 2.57 million tonnes. Taking into account the cereal imports contracted and food aid already delivered or pledged, the Mission concluded that DPR Korea still faces a significant uncovered food deficit of 564 000 tonnes for the remaining four months of the 2000/01 marketing year. As the country enters the difficult lean season, with the winter/spring harvest seriously reduced and the new harvest several months away, additional imports and food assistance for the period until end-October will be imperative to avert further hardship.

Notwithstanding the significant food deficit in the current marketing year, the Mission views with some concern the outlook for food supplies for the next year. Given unfavourable prospects for the main harvest in October, a large volume of food aid and concessional imports will again be required in 2002. Any significant shortfall in the mobilization of such assistance would pose a threat of a deepening food crisis in the country next year.

There is little doubt that widespread starvation in DPR Korea has only been averted by the concerted national efforts and the unprecedented volume of food assistance provided by the international community over the past six years. The Mission stresses that in the short term the crucial food aid safety net cannot be removed without dire food security consequences. However, in addition to the ongoing emergency food assistance, it is imperative that international support be increased substantially from its current low levels for recovery and rehabilitation in agriculture to ensure longer-term food security.

2. FACTORS AFFECTING FOOD PRODUCTION IN 2001

Agricultural production in DPR Korea is bound by scarcity of land and the shortness of the growing season. Per caput arable land stands at 0.27 hectares - marginally higher than the 0.24 hectares for land-scarce Asia-Pacific as a whole. This limitation is accentuated by the short growing season of 150-180 frost-free days spanning May to October. The potential for increasing cropping intensity as well as flexibility in adjusting the timing of cultural operations is therefore capped.

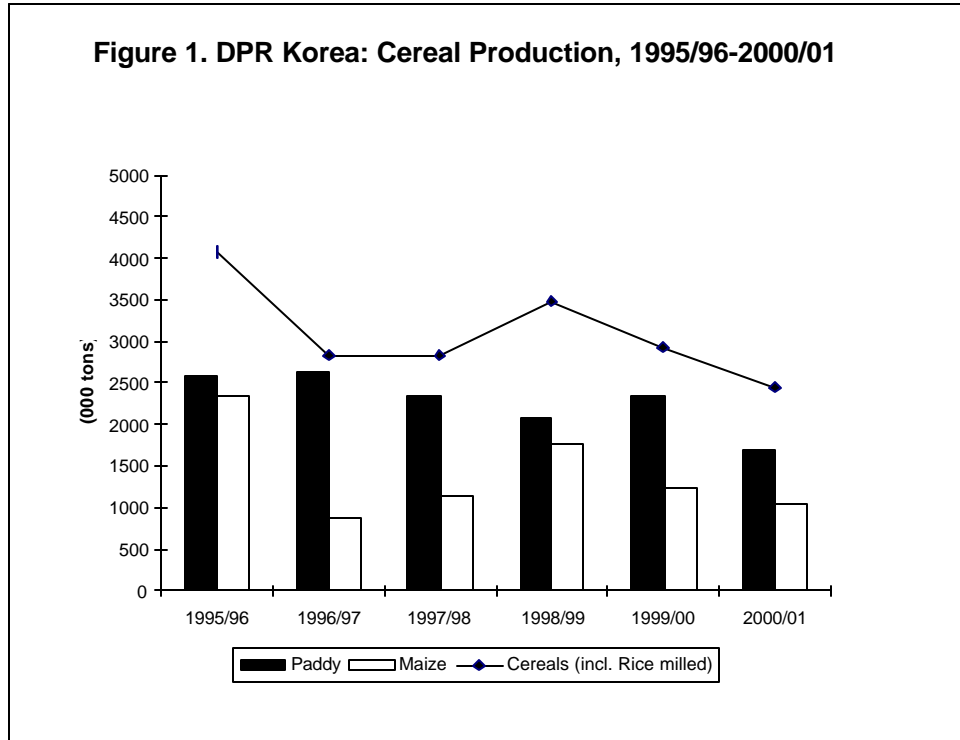
Precipitation normally picks up in March rising to a peak in July/August. Most of the rains usually fall in the three months June-August. But rainfall is not reliable or evenly distributed. Frequent aberrant weather coupled with expansion of cultivation to higher and drier areas have made irrigation an essential requirement in the country's agriculture especially in rice. Each year, the capacity of the country's irrigation system to deliver is a major determinant of performance.

DPR Korea practices high input-high output agriculture. Fertilizers for example, were applied at high rates in the past when they were readily available. The established farming systems required supply of fertilizers in timely, adequate and balanced fashion. If fertilizers became scarce, yields decline and nutrient mining follows in the longer term. Similarly, large amounts of agricultural chemicals, plastic sheets, fuel, machinery and equipment are critical inputs in food production.

However, a significant decline of the economy necessitating severe austerity measures in the past decade has made it extremely difficult to provide these essential inputs. Fertilizers, pesticides and weedicides have been in short supply. Agricultural machinery and equipment are old and in disrepair. Fuel and electricity to operate tractors, pump irrigation water, transport materials and run post harvest machinery have not been sufficient or timely.

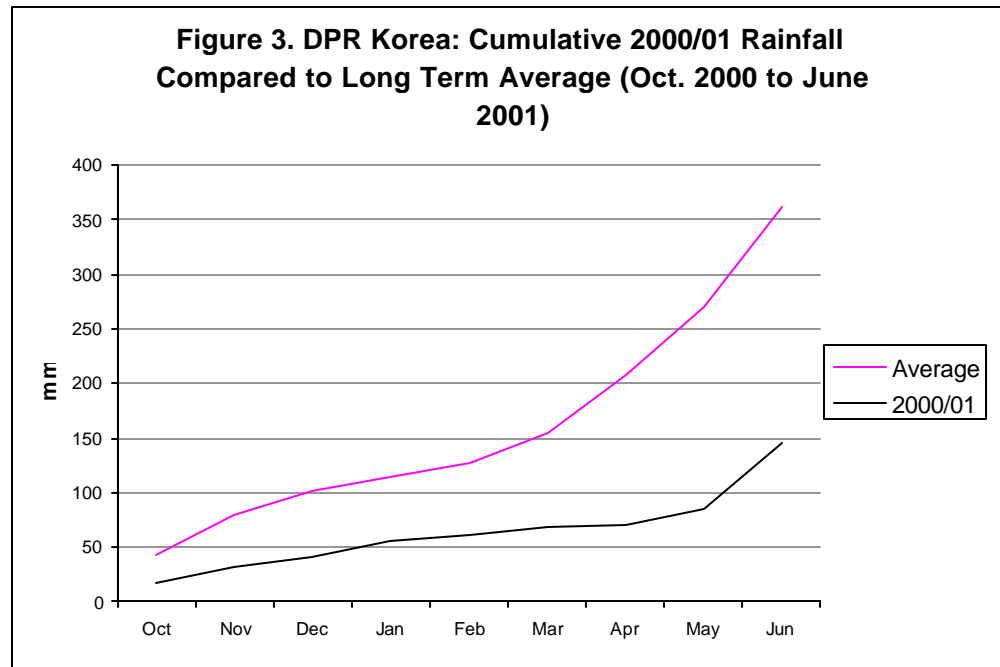
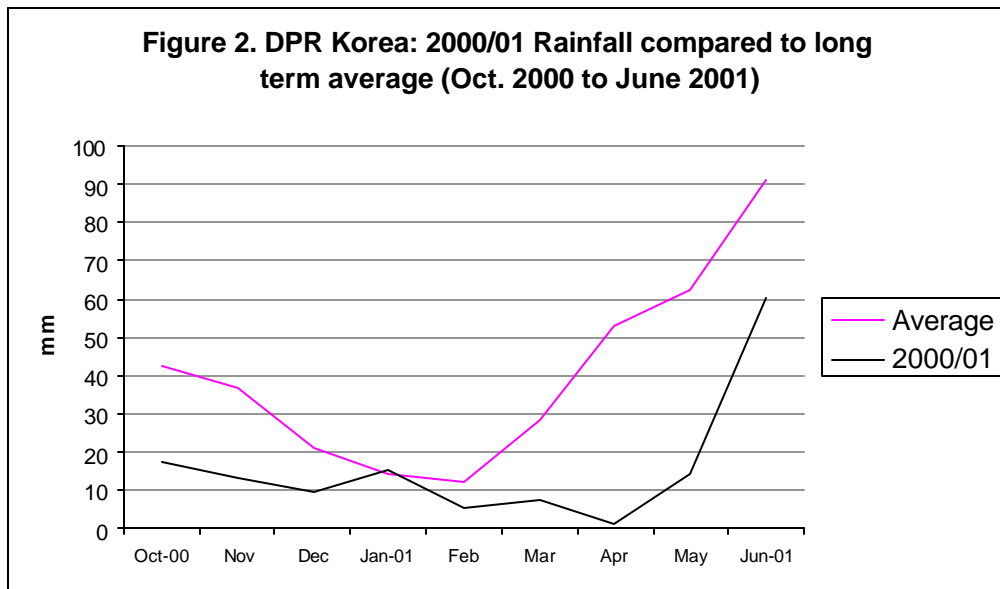
To make matters worse, a series of natural hazards in the second half of the nineties reduced food production and livestock numbers, depleted food stocks, dissipated capital and negated past development efforts in the agricultural sector. Specifically, there were floods in 1995 and 1996; drought and storm in 1997 and drought in 2000. Only 1998 and to some extent 1999 were relatively hazard-free.

The combined effect of the underlying problems in agriculture has been manifested in a precipitous decline in productivity and production of food crops as shown in Figure 1 below.

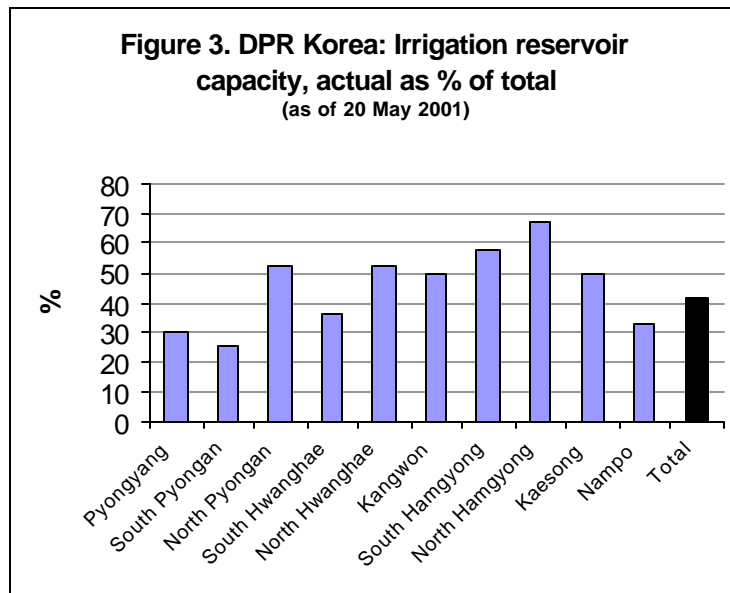


2.1 Rainfall, Water Availability and Temperature

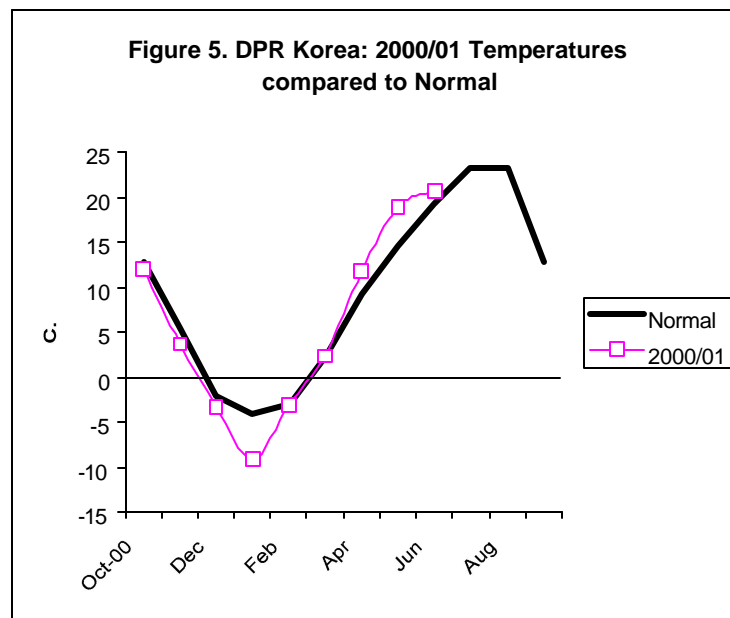
The country experienced a second consecutive year of drought in 2001. Spring rains failed in the run-up to the main rice and maize transplanting season, normally starting in mid-May. The long dry spell lasted for 100 days from March to mid-June in many places. The little precipitation that occurred, was a fraction of that in 2000 – itself a moderately severe drought year. The mean monthly rainfall of 12 provinces was only a third of the long-term average in March, one twentieth in April and one quarter in May. The four rice-bowl provinces namely North Pyongan, South Pyongan, North Hwanghae and South Hwanghae received virtually no precipitation in the critical month of April. The dryness continued in May and well into mid-June in most provinces. Rains came regularly after the drought broke in the second half of June. But total precipitation for the month was still significantly below the long-term average. The actual rainfall from October 2000 to June 2001 compared with the long-term average is shown in Figures 2 and 3.



This severe spring drought following the moderate drought year of 2000 meant that river levels were low and reservoirs depleted. In May, the Government reported that total volume of water in reservoirs of 11 provinces was only 42 percent of capacity. The Mission visited two small and one mid-sized command area reservoirs namely, the Gyonryong and Pyongwon reservoirs in South Pyongan Province and the Unpa reservoir in North Hwanghae province, and found that they were almost dry with water levels 5-15 percent of normal. Subsidiary reservoirs of the Unpa were also reported to be almost empty. The Mission even saw the pumping of water from the reservoirs into distribution canals in two gravitational irrigation systems because of the extremely low water levels. The Gyonryong reservoir authorities reported that they had to pump water from the Daedong river into the reservoir to supplement natural catchment area inflow for the first time in 10 years.



In regard to temperature, the country experienced a relatively harsh winter. December and January were noticeably colder than normal. For example in South Pyongan province, mean monthly temperatures were minus 4.1 in December and minus 10.2 in January against the long-term average of minus 2.0 and minus 4.2 respectively. Temperature picked up in March and April and was above normal in May (see figure 5). The cold winter should have killed off more soil-borne pests like the paddy stem borer, maize stem-borer and the maize army worm. But from reports of the cooperative farms visited, the heavy snow cover afforded some protection from the cold. Sufficient populations survived to cause problems for the summer paddy and maize in several farms.



2.2 Planting Conditions

Rains came in mid-June. Conditions for transplanting/planting the summer crops of paddy, maize, potato and other cereals improved. But spring precipitation losses were too high to restore normal crop conditions in many places. In the course of visits to five cooperative farms in Pyongyang and North Hwanghae and South Hwanghae provinces, the Mission observed that:

- scattered plots of spring barley and potato were not yet harvested which would result in delays in the planting of summer paddy or maize in these plots;

- summer maize fields had plants of different ages owing to replanting - about half of the areas planted in May had to be replanted in mid-June with early maturing varieties;
- paddy fields lacked water in several places and transplanting which should have been completed in early June was still underway;
- some of the paddy and maize planted early in the season have been attacked by stem borer (*Chilo suppressalis* W. and *Ostrina furnacalis*), water weevil (*Lissorhoptrus oryzophilus* R.) and army worm (*Spodoptera* spp);
- general condition of maize crop appeared variable with robust plots alongside stunted and weak ones; and
- vegetables were also affected by drought and insect infestations.

From the discussions with the leaders of the five cooperative farms and the local Flood Damage Rehabilitation Committees (FDRC), it emerged that although transplanting of summer 2001 paddy was delayed to some extent, the eventual conditions were rated satisfactory. Rains after mid-June supplemented by some irrigation provided just enough water for transplanting in most fields. Fertilizers arrived in time but in quantities well below the requirements. The older than usual rice seedlings were not unduly stressed. The maize crop however, caused concern. The replanting of a significant part of the crop in the second half of June may not give sufficient time to produce fully ripened grain. Also, the surviving May plantings appeared stressed and stunted in many places. The farm leaders were inclined to cancel or cut back on planned fertilizer applications. This would result in poor yields of maize in September.

2.3 Inputs

Fertilizer supply at the national level appeared to be marginally better than last year, but well below the prescribed levels. Carryover stocks, domestic production, imports and humanitarian assistance provided for an application of 159 345 tonnes of NPK nutrients as of end June 2001 and a stock of 15 750 tonnes totalling 175 095 tonnes by end-June 2001 (see Table 1). Another 25 000 tonnes from domestic production and pipeline humanitarian assistance are forthcoming in the next two months bringing the total available for the 2000/01 marketing year to 200 095 tonnes. This amount is some 13 percent higher than average of the past six crop years.

Table 1: DPR Korea - National Fertilizer Availability, September 2000-June 2001

	N	P	K	Total
Carryover stocks from 2000	3 150	450	2 000	5 600
Domestic production	19 530	615	1 800	21 945
Imports	1 953	-	-	1 953
Humanitarian assistance	79 947	24 900	25 000	129 847
Total supplies ^{1/}	104 580	25 965	28 800	159 345
Stock as of June 2001	15 750	-	-	15 750
Production and pipeline humanitarian assistance by end-August 2001				25 000
GRAND TOTAL				200 095

At the farm level, the leaders of the cooperatives reported timely delivery of expected amounts of fertilizers. By end-June, 60 percent of planned allocations had been received. Required applications have been carried out. The balance of the fertilizers allocated would come in the next two months.

Fertilizer applications averaged 123 kg per hectare for paddy and 91 kg for maize in 2001. On top of this, several cooperative farms reported that they spread an additional 1520 tonnes/ha of compost in the fields. These rates are high by developing country standards. But the Government prescribes doubling the current rate to 215 kg per hectare for cereal crops to return to the high pre-nineties yield levels and to reverse the perceived on-going nutrient mining of soils. Comprehensive and in-depth soil studies and fertility trials are certainly needed to obtain an accurate picture of fertilizer requirements.

Over the years, domestic production and commercial imports of fertilizers have declined. But international aid has increased to compensate for the shortfall. For the marketing year Nov/Oct 2000/01, humanitarian assistance accounted for some 80 percent of total availability.

Agricultural chemicals seemed to be in short supply. This year only 274 tonnes, mostly herbicides, were imported against 412 tonnes in 2000. The lack of foreign exchange was cited as the main reason for the decline. This shortfall is not expected to cause serious problems. There is sufficient labour for weeding and insect pests attacks have been mild so far, mainly due to harsh winter.

The Government reported an increase of 800 agricultural tractors to the national fleet. Given the declining number of running tractors owing to ageing of the machines, and lack of spare parts and fuel, this small addition is encouraging.

The cooperative farm leaders as well as Ministry of Agriculture officials interviewed, noted some improvement in fuel and electricity supplies. Respondents were satisfied with fuel supplies for the planting operation. This observation is consistent with press reports that factory operating rates have increased significantly over the past year. Furthermore, Pyongyang-based international workers observed that there were far more cars on the roads than in the previous year.

3. 2000/01 WINTER/SPRING PRODUCTION: WHEAT, BARLEY AND POTATO

The 2001 winter wheat/spring barley crops performed very poorly. Extremely dry conditions in spring depleted soil moisture, delayed plantings, reduced germination rates and caused crop failures. Eventually only 93 000 hectares were planted against a planned area of 123 000 hectares representing 76 percent of target. Yield at 0.85 tonnes/hectare was very disappointing compared to the yield range of 1.7-2.1 tonnes per hectare of the last three years. Consequently, the winter/spring wheat and barley contribution to cereal supply for the marketing year November/October 2000/01 at 79 000 tonnes was about half of the average level in the previous three years.

Spring potato, usually sown in April and harvested in June also did badly this year (2001). The area target of 99 000 hectares was reached. But yield per hectare at 3.77 tonnes was well below the norm of 10 tonnes of previous years. Consequently, total output of spring potato was only 0.37 million tonnes against 0.9 million tonnes of the previous year.

Table 2: DPR Korea - Winter/Spring Cereal Crops 2000/01

Production	Winter Wheat/Barley		Spring Barley/Wheat		Spring Potato ^{1/}		Total Production (tonnes)
	Area (ha)	Production (tonnes)	Area (ha)	Production (tonnes)	Area (ha)	Production (tonnes)	
Pyongyang	2 910	2 674	2 690	1 433	1 000	772	4 879
South Pyongan	7 650	6 190	6 180	3 445	15 000	10 604	20 239
North Pyongan	3 420	4 692	3 700	3 415	11 000	10 922	19 029
Jagang	120	129	880	589	3 000	3 180	3 898
South Hwanghae	18 650	17 451	10 891	5 863	21 000	15 664	38 978
North Hwanghae	9 520	9 120	5 879	3 205	14 000	10 799	23 124
Kangwon	4 630	5 366	1 800	996	9 000	8 957	15 319
South Hamgyong	3 970	5 893	1 750	1 090	21 000	28 221	35 204
North Hamgyong	-	-	-	-	2 000	2 511	2 511
Ryanggang	-	-	-	-	-	-	-
Kaesong	2 630	3 043	700	415	700	549	4 007
Nampo	3 220	3 132	1 650	879	1 000	772	4 783
Total	56 720	57 690	36 120	21 330	98 700	92 951	171 971

1/ In cereal equivalent 4 tonnes of potato is calculated as equivalent to 1 tonne of grain.

This low spring output added to the below-average main season (2000) production of 790 000 tonnes brought the total potato supply available for the 2000/01 marketing year to 1.16 million tonnes or 290 000 tonnes in cereal equivalent. This is only 60 percent of the potato supply of the previous marketing year 1999/2000.

Overall the 2001 spring harvests of wheat, barley, and potato were poor. Area targets were not met and yields were exceptionally low. This depressed yield brought down the contribution of domestic production to total cereal availability for the marketing year 2000/01.

4. THE FOOD SUPPLY/DEMAND SITUATION 2000/01

4.1 Domestic Supply

Food grain stocks are presumed to be negligible. Hence the only source of domestic supply is from production. The total production of cereals and potato in cereal equivalent for the marketing year November/October 2000/01 is now estimated at 2.57 million tonnes against 2.92 million tonnes estimated by the previous FAO/WFP Mission of October 2000. The 12 percent reduction in the estimate is the result of the smaller area of winter/spring wheat and barley planted and the considerable drop in yields of wheat, barley and potato. Main season rice, maize and other cereals estimates for 2000 remained the same as those of the previous Mission.

As was done by the previous missions, this mission also raised the issue of food grain production outside the authorized cooperative farming system. Such activity occurred on hillsides, unused land and private household plots clearly visible from the main roads. Currently taken to be temporary and negligible by Government authorities and not included in the official statistics, this form of production needs to be studied, estimated and accounted for not only on methodological grounds, but also to achieve precision in production estimates.

Table 3 below gives the area, yield and production of cereals and potato in cereal equivalent for the marketing year November/October 2000/01.

Table 3: DPR Korea - Cereals Area, Yield and Production

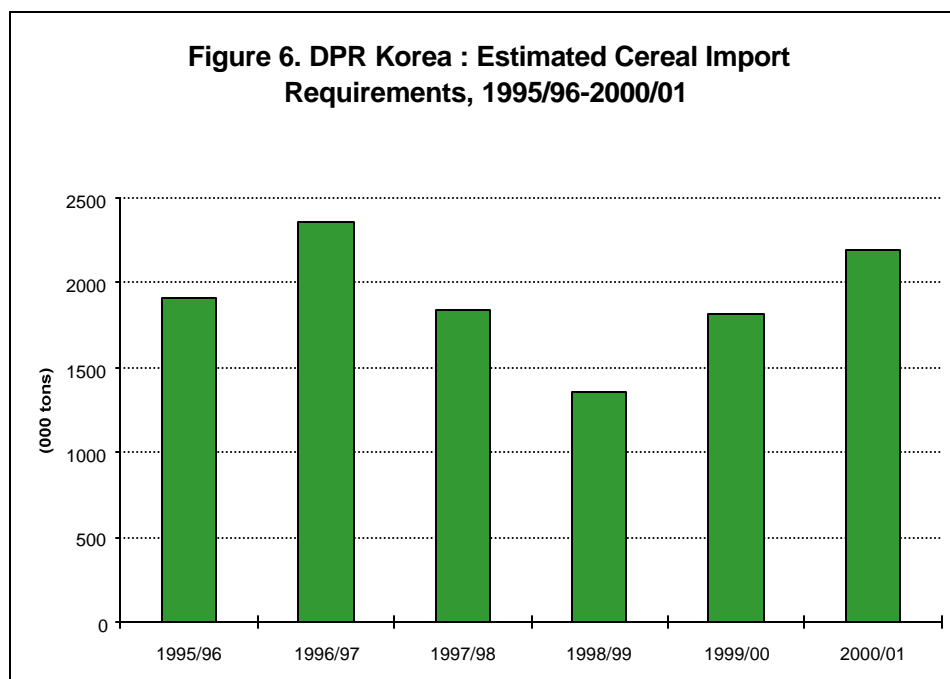
Crop	Area (‘000 hectares)	Yield (tonnes/ha)	Production (‘000 tonnes)
Paddy	535	3.16	1 690
Maize	496	2.10	1 041
Potato (2000/01)	188	6.17	1 160
Wheat and Barley (2000/01)	93	0.85	79
Other Cereals	65	1.00	65
Paddy in milled equivalent ^{1/}			1 098
Potato in cereal equivalent ^{2/}			290
Total production in cereal equivalent			2 573

^{1/} Milling rate of 65 percent.

^{2/} Potato to cereal equivalent of 25 percent.

4.2 Imports

The trends in cereal imports since the onset of the food crisis in 1995/96 are shown in Figure 6 below.



For the period November 2000 to June 2001, the Central Government had commercially imported 10 200 tonnes of grains. Provincial authorities would import another 5 000 tonnes. The Mission learnt that other commercial deals were being negotiated for the remaining four months of the marketing year. On this basis, the Mission estimated that a total of 100 000 tonnes would be imported for 2000/01. This is half the estimate of 200 000 tonnes made by the October Mission last year and reflects continuing financial constraints on the commercial import capacity of the Government.

Concessional imports from the Republic of Korea and China amounted to 500 000 tonnes and 36 400 tonnes respectively so far. No further imports of this nature were expected until October. Delivered and pipeline imports through humanitarian assistance for the Nov.2000/Oct.2001 marketing year totalled 996 000 tonnes as of June 2001. For the eight months ending 30 June 2001, WFP, bilateral and NGO aid shipments and concessional imports totalled 1.24 million tonnes.

4.3 Utilization

There were no changes in food and feed use. But the category known as “other uses, seed and post-harvest losses” has been reduced slightly from the previous Mission’s 614 000 tonnes to 598 000 tonnes. This relatively small change was on account of adjustments necessitated by the fall in total production and availability.

In regard to the component of prime concern in the cereal balance sheet namely food-use, one third of domestic production and commercial imports were distributed through the public distribution system (PDS). In the current marketing year, 828 000 tonnes had been channelled to 15 million consumers in the eight months ending 30 June 2001. The ration rate was 215 grams per caput per day compared to 200 grams for the same period last year. From July onwards, a ration rate of 150 grams per caput per day was planned. The Government intended to procure part of this years spring crop and use pipeline imports to cover July-October period. But given the production shortfall, the cooperative farms may not be able to supply the PDS. In fact, the five farms visited, sold nothing or negligible amounts of their spring harvests to the Government.

This development reinforces the current trend towards increasing dependence on rural-urban household transfers, farmers’ markets, factory-farm arrangements, direct province to province transfers and other sources of supply on the part of the non-farm population.

In contrast, the 6.9 million cooperative farming population received an average share of 210 kg of cereals per caput for 2000. This translated into 575 grams per caput per day or 2010 Kcal which almost met minimum daily energy requirements. Farmers also had the opportunity to produce vegetables and small animals on family plots. It was clear that farmers were more food secure than the non-farm population in the current food crisis.

4.4 Updated Cereal Supply/Demand Balance

On the basis of the revision in production and minor changes in some parameters of utilization, the Mission updated the cereal balance sheet for 2000/01. The assumptions of the previous mission with appropriate adjustments were adopted:

- A population of 23.18 million people in mid 2000/01 marketing year as adopted by the October 2000 Mission;
- A consumption requirement of 100 kg/caput of rice and 67 kg/caput of maize per annum providing 1600 Kcal or 75 percent of the daily calorie requirement of 2130 Kcal/day/person;
- A seed requirement for 2000/01 of:
 - Paddy at 125 kg per hectare (81.25 kg of rice) for 572 000 hectares totalling 46 477 tonnes
 - Maize at 45 kg per hectare for 496 000 hectares totalling 22 320 tonnes
 - Potato at 1 000 kg per hectare (250 kg in cereal equivalent) for 188 000 hectares totalling 47 000 tonnes
 - Wheat and Barley at 200 kg per hectare for 93 000 hectares totalling 18 580 tonnes
- Post harvest losses of 15 percent in view of persistent problems of harvesting, handling, field transport, drying, threshing and storage although this figure should be reviewed by the next mission as the Government has initiated action to reduce such high losses;
- Feed use at 300 000 tonnes as estimated by the October mission last year;
- Other uses at 3.0 percent of total availability; and
- No stock drawdown as the carryover stock level is negligible owing to severe food shortages.

The cereal balance sheet for the 2000/01 marketing year (November/October) based on the above assumptions is given in Table 4.

Table 4: DPR Korea - Cereal balance sheet November 2000 to October 2001 ('000 tonnes)

Total Availability	2 573
Cereal production	2 283
Potato production in cereal equivalent	290
Stock draw down	0
Total Utilization	4 769
Food use	3 871
Feed use	300
Other uses, seed & post harvest losses	598
Import Requirement	2 196
Commercial import	100
Concessional import	536
Emergency food aid (delivered & pipeline)	996
Uncovered deficit	564

Summing up, the shortfall in production caused by the severe spring drought was partially made up by the significant rise in humanitarian assistance. However, an uncovered deficit of 564 000 tonnes remains for the four months ending 31 October 2001.

5. EARLY PROSPECTS FOR 2001 MAIN CROP PRODUCTION

5.1 Crop Area

Paddy, maize and potato are planted in summer (early May) and harvested in autumn, normally September/October. Paddy and maize transplanting should optimally be completed by the first week of June. But the long spring drought had delayed the completion of the operations to end-June.

The country can plant up to 580 000 hectares of paddy—a level reached in 1999. Owing to the drought, 8 000 hectares of marginally suitable paddy land have been shifted to other drought-tolerant cereals like sorghum and millet. The Government reported that 572 000 hectares would be transplanted by end-June. This is seven percent higher than the planted paddy area in the previous year (2000), when 45 000 hectares had to be diverted to other crops due to drought conditions at the transplanting period.

The planned maize area this year was 496 000 hectares - same as in the previous two years. According to the Government, this target was reached by end-June.

The target area for main season potato was 89 000 hectares - same as in 2000. For double-cropped potato, planting normally begins in July after harvesting the spring crop in June. For mono-crop potato the tubers are sown between April and June. So far, progress was reported to be satisfactory. This year's planting target was expected to be reached in July. The Mission saw some plots of standing spring potato in the four provinces visited.

Twenty-eight thousand hectares of other cereals including sorghum and millet were planned for this summer. This target has also been attained. The area compares with 65 000 hectares planted in the 2000 main season when 45 000 hectares were shifted from paddy to drought resistant cereals owing to late rains.

Overall, the country managed to realize its planned target of 1.07 million hectares of cereals and 89 000 hectares of potato in spite of the drought.

Table 5: DPR Korea - 2001 Main Cereal Plantings by Province (hectares)

	Paddy^{1/}	Maize	Potato	Others^{2/}
Pyongyang	26 296	14 002	824	500
South Pyongan	96 653	61 237	6 749	3 100
North Pyongan	101 154	87 021	11 046	6 200
Jagang	6 998	36 681	1 415	2 300
South Hwanghae	147 221	80 012	16 073	5 700
North Hwanghae	47 009	69 394	5 217	1 700
Kangwon	34 652	36 649	2 738	2 400
South Hamgyong	59 201	47 997	7 416	1 600
North Hamgyong	24 481	47 000	11 889	700
Ryongyang	1 949	3 436	22 475	2 000
Kaesong	11 584	6 000	642	700
Nampo	14 832	6 961	2 547	1 100
Total	572 030	496 390	89 031	28 000

1/ Sweet potatoes, sorghum, millet, etc.

2/ Some 8 000 hectares below target.

5.2 Crop Prospects

The long-drawn severe spring drought minimized soil moisture, delayed plantings and caused depletion of reservoirs. These adverse impacts raised risks and uncertainties for the crops.

The paddy transplanting was done with older than optimal seedlings and signs of reduced tillering were emerging. Stem borer and water weevil infestation were reported; and there were widespread concerns that irrigation systems may not maintain required water levels. On the positive side, precipitation has been regular since the drought broke in mid-June, fertilizers were applied in time and extra care was being taken to ensure best cultural practices. On balance, the cooperative farm managements were optimistic - expecting average yields notwithstanding the drought.

The maize crop, which is primarily rainfed, was planted very late. On average more than half of the area had to be re-transplanted or re-sown with germinated seed — some plots two or three times. Early transplantings which survived the dry spell, were stunted and weak and reported to be attacked by stem-borer and army worm. Late replantings, mostly in June might experience a reduced growing season to produce mature grain. Some of the respondents informed that they might not be applying in any more fertilizer for poorly growing plots. The maize harvest is expected to be sharply reduced.

Regular rains from mid-June onwards have improved soil moisture considerably for the potato crop. Timely application of fertilizers has been possible due to stocks in hand. Actions have also been taken to improve seed potato quality and to solve the dormancy requirement problem. It is too early to predict the final outcome, but early indications are encouraging.

6. FOOD AID NEEDS AND ROLE OF FOOD ASSISTANCE

6.1 Household Food Availability

Since the Public Distribution System (PDS) cannot fully meet urban residents basic food needs, other avenues such as farmer's markets and informal production, such as private gardens/plots and community plots, have increased in importance. However, the individual's ability and opportunity for informal production has also increased disparities in access to food between various population groups. Access to food has become more competitive, mainly to the disadvantage of the urban population, who are not in close proximity to food production and have limited means to procure it. This segment of the population gives rise to most concern as they are more vulnerable in a social food safety net system that is already weak. Moreover, although food supply analysis at the macro level based on norms provides an indication of overall aggregate needs, it is not sensitive to these discrepancies. Based on available information, the indications are that the urban population has significantly less cereal available compared to the rural population. Household food access is becoming more dependent on extra incomes obtained from the petty trade, other economic activities and family aid from rural areas or abroad.

In view of the emerging inequities, the most vulnerable amongst the population are at risk of becoming increasingly marginalized and more malnourished. In future, this segment of the population will need greater attention in the provision of food aid. Food aid should, therefore, be continually targeted to vulnerable groups, who have limited assets and are still recovering from the effects of previous food shortages. This is especially so this year in view of the large decrease in domestic production and, consequently, the reduced food ration received through the PDS during the lean season in 2001. Present WFP targeting of food through institutions for childcare and through the PDS for pregnant/nursing women and the elderly becomes more important and needs to be continued.

6.2 Assessment of Nutritional Requirements

To assess food needs, FAO/WFP Crop and Food Supply Assessment Missions to DPR Korea, use a yardstick of 167 kg/capita year to provide 75 percent of a minimum calorie requirement of 2100 kcal. For emergency operations, WHO and WFP, however, normally calculate the calorie requirements taking into account the rule by which 100 kcal is added for every 5 degrees centigrade below 20 degrees centigrade of environmental temperature. As the mean or average temperature in DPRK is 11 degrees centigrade, the increase would thus be 200 kcal or a total 2300 kcal. This assumption, however, may need to be reviewed, as large population groups need nutritional rehabilitation after years of low food intake. Available figures from UNICEF/WFP/EU/Government reveal chronic malnutrition (stunting) amongst 60 percent of children and anaemia amongst 30 percent of pregnant women with children below seven years. These are extreme values and only additional food intakes above the normal requirements and, most importantly, the provision of enriched foods can reduce the severe effects of long-term malnutrition.

To meet this additional need, it was the view of the previous Mission that there may be justification for increasing the level of calories in future. To support such justification, however, the Mission felt that it is imperative that an objective and scientific nutritional assessment be undertaken. Only after such an exercise can a justifiable revision of baseline needs be made in future assessments of the food supply situation and food aid needs. No such nutritional survey has been scheduled so far.

6.3 Vulnerability Analysis and Food Aid Targeting

Although aggregate supply-demand analysis as presented in the balance sheet provides an overview of the food supply situation and the need for food aid over the marketing year for the country as a whole, it does not convey variations within various population groups and the level of vulnerability. While WFP already identifies and targets the most vulnerable groups (e.g. pregnant and nursing women, school children), large discrepancies exist in actual access to food. Some efforts have been made to assess the degree of vulnerability in the country to enable better targeting of food aid in the future.

In addition to meeting the requirements of the 2001 Emergency Operation, WFP has been able to increase rations and to augment the number of beneficiaries in the most vulnerable groups during the Lean Season, owing to the rate of food arrivals since March. In particular, attention has been given to increasing the ration to pregnant and nursing women and adding beneficiaries amongst the elderly population, care givers at schools and pediatric hospitals and the flood affected. The beneficiary caseload is shown in Table 6.

Table 6: DPR Korea – WFP Beneficiary Caseload

Type of Beneficiaries	EMOP Caseload	Additional Beneficiaries in the Lean Season
Nursery children	1 311 500	-
Kindergarten children	630 500	-
Pregnant and nursing women	346 000	-
Elderly people	600 000	1 498 752
Primary school children	1 352 000	-
Secondary school children	1 849 500	-
Orphanage children	6 000	-
Pediatric hospital children	24 000	-
FFW participants and family members *	1 500 000	-
Primary and secondary school teachers	-	130 987
Staff in pediatric hospitals	-	1 173
Flood affected people	-	157 739
Total	7 619 500	1 788 651

* Seasonal recipients

A new monitoring strategy has been introduced by WFP to gather better qualitative information and thereby enable vulnerability analysis to improve aid targeting. This focuses more closely on the specific factors causing food insecurity, simplifies the questionnaires and ensures that WFP international and national staff and local authorities have a common understanding of the purpose of the monitoring visits and the information requested.

6.4 Food Aid Delivery and Monitoring

The smaller domestic production of early crops caused by the severe spring drought has exacerbated the food shortfall due to the poor main harvest of 2000. To help respond to this precarious situation, WFP plans to mobilise and deliver through its present Emergency Operation 810 070 tonnes of food to the most vulnerable groups during 2001, in addition to that distributed early in the year under the previous Operation. If the current Operation is fully resourced in time, altogether over one million tonnes of food aid will be distributed in 2001.

The PDS presently is used by WFP to deliver its food assistance to the most vulnerable groups. By far the largest part of the WFP food assistance is channelled through Vulnerable Group Feeding programmes, via the PDS. These programmes are very valuable in addressing the problems of malnutrition in groups at risk. The substantial food assistance channelled through the Food-For-Work (FFW) programme is also distributed through the PDS.

A supplementary feeding programme has been introduced to treat malnourished children admitted to provincial pediatric hospitals and pediatric wards of the county hospitals by providing enriched blended foods. Blended foods have also been provided to children's centres and nurseries to help treat and prevent malnutrition.

WFP and UNICEF are at present supporting the local production of enriched food for children up to the age of 15 years and for pregnant and nursing women. Since local production capacities are still limited and output is also hampered by power cuts and breakdowns, it is very important to complement this locally produced food with specific food aid imports and budget support in running costs and packaging materials.

Food aid is only distributed to where WFP has access to assess the needs and to monitor distribution. WFP currently has access to 167 counties out of a total of 211 counties, covering an estimated 84 percent of the population. Four of the 167 counties were added in the first quarter of this marketing year.

Monitoring of food aid by WFP is the means by which WFP assures that its food assistance reaches the intended beneficiaries. WFP has a fairly comprehensive set of monitoring arrangements; and some gains have been made with greater flexibility in visits and more visits allowed to rural areas. Even so, the monitoring arrangements need to be improved, most important among them being a comprehensive listing of all beneficiary institutions and the ability to make random visits. As stated in section 6.3, a more qualitative oriented monitoring strategy has been designed and implemented in mid-2001 that will allow better appraisal of needs and vulnerability and thus benefit future targeting of assistance.

This report is prepared on the responsibility of the FAO and WFP Secretariats with information from official and unofficial sources. Since conditions may change rapidly, please contact the undersigned for further information if required.

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