

**National Crop and Food Supply Assessment Mission Results
December, 2006**

Ministry of Agriculture and Co-operatives

Key Findings

- For the third consecutive year, drought conditions have been severely affecting agricultural crop production in Nepal, in some cases turning traditionally surplus production areas into deficit districts.
- In addition to the heavily drought affected Mid- and Far-Western Regions, flood exacerbated by hailstones and crop disease in various VDCs caused extensive crop loss.
- Drought particularly affected the traditionally food surplus areas of the Eastern Terai, particularly Siraha, Saptari and Dhanusha which reported a decline in paddy production of 30%.
- A total of 109,855 hectares of paddy land (7.09%) remained fallow in 2006/07 as farmers were unable to plant due to drought. In addition, yields were lower by almost 6%. Paddy crop production consequently declined by 12.5 % compared to last year.
- The total food grain shortfall for the year 2006/07 has been calculated at 187,748 Mt assuming favourable weather conditions for the winter crop (wheat and barley).
- It is estimated that a total of about 917,265 people are at risk of food insecurity and are in need minimum food requirements of 40.5 thousand Mt.
- A total of 2,750 Mt of paddy and 935 Mt of maize seed are needed for maintaining paddy and maize production in the spring.

1. Overview

During fiscal year 2005/06 food production in Nepal was adversely affected by drought with reported decreases in the average paddy and wheat production of 2.0 and 3.3% respectively. The long dry spell of the 2005/06 winter particularly affected subsistence hill and mountain farmers in the Mid- and Far-Western regions. High crop losses resulted in adoption of negative coping strategies and livelihoods of many subsistence farmers and landless populations were threatened. In response, GoN requested that the United Nations World Food Programme (WFP) launch an emergency programme to provide 225,000 people with food rations across 10 districts in Mid- and Far-Western Nepal.

Weather conditions were again unfavourable during the summer monsoon of 2006/07. For a third consecutive year, the overall rainfall during the period from June through September was below normal. Variation in spatial and temporal rainfall patterns badly affected the summer paddy crop, particularly those crops relying 100% on rainfall for irrigation. Known as the granary of Nepal, the Terai which normally produces 56% of the national grain supply was severely affected, with overall production losses over 14%. The Eastern Terai experienced crop losses up to 30% with some smaller communities experiencing 100% crop loss.

In August 2006, the Ministry of Agriculture and Co-operatives (MoAC) undertook a preliminary assessment of the paddy crop losses. It estimated that approximately 150,000 hectares remained fallow due to the drought and that yields would be 10% lower due to late planting and irrecoverable crop damage. Given these estimates, MoAC forecasted that the national paddy output would decline by 850,000 Mt and the overall food grain shortage for 2006/07 would amount to 350,000 Mt, assuming winter wheat production would increase by some 150,000 Mt

Given these worrying scenarios, the Government of Nepal (GoN) made an appeal to donors for immediate assistance to mitigate the impact of the summer crop losses during a high level meeting on 4 September 2006. In the subsequent Food Coordination meeting that was held on 28 September 2006, the MoAC requested WFP and FAO to support a crop assessment mission with the following objectives:

- a) To update the earlier crop production estimates
- b) To provide an emerging crop situation scenario;
- c) To assess the household food security situation in areas most affected by adverse weather conditions; and
- d) To provide recommendations for an appropriate and coordinated response strategy to agricultural disasters.

Using data and information from the MoAC's District Agriculture Development Offices (DADO) and WFP's Food Security Monitoring and Analysis System, districts identified as most affected by the drought and adverse weather conditions were to be assessed under the mission. Consequently, four teams consisting of staff from MoAC, WFP, and from FAO visited each of these districts during the period 29 October to 10 November 2006, as follows:

Team 1: Siraha, Saptari, Dhanusha and Udayapur

Team 2: Banke, Bardiya, Dang and Pyuthan

Team 3: Surkhet, Dailekh, and Dolpa

Team 4: Doti, Achham and Bajura

The mission used a combination of methods for assessing the crop and food security situation. Key informant interviews were conducted with District Agriculture Development Office (DADO) staff, farmer group leaders, and NGO personnel within each district. Group discussions were held with farmers' groups, including women farmers. Discussions were held with Chief District Officers (CDOs), who also serve as chairpersons for district disaster relief committees, and Local Development Officers (LDOs) to solicit additional information on natural disaster incidents, crop losses and impact. Each team used a standardized district and community check list to assess the extent of crop loss and damage and its impact on the food security status of the population.

Field observations regarding standing and harvested crops provided the main basis for acquiring information on crop losses. In areas where the cereal crops were already harvested, threshed and stored, information provided by farmers and millers formed the basis of analysis. Interviews with affected farmers were the key method used for collecting information regarding the impact on food security.

2. Socio-economic setting

Nepal is a landlocked, predominantly mountainous country bordering China to the north and India to the south, east and west. It has an area of 147,181 square kilometers. The country

has an immense variety of topography, ranging from lowland plains in the south with elevation as low as 90 meters to the Himalayan Mountain Range in the north with an elevation as high as 8,848 meters. Nepal is divided into five development regions and 75 districts. Within each district there are a number of Village Development Committees (VDCs) in rural areas and Municipalities in urban areas. These VDCs and Municipalities are further divided into wards: the smallest administrative unit. Nepal is also divided into three ecological belts: Mountain, Hills and Terai which run transversely and intersect all five development regions.

Only about 25% of Nepal's surface area is suitable for agricultural purposes. Suitable agricultural land is unevenly distributed across ecological belts. Less than 10% of cultivable land is in the Mountains with the remaining 90% nearly equally divided between the Hills and Terai.

Nepal is one of the least developed countries with a per capita GDP of USD 311 in 2005/06 (CBS)¹. It ranks 136 out of 177 countries on the Human Development Index (UNDP, 2005)². The economy draws heavily upon the agricultural sector, which contributed 39.5% of the Gross Domestic Product (GDP) in FY 2004/2005³.

Nepal's population of 25 million is growing at 2.3% per year, and the ratio of population to arable land is one of the highest in the world. Life expectancy at birth has increased, but at 60 years, it is still lower than in most of its neighbouring South Asian countries. Infant mortality rates are among the highest in the region. MMR rates are the highest in Asia and under five mortality rate is 50.5% per government of Nepal profile (2006). Gender disparities are also common when it comes to literacy. Only 42% of Nepal's women are literate, compared to 65% of men. Over 40% of the population lives in chronically food insecure areas

As a result of liberalizing reforms in the 1980s and the 1990s, GDP growth averaged around 5% during the 1990s. Since 2001 however, due to the intensification of the civil conflict GDP growth was only around 3% during the last three years (World Bank, 2006)⁴. Despite this, Nepal has achieved impressive progress in the reduction of poverty from 42% in 1995/96 to 31% in 2003/4⁵.

Nepal is vulnerable to several types of natural disasters such as: floods, earthquakes, drought, cold waves, landslides, hailstorms, disease epidemics, glacial lake outburst flood (GLOF), and fires. On top of that, various factors such as rapid population growth and improper land use have contributed to increased vulnerability of natural disasters and disease epidemics. Drought, floods and landslides are the most recurrent natural disasters that annually cause significant material and human losses.

Nepal has experienced a turbulent socio-economic situation following a 10 year-old insurgency which came to its end following the popular uprising in April 2006. It stripped King Gyanendra of his executive powers and restored Parliament after an interregnum of nearly four years. The subsequent historic agreement of 7 November 2006 between the Seven Party Alliance (SPA) and the Maoists, paved the way for an interim parliament, constitution and government. The comprehensive peace agreement between the SPA and Maoists was signed on 21 November 2006. The signing of the peace agreement has paved

¹ CBS, WFP: 2006 Small area Estimation of Poverty, Calories Intake and Malnutrition in Nepal

² UNDP, 2005 Human Development Report, 2005, United nations Development Programme, New York.

³ Economic Survey, Ministry of Finance/GON, 2005

⁴ World Bank 2006, Country Overview.

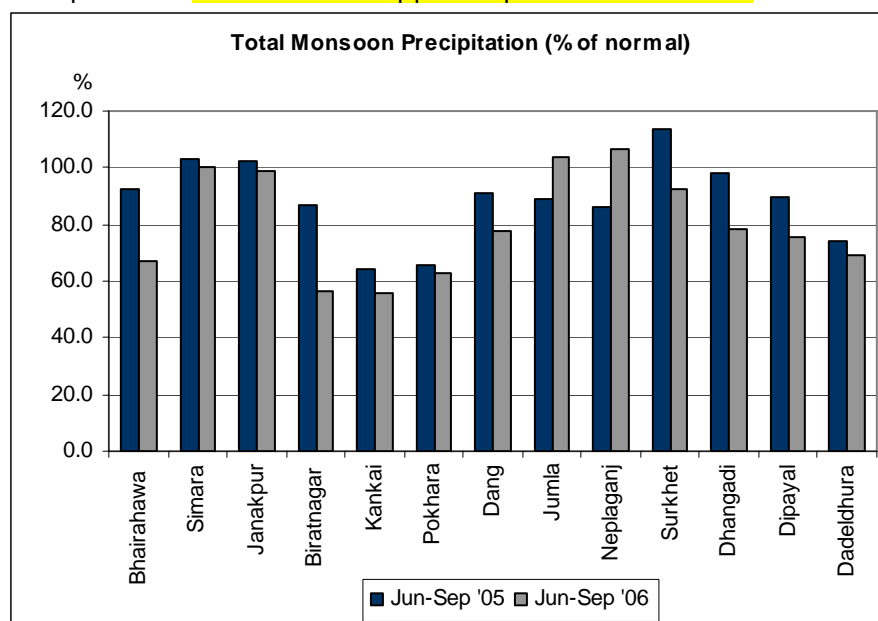
⁵ Nepal Living Standard Surveys

the way for economic and institutional reform required to address the underlying causes of civil conflict, poor governance, and the disappointing development record.

3. Food Production

Rainfall situation

The monsoon rains normally start around 10 June and continue up to around 23 September. About 80% of the annual rainfall in the country occurs during this period⁶. Overall rainfall compared to a normal year and that of the last two monsoons is presented in Graph 3.1. On average rainfall was about 16% below normal. Only the weather stations at Simara, Janakpur, Jumla, and Nepalgunj recorded normal monsoon precipitation (Graph 3.1). However, these so called normal recorded precipitation levels can mostly be attributed to the heavy rainfall received in the last week of August and during the second and third week of September – too late to support a productive harvest.



Graph 3.1 – Total Monsoon Precipitation as percentage of normal
Source: Department of Hydrology and Meteorology

Besides the less than normal rainfall, the main problem was the variation in the spatial and temporal pattern of rain. Although the monsoon started earlier than normal rain intensity was weak with below normal precipitation and drought conditions in the districts of Saptari, Siraha, Dhanusa and Udayapur – resulting in a crop deficit in these traditionally crop surplus districts.

During July, Eastern, Central, and Western regions received 40% less than normal precipitation. The Far- and Mid- Western regions had above normal rainfall during this period.

August was a particularly dry month with the entire country facing a shortage of rain during a critical time for crop growth. Exceptions to this general pattern were pockets in the Mid- and Far-Western regions which received more than 180% of normal rainfall. In addition, heavy rainfall at the end of the month caused floods and landslides in Western, Mid-Western, and Far-Western districts of Nawalparasi, Jajarkot, Banke, Bardiya, Surkhet, Bajura, Achham, Doti, Baitadi, and Darchula resulting in significant crop damage.

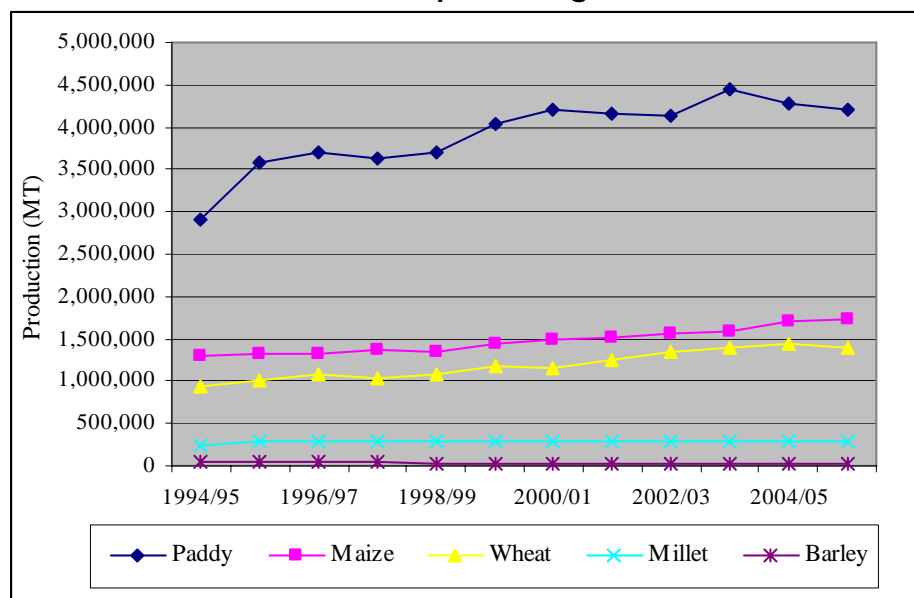
⁶ Preliminary Weather Summary of Nepal, June 2006 (GoN, Department of Hydrology and Meteorology)

During the month of September, precipitation was about normal or above normal in the drought affected districts in the Eastern and Central Terai. This slightly improved the standing paddy crop condition. Unfortunately, heavy rainfall during the second and third week of September created flood and landslides in the districts of Banke, Bardiya and Achham, **again resulting in crop loss.**

Agricultural Production

With almost 67% of agricultural land being rain fed, the annual agricultural output is highly dependent on weather conditions. The Department of Hydrology and Meteorology pronounced last winter (November 2005—February 2006) as the driest since the 1960s. The winter rainfall was less than 30% of normal with some areas receiving no precipitation.⁷ Consequently, the winter wheat production declined by 3.35% compared to 2004/05. Similarly, last year's (2005) erratic monsoon rains caused a decline of 2% in the national paddy production. This monsoon (2006) produced a comparable situation with consequent implications for the summer crop yield for the third consecutive year.

Cereal Food Production in Nepal during 1994/95—2005/06



Graph 3.2 – Cereal Food Production in Nepal from 1994/95 – 2005/06
 Source: Statistical Information on Nepalese Agriculture (time series), MOAC 2005, Kathmandu

Graph 3.2 shows the trend in cereal production since 1994/95. Since the boost in paddy production from 3.6 million Mt in 1998 to 4.0 million Mt in 1999⁸, the average annual output has remained around 4.2 million Mt. In 2003, the paddy production peaked at 4.45 million Mt as a result of very good weather conditions. Since then there has been a decline in paddy production mainly due to ongoing drought conditions. Other cereal crops such as wheat and maize have on average maintained a slightly positive annual growth rate, while the production of millet has remained constant at an annual output of around 290,000 Mt.

⁷ WFP Food Security Bulletin 12, January—February 2006

⁸ As a result of the use of fertilizer, crop diversification, private sector entry in the supply of input, better educated farmers, improvements in rural roads and irrigation and growth of agricultural credit, Nepal Development Forum, Economic Update 2002, The World Bank, January 2002.

The annual production of barley has declined on average by 2.3% per year since 1994/95 to less than 28,000 Mt in 2005/06 (see Table 3.1).

	Average annual growth rate (1994/95 – 2004/05)
Paddy	3.69
Maize	2.71
Wheat	3.72
Millet	1.52
Barley	-2.31

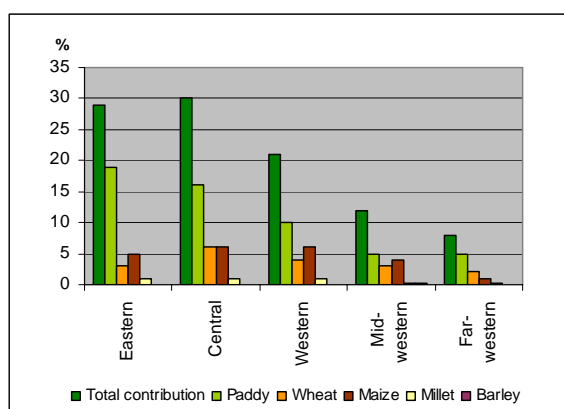
Table 3.1 – Average annual growth rate since 1994/95

Source: Statistical Information on Nepalese Agriculture (time series), MOAC 2005, Kathmandu

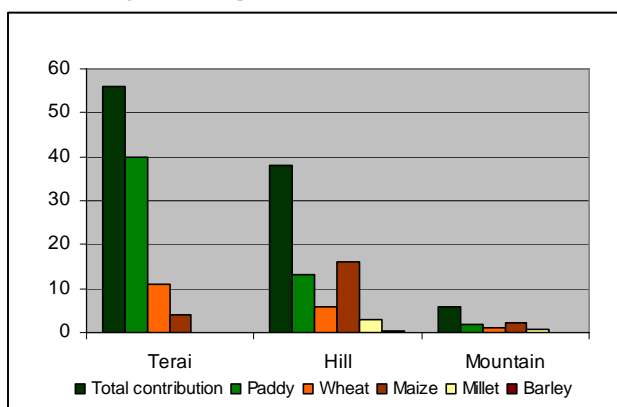
Together, Paddy, maize, and wheat account for over 70% of the annual crop area and 95% of all food grain production in Nepal. The largest share of total crop production comes from the Central Region, (nearly one-third), followed by the Eastern and Western Regions. The Terai is most important in the production of the national cereal supply, contributing about 56% yearly (see Graph 3.3).

Contribution to National Cereal Production (2004/05)

3.3.a - By Development Region



3.3.b - By Ecological zone



Graph 3.3 – Contribution to national cereal production

Source: ... Statistical Information on Nepalese Agriculture (time series), MOAC 2005, Kathmandu

The prolonged drought and adverse weather conditions badly affected the summer crops in 2006/07, and in particular, the un-irrigated paddy crop in different parts of the country. In the fourteen districts assessed by the mission, paddy production declined on average by 22%, and millet by 2% compared to last year. Fortunately, the maize production increased slightly by 0.1 % compared to last year (see table 3.2). These figures presented below are non-weighted averages.

Change in main summer cereal crop production compared to last year (2005/06)

Districts	Paddy		Maize		Millet	
	Prod. (MT)	% Change	Prod. (MT)	% Change	Prod. (MT)	% Change
Udayapur	25,049	-31	24,967	-28	2,399	-7
Saptari	95,680	-39	8,000	-16	300	0
Siraha	117,670	-38	5,200	34	1,200	33
Dhanusha	110,143	-27	3,068	-24	414	-6
Dolpa	494	11	2,250	-26	215	-15
Pyuthan	15,042	14	17,917	-1	1,700	-16
Dailekh	22,360	8	30,577	49	2,515	-24
Surkhet	38,440	11	44,702	24	2,070	25
Dang	95,849	-6	54,825	-3	135	0
Banke	63,870	-25	19,500	6	N/A	N/A
Bardiya	114,956	-3	14,910	-32	N/A	N/A
Bajura	5,280	-12	1,264	-31	2,400	12
Achham	14,960	-2	8,870	42	2,036	2
Doti	19,800	29	3,825	-22	2,600	0
Total	739,593	-22	239,875	0.10	17,984	-2

Table 3.2 – Changes in summer crop production in 14 districts surveyed.
Source: Field Mission, November 2006

Table 3.3 shows the production estimates for the main cereal summer crops at the national level. These figures are based upon revised estimates from DADO offices from all 75 districts and the Mission findings.

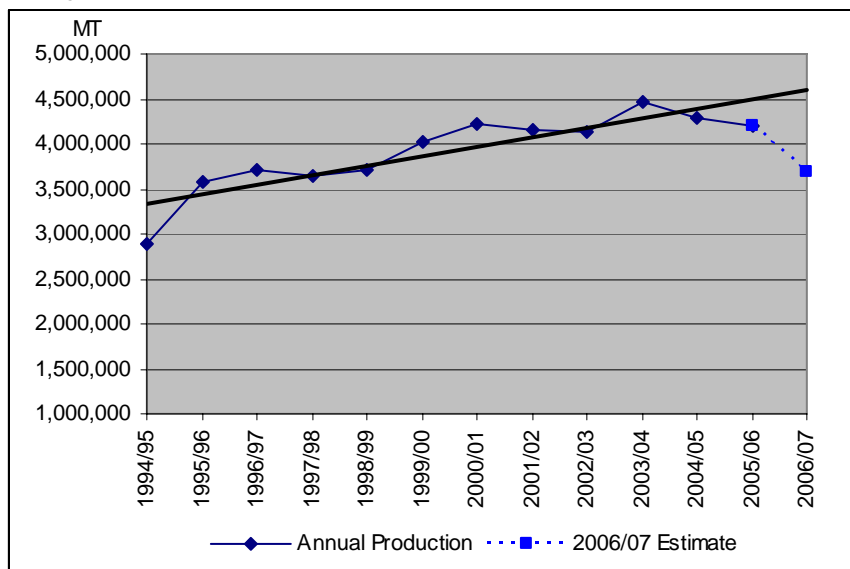
Summer Crop Production Estimate by Development Regions and Ecological Zones (2006/07)

	Paddy			Maize			Millet		
	Area (Ha.)	Prod. (MT)	Yield (Kg/Ha)	Area (Ha.)	Prod. (MT)	Yield (Kg/Ha)	Area (Ha.)	Prod. (MT)	Yield (Kg/Ha)
Mountain	62,263	120,172	1,930	88,288	163,609	2,000	53,174	53,407	1,000
% Change	-3.70	-6.60	-3.00	-0.50	6.70	7.20	2.10	-1.70	-3.80
Hill	367,710	933,852	2,540	613,774	1,273,111	2,074	200,186	219,556	1,097
% Change	-3.60	-7.70	-4.20	2.90	4.70	1.70	1.10	-2.20	-3.30
Terai	1,009,552	2,626,815	2,602	168,339	383,205	2,276	11,800	11,850	1,004
% Change	-8.50	-14.40	-6.50	1.40	5.10	3.60	1.90	-2.10	-3.90
Nepal	1,439,525	3,680,839	2,557	870,401	1,819,925	2,091	265,160	284,813	1,074
Percentage change compared to last year									
E. Region	-14.8	-23.4	-10.1	-1.2	3.8	5.1	-1.6	-4.4	-2.8
C. Region	-7.8	-9.7	-2.0	1.2	2.6	1.4	1.5	0.3	-1.2
W. Region	-0.1	-6.7	-6.6	5.4	6.0	0.5	0.9	-2.8	-3.7
MW. Region	-2.4	-7.8	-5.5	6.0	4.8	-1.1	-0.3	-3.2	-2.9
FW. Region	2.4	2.6	0.2	-0.8	na	na	na	na	na
Nepal	-7.09	-12.55	-5.88	2.29	4.93	2.58	1.33	-2.10	-3.39
Percentage change compared to trend forecast									
Nepal		-21.0			5.0			-3.0	

Table 3.3 – Summer crop production estimates
Source: DADO / Field Mission, November 2006

Paddy production

Overall the paddy production decreased by 12.55% compared to last year. Considering the trend in annual paddy production since 1994/95, there is a gap of almost 1 million Mt or 21% compared to the forecasted trend in paddy production (see graph 3.4) for the 2006/07 crop year.



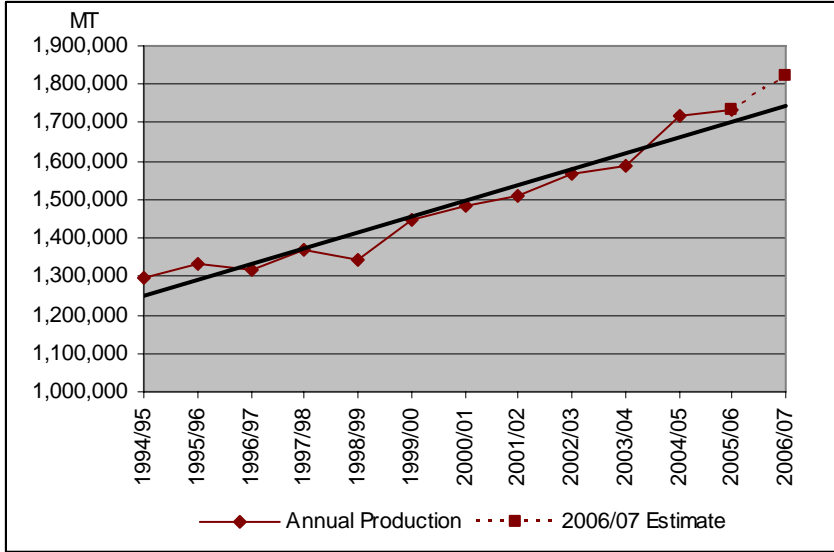
Graph 3.4 – Trend in paddy production

Regionally, the Eastern Development Region was hardest hit by the drought, particularly the districts of Saptari, Siraha, Dhanusa and Udayapur, where output declined between 27% and 39% compared to last year. On average yields in the Eastern Development Region were about 10% lower than last year and almost 15% of paddy land was left fallow. The Central Development region lost 9.4% in output compared to last year, mainly due to unplanted paddy land and a slight decrease in yields (-2.2%). The Western and Mid-Western Development Regions lost 6.7% and 7.8% in output respectively mainly due to decrease in yields. Production in the Far-Western Development Region increased by 2.4 % as more land was put under paddy cultivation and weather conditions improved.

Paddy losses were highest in the Terai (14.4%), mostly due to the inability of farmers to transplant paddy due to the drought, leaving about 93,628 hectares of paddy land unplanted. Yields decreased by 6.5%. In the Hill and Mountain regions, paddy production declined by 6.6% and 7.7% respectively. About half of this was due to less area planted with the other half due to a decrease in crop yields.

Maize Production

At the national level, the maize harvest was not affected by the drought, and in fact increased by 4.93% compared to last year. However in many districts visited by the mission, the drought or other adverse weather conditions left its mark on the maize production with 6 out of the 14 districts recording maize losses above 22% (see table 3.2 above). Compared to the trend in maize production since 1994/95, there is positive difference of 82,609 Mt or 5% more than the forecasted trend (see graph 3.5).

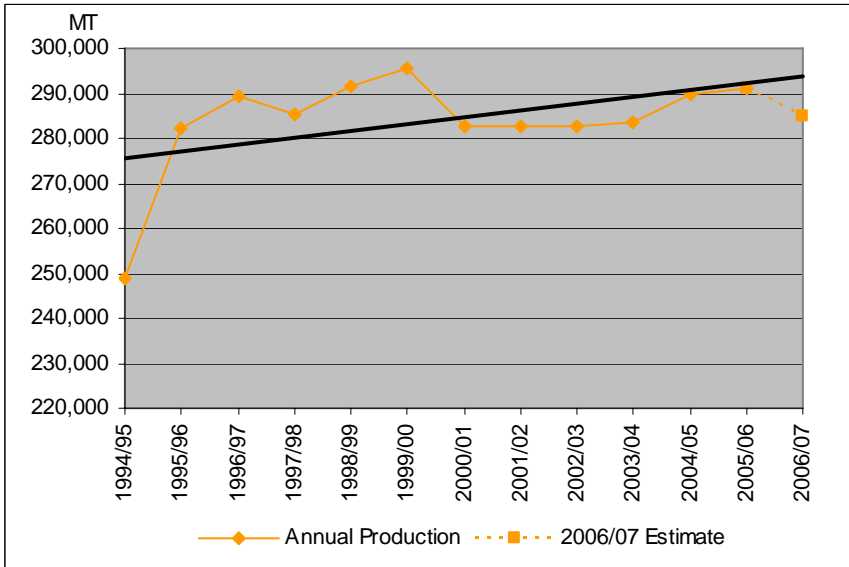


Graph 3.5 – Trend in maize production

In the Western and Mid-Western Development Regions, the growth in maize production (6.0% and 4.8%) was due to an increase in the area under cultivation. Growth in the Eastern and Central Development Regions was 3.8% and 2.6%, respectively.

Millet Production

The area under millet production has increased slightly compared to last year (1.33%). However, the national production of millet decreased by 2.1% compared to last year and compared to the trend production forecast, there’s a negative gap of 8,880 Mt or 3% (see graph 3.6).



Graph 3.6 – Trend in millet production

Millet contributes only 3.7% to the national cereal production, however it is a key crop in several Hill and Mountain districts including Mugu, Dolpa, Jumla, Baglung, Syangja, Rasuwa, Sindhupalchowk, Sindhuli, Okhaldhunga and Khotang. All Development Regions show a reduction in crop yields compared to last year.

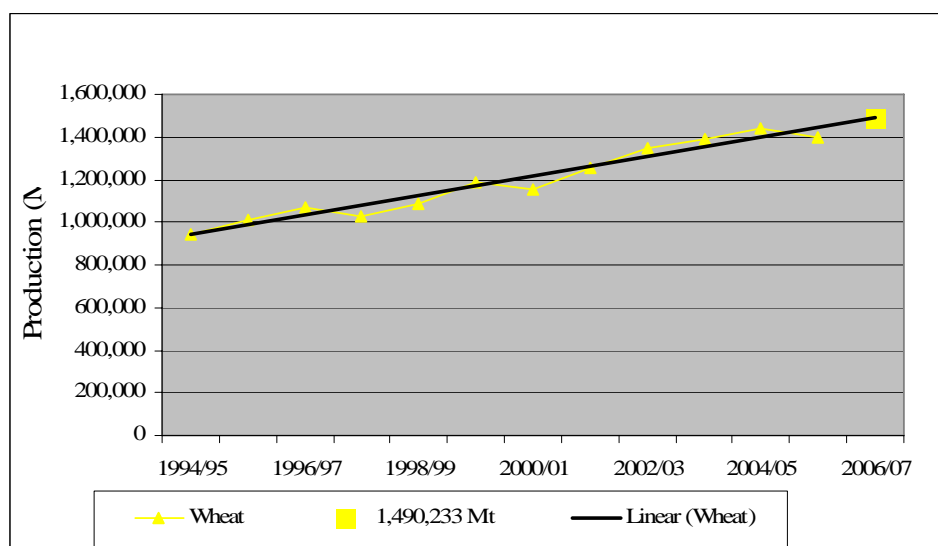
Early prospects for winter wheat production

Early indications suggest that the planting of wheat has been timely. Due to late rainfall in September, the soil is moist and the conditions for germination are good. Land left fallow for paddy cultivation will be used for wheat production and it is likely that the area planted with wheat will increase significantly in the drought affected districts. For example, the mission found that the area planted with wheat will increase by more than 165% in Bagchauda, 100% in Bhutahi Paterwa and 30% in Yadukuwa VDCs in Dhanusha district. In addition, the GoN has initiated subsidized seed distribution through the DADO, rehabilitation of irrigation systems and shallow tube wells in an effort to boost the winter crop production in 20 Terai and 25 hill districts.

The above would suggest a positive scenario for national wheat production for 2006/07. Following the trend in wheat production, an output of around 1.5 million Mt is assumed (see graph 3.7).

However, weather conditions at this stage are unpredictable and if drought conditions prevail throughout the winter season, it will have negative implications for the wheat production. In addition, the mission noted that there are some key constraints in increasing the wheat production, namely the unavailability of improved wheat seeds and unreliability of fertilizer supply (see section on agricultural inputs). The wheat seed varieties required for higher altitude areas are in short supply. Many farmers have consumed their seed stocks from last year and the unavailability of seeds in the local market will constrain the ability of farmers to increase the area planted. In addition, due winter and summer crop losses for the last two years, affected farmers have not been able to repay their loans. Farmers may be reluctant to take on additional loans for the purchase of seeds and fertilizers for the upcoming season.

Given this, a second scenario in which the output remains at last years level (around 1.4 million Mt) needs to be taken into consideration.

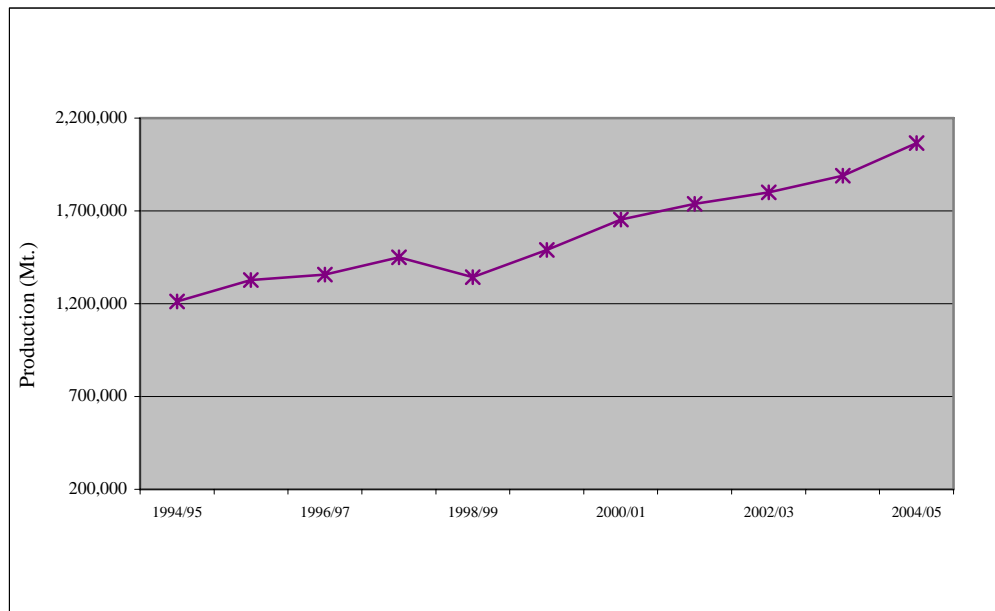


Graph 3.7 – Trend in wheat production

Vegetables

The percentage of households growing vegetables has increased gradually since 1995/96. The percentage of agricultural holdings growing summer vegetables has reached 60.8% in 2003/04 compared to 35.6% in 1995/96. Likewise, 63%, 50%, 35%, and 27% of agricultural households cultivate winter vegetable, potato, garlic, and onions respectively.⁹ This trend is part of an ongoing shift in agricultural policy which emphasizes crop diversification, and promotes income generation through high-value agricultural crops such as vegetables.

Vegetable Production in Nepal during 1994/95 to 2004/05



Graph 3.8 – Vegetable production

Source: Statistical Information on Nepalese Agriculture, MOAC, Kathmandu

Although the mission did not undertake an in-depth assessment of the vegetable crop condition in the areas visited, it can be assumed that the impact of the drought has been marginal as commercial vegetable production takes place mostly on land under irrigation. In addition, no major price increases for vegetables was observed in the markets, normally an indication of reduced vegetables yields.

Livestock

The loss in the livestock sector due to drought has been limited. However, the prolonged drought conditions have had an affect on fodder and pasture production, with consequent effects on the quantity of fodder availability and time incurred in fodder collection. This may ultimately affect milk and meat production, however, mission did not quantify the potential impacts of this.

Agricultural Inputs

There is an increasing trend in the use of high yielding commercial seeds as indicated by disbursement data from the National Seed Company (Table 3.4).

Disbursement of paddy and maize seeds (MT)

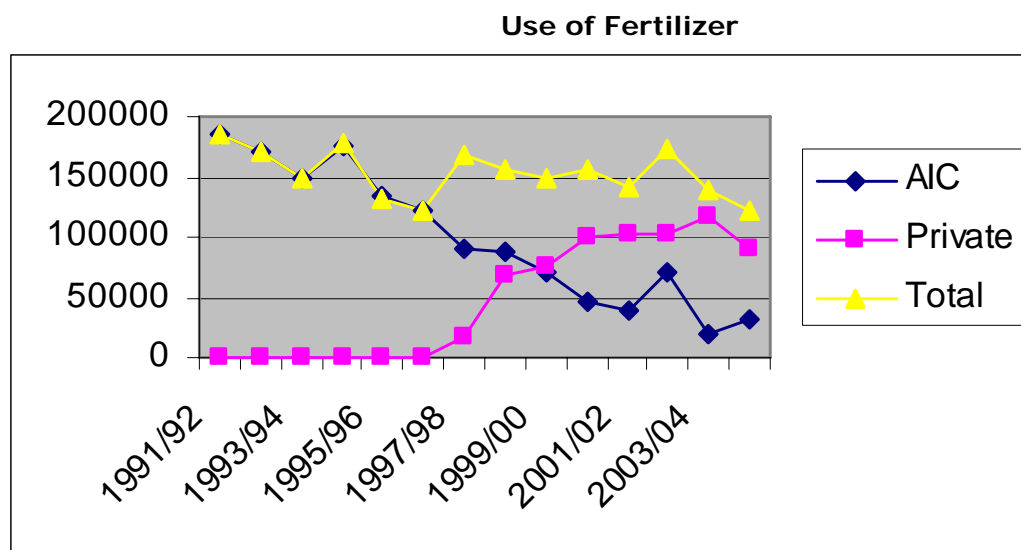
⁹ NLSS 2003/04 (statistical report)

	2006/07	2005/06	2004/05
Paddy	643.7	546	149
Maize	10.7	2.11	0.388
Total	654.4	548.1	149.388

Table 3.4 – Disbursement of paddy and maize Seeds
Source: NSC

Although the private sector plays an important role in the provision of seeds, data for its contribution is not available. In addition, the District Seed Self-Sufficiency Programme (DISSPRO) is becoming an important source for providing seeds to farmers at the district level. DISSPRO has been initiated by the DADOs, which is providing technical support to farmer groups, in 55 districts in the country.

As mentioned above, the availability of wheat seeds, and in particularly varieties suitable for hill and high hill areas, is becoming a major problem for the current wheat season due to the poor harvest of last year (2005/06). This may result in less area planted with good quality wheat in these areas with consequent reductions in winter wheat production. At the same time, cases of disease epidemics like in Pyuthan have been observed due to continuous use of old, degenerated and infested seeds. This evokes a need for seed multiplication programmes for farmers including the availability of foundation seeds needed to support the seed multiplication programme.



Graph 3.9 – Use of Fertilizer
Source: Statistical Information on Nepalese Agriculture, 2004/05, MOAC

The use of fertilizer is not encouraging, mainly due to the lack of assured supply of fertilizer in the market and limited purchasing power of marginal farmers to buy fertilizer. Since, 1997/98 when the policy of fertilizer deregulation was initiated, the fertilizer supply through the Agriculture Inputs Corporation (AIC) decreased from 91.1 thousand Mt to 31.8 thousand Mt. On the other hand, the private sector increased its share from 17.5 thousand Mt to 90.8 thousand tons. Total use of fertilizer has, however, remained far below the amount provided by the AIC in 1991/92 due to the reasons mentioned above (See graph 3.9).

Use of fertilizer per hectare has also decreased in the past few years (see table 3.5), most likely due to unreliable supply of and constraints in farmers' ability to purchase fertilizer on the market.

Year	Kg/ha/annum
2003/04	26.25
2004/05	19.6
2005/06	20.6

Table 3.5 – Disbursement of paddy and maize Seeds
Source: MOAC fertilizer unit

The mission received several reports from farmers regarding low quality fertilizer imported via informal channels. A need for increased vigilance and a quality control system to check imports of low quality fertilizers is strongly desired at the local level.

4. Food Supply Situation

Food supply and demand balance

Nepal was self-sufficient in food grain production until 1990. Thereafter, the increase in food grain production fell short of population growth, and from 1990 to 1999, national production in Nepal was unable to meet the population's need. As a result of the leap in cereal production in 1999, Nepal became once again self-sufficient in food grains. Due to drought conditions in 2005/6, production fell short by 23,168 Mt, and for this crop year (2006/07), a negative balance between 200,000 and 300,000 Mt is expected, mainly due to the impact of drought and other natural calamities (see table 4.1).

Table 4.1: Food Balance Situation

Year	Prod.	Req.	Balance	SSR
1994/95	3,397,760	3,882,915	-485,155	87
95/96	3,913,878	3,948,229	-3,451	99
96/97	3,972,587	4,079,135	-106,548	97
97/98	4,027,348	4,178,077	-150,729	96
98/99	4,097,612	4,279,491	-181,879	95
99/00	4,451,939	4,383,443	68,496	101
2000/01	4,513,179	4,430,128	83,051	101
2001/02	4,543,049	4,463,027	80,022	101
2002/03	4,641,466	4,565,820	75,646	101
2003/04	4,884,371	4,671,344	213,027	104
2004/5	4,942,553	4,779,710	162,843	103
2005/6	4,867,825	4,890,993	-23,168	99
2006/7	4,753,340*	4,941,089	-187,749	96

Note: *Given an optimistic scenario of 1.5 million MT of wheat

Table 4.1 – Food Balance Situation

Source: Mission, November 2006

The food grain production and requirement balance varies across regions and ecological belts (see table 4.2). The Eastern region, across all ecological belts, Mountain, Hill and Terai, is a surplus area. The Terai, where about half of Nepal's population lives, is the granary of the country with an overall surplus of almost 125%. The mountain belt, with 8% of the total population, is a deficit area, producing about three-fourths of its requirements, while the Hill belt, with 44 % of the population, producing about 16 % less than its regional requirement.

Table 4.2: Self-sufficiency in food grains production in Nepal

Ecological belt	Particulars	% of population	East	Central	West	Mid West	Far West	Nepal
Mountain	Production	8	79	97	20	30	41	249
	SSR (%)		101.3	90.7	36.8	50.0	54.2	76.5
Hills	Production	44	347	458	584	271	86	1,746
	SSR (%)		102.9	64.4	102.4	90.7	53.2	84.0
Terai	Production	48	769	841	397	294	2319	2,532
	SSR (%)		127.3	117.7	124.5	131.1	128.9	124.1
Nepal	Production	100%	1,195	1,337	983	595	358	4,468
	SSR (%)		117.3	87.2	110.0	102.1	85.9	100.5

(Average of 2000/01 -- 2002/03) (In thousand MT)

Note: SSR is Self Sufficiency Ratio

Table 4.2 – Self-sufficiency in food grains production in Nepal

Source: MDD, 2000-2004, Special Issues

Assessment of the summer crop situation has indicated that some districts which are traditionally food surplus will turn into food grain deficit areas. The expectation is that the districts Siraha and Saptari which are food surplus districts in normal years will turn into food grain deficit districts due to prolonged drought this year, despite expected increases in wheat production in the upcoming winter season.

Dang, Surkhet and Bardiya remain food grain surplus districts. Banke and Danusha have records of fluctuating production. In 2003/04 both districts (Banke and Dhanusha) were food grain surplus producing areas while in 2005/06 they recorded a negative food grain balance which is expected to further deteriorate in 2006/07.

In Udayapur, Pyuthan and Bajura the level of food grain shortage with regard to requirement has further worsened. In Doti and Achham the food grain balance situation has improved, even though it remains negative (Table 4.3).

Food balance situation in 14 surveyed districts

Districts	Food balance status	
	2003/2004	2006/2007
Siraha	33,192	-21,169
Saptari	32,551	-37,645
Udayapur	-14,192	-16,045
Dhansusha	18,747	-28,613
Banke	4,055	-15,890
Bardiya	33,019	28,594
Dang	30,891	36,672
Surkhet	10,800	21,877
Dailekh	-14,019	-2,644
Pyuthan	-8,781	-11,045
Dolpa	-3,831	-1,139
Doti	-23,362	-17,657
Achham	-27,177	-19,379
Bajura	-11,916	-12,894

Table 4.3 – Food Balance Situation in 14 surveyed districts

Source: Mission, November 2006

With the winter season just on its way; it is still too early to make exact predictions about the food grain supply and requirement balance for the year 2006/07. However, assuming that the optimistic scenario for the winter wheat production (see chapter 3) will occur, the

total cereal shortage is expected to be nearly 190,000 Mt. In the case of ongoing drought conditions, the wheat output will remain at a similar output level as last year's, resulting in a food grain shortage of about 290,000 Mt.

Cereal Import and Food Aid Requirement

To offset the shortage in national food grain supply relative to the requirements, additional private or public food grain imports or food aid will be required.

Private imports are determined by supply and demand. The decrease in national food grain supply will trigger higher cereal prices, which in turn will stimulate private imports. India is the primary source for paddy and rice imports. Between 1996/97 and 2003/04, India's contribution to total rice imports fluctuated between 93% and 100%. In addition, it is generally understood that imports of rice from India have been increasing through formal and informal channels, although the extent of the informal trade is not known.

Net private imports (formal) for rice and wheat are presented in table 4.4.

Import of rice and wheat from India
(value in '000 Rs.)

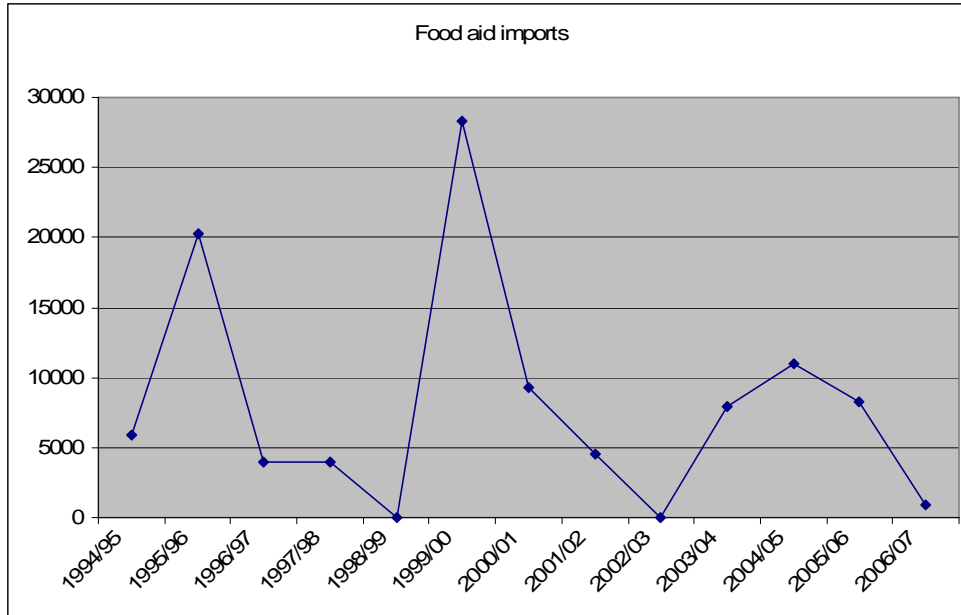
	Rice	Wheat
1994/95	381,600	4,300
1995/96	418,800	3,700
1996/97	499,200	4,600
1997/98	379,100	4,200
1998/99	168,300	2,500
1999/00	1,884,600	10,200
2000/01	2,777,200	309,500
2001/02	427,100	0
2002/03	226,400	3,200
2003/04	555,500	270,300
2004/05	212,700	1,200
Average value	720,954.5	61,370
Average Quantity (Mt)*	60,079.55	4,091.333

There is wide variation from year to year in cereal import from India_ ranging from import equivalent in values from NRs 16 million in 1998/99 to 277 million in 2000/2001. This value calculated at the rate of NRs 12/kg of rice approximately corresponds to be 14,000 Mt in 1998/99 to 231,000 Mt in 2000/01. The average annual import of rice is around 60,000 Mt. Similarly the average annual import of wheat is around 4,000 Mt.

Note: Rice is valued at Rs 12/kg and wheat at Rs 15/kg
Table 4.4 – Import of rice and wheat from India

Source: Agricultural Marketing Information Bulletin (Special Issue-2006), DOA

Nepal receives food aid through bilateral sources such as Japan and France, and multilateral sources via the UN World Food Programme. In-kind donations from Japan are received annually. The quantity varies from year to year ranging from 1,892 Mt in 1994 to 24,299 Mt in 1999/00. Contribution from Japan in 2005/06 was 8,282 Mt. Similarly, France contributes annually wheat grains, ranging between 3,933 Mt (1997/98) to 7,952 Mt (2003/04). The UN WFP annually distributes around 13,000 Mt of rice with almost all of this locally procured. The average annual food aid imports during the period 1994/95 to 2006/07 were about 8,000 Mt. Graph 4.1 shows the total annual food aid imports (rice and wheat) since 1994/95.



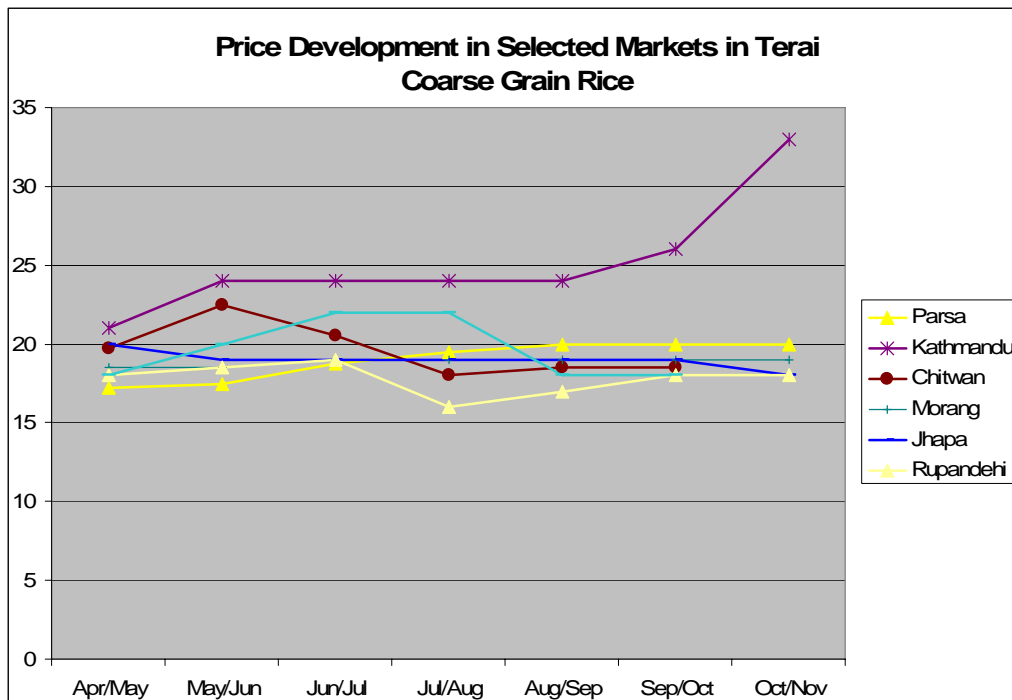
Graph 4.1 – Food aid imports
Source:

Due to limited purchasing power, the cereal requirements of vulnerable groups, including marginal farmers and landless agricultural labourers affected by the drought, will not be fully translated into demand. Their requirements therefore will not be reflected in the market and will not lead to a possible increase in private imports (formal and informal). Targeted food safety net programmes directed at these vulnerable groups are therefore required. External food donations supporting the government's limited budget to procure and import food grains in support of targeted food safety net programmes are warranted.

Assuming that most of the food grain shortage will be met through increased formal and informal private imports, a certain amount of food aid imports are required to assist those who lack the ability to acquire sufficient food through the market channels. Given the number of people at risk (around 900,000) as estimated in Chapter 5, assuming food aid provision for 3 months with an average food grain requirement of 500 grams per day per person amounts to 40.5 thousand MT of needed assistance.

Market situation

Despite major paddy crop losses in several districts in the Terai, the price of coarse rice in district markets in the Terai has remained stable at below Rs 20 per kg (see graph 4.2). This means that markets are well integrated and that the shortages are compensated through increased imports from other surplus producing districts and India. There is however a marked increase coarse rice in Kathmandu, the main consumption centre, from Rs 24/kg in August/September to Rs 33/kg in October/November.



Graph 4.2 – Price Development in Selected Markets in the Terai
Source:

Due to inaccessibility of many areas, spatial differences in cereal prices remain. Due to high transportation costs, prices are highest in the mountain belt, followed by the hills. In those areas where the crop has failed, prices may sharply increase depending on the degree of accessibility and cost of transportation.

In the surveyed districts, farm gate prices of paddy, maize and wheat are presented in table 4.5.

**Farm gate prices of Major Food Commodities in surveyed districts
(NRs/quintel)**

District	Paddy			Maize			Wheat		
	This Yr	Last yr	Change%	This yr	Last yr	Change%	This yr	Last yr	Change%
Siraha	1000	700	42.8	1300	1000	30	2000	1600	25
Saptari	1000	600	66.6	1200	1000	20	2200	1500	29.4
Udaypur	1200	1000	20	1000	950	5.2	2400	1800	33.3
Dhanusha	1150	1000	15	1200	1000	20	2200	1500	33.3
Banke	950	900	5.5	1050	850	23.5	1650	1250	32
Bardiya	940	825	13.9	1125	1030	9.2	1540	1460	5.4
Dang	1150	1025	12.1	1125	1100	2.2	1525	1425	7
Surkhet	900	825	9.0	1200	1200	0	-	1500	
Dailekh	1350	1200	12.5	1200	1200	0	1500	1200	25.0
Pyuthan	1000	1000	0	1500	1300	15.3	1500	1500	0
Dolpa	N/A	N/A		5000	4000	25.0	6000	5000	20
Doti	1450	1350		1800	1700		2150	2100	

Table 4.5 – Farm gate prices of cereals
Source: Mission, November 2006

The farm gate price of paddy compared to last year jumped 42.8% and 66.6% in Siraha and Saptari respectively as a consequence of paddy shortage. Maize prices sharply increased in drought and flood affected areas such as Banke, Pyuthan, Siraha, Saptari and Dolpa. In many districts, the price of wheat is also much higher than last year.

Higher food grain prices will affect subsistence farmers, landless labourers and other vulnerable groups as the Nepali Rupee will buy less food than in previous years with serious consequences for household food security.

5. Household Food Security

Livelihoods and coping strategies

Sufficient or insufficient food supply at the national or district level provides an indication of the overall food security situation. It does however not necessarily directly correspond to household food security. The latter is determined by a household's ability to access sufficient food.

The main livelihoods in the Terai and Hill districts are crop farming and wage labour (agricultural, services or construction). In the Mountain areas subsistence farming and portering are the main livelihood options. In some Mountain areas, gathering medicinal herbs during certain times of the year may provide an additional income source. Poor and landless people's main asset is labour. In rural Nepal, employment opportunities are however seasonal and depend on the harvesting cycle.

In many areas the recent conflict has had a major impact on people's livelihoods: restrictions in transportation meant that farmers could not sell their surplus production on the market and/or led to short term food crises in areas not accessible by roads. Development activities ceased in many parts of the country, contributing to widespread unemployment in the country side, and in some cases agricultural assets such as land were confiscated. The government's food safety net programme through the Nepal Food Corporation was limited to the district headquarters as many of the food grain depots in remote areas were closed down, depriving the most vulnerable in remote rural areas from subsidized food grain support. In many of the affected communities, vulnerability was exacerbated by the displacement and migration of young and able men, leaving women, children and elderly behind to care for the land. With the recent ceasefire and signing of the peace treaty, it is expected that many people will return back to their home villages. A continuous drought situation would complicate the reintegration process and will make it difficult for these people to regain sustainable livelihoods as many of the displaced people will be returning to districts already suffering from food shortages.

In case of external shocks, such as drought and unfavourable weather conditions, that may compromise a household's potential to produce sufficient food, loss of income opportunities, or high food prices in the markets, a household implements a series of coping strategies for its survival. Agricultural wage labour, borrowing and seasonal out-migration to India are the most commonly adopted coping mechanisms in Nepal. Given the severity of the drought impact, some drought affected communities have adopted unsustainable coping strategies. Interactions at the household level in Siraha, Udayapur, and Dhanusha revealed that many households have borrowed money extensively or were forced to sell household assets. During VDC level interaction in Dhanusha, several people reported sale of agricultural land. In addition, winter crop seeds have been largely consumed.

Interaction in all the districts surveyed gave an impression that out-migration will increase substantially. It is expected that migration will start earlier this year from all districts following the completion of the summer crop harvest. Out-migration has remained the most viable option for coping in Doti, Achham, Bajura, and Dailekh districts. However, the huge number of people on the move, particular to India, may reduce the chances of finding employment. The assessment mission received several reports from people having returned to their villages without having succeeded in finding work elsewhere.

In the case of Dolpa district, the mission observed that in affected areas considerable income is derived from *Yakchagumba* collection¹⁰. However, in this district lack of food supply remains a serious problem as food is not available for purchase.

Poverty and people at risk of food insecurity

Despite the conflict situation, poverty decreased from 42% in 1995-96 to 31% in 2003-04. Key factors contributing to the decline in poverty were a substantial increase in remittances, higher agricultural wages, increased connectivity and a decline in the dependency ratio (CBS, 2006). Poverty is not evenly spread across the country. A poverty map prepared by CBS/WFP/WB identifies areas where high concentrations of poverty can be found. The incidence of poverty is highest in the Hills and Terai of the Far- and Mid- Western Development Regions as well as in the Hills and Mountains of the Eastern Development region. If poverty is measured by means of direct calorie intake, the Mountain belt has the highest poverty count. This difference is most likely due to unavailability of food items in the remote mountainous zone. The highest concentration of poor people can be found in the Terai due to a much higher population density as compared to the Hills and Mountains.

The poorer the area the less resilient and thus the more vulnerable it is to external shocks such as drought and other adverse weather conditions. Districts with high incidence or high concentrations of poverty affected by drought include: Bajura, Kalikot, Mugu, Dailekh, Jajarkot, Rukum, Rolpa, Pyuthan, Banke, Dhanusa, Siraha, Saptari and Udayapur.

¹⁰ Yakchagumba is a herb found at high altitude used for traditional medicine

Based on information from WFP Field's Surveillance System almost 900,000 people are currently at risk to food insecurity as a consequence of the drought and adverse weather conditions (WFP Food Security Bulletin, Issue 15). The mission has verified these numbers in the districts visited and the revised estimate of people at risk is approximately 917,265 (see table 5.1).

Population at Risk

District	Poverty Incidence	Population at Risk
Karnali		
Humla	0.415	15,000
Kalikot	0.568	7,840
Mugu	0.510	1,100
Jumla	0.344	6,700
Dolpa	0.397	10,000
Sub-Total		40,640
Far-western Hills and Mountains		
Darchula	0.377	1,200
Bajhang	0.473	15,000
Bajura	0.482	16,200
Baitadi	0.368	8,425
Sub-Total		40,825
Rapti-Bheri Hills		
Dailekh	0.516	29,350
Pyuthan	0.515	20,250
Rukum	0.491	12,000
Rolpa	0.587	10,000
Dang	0.429	15,300
Surkhet	0.470	1,230
Sub-Total		88,130
Terai		
Banke	0.412	33,380
Bardiya	0.449	32,890
Saptari	0.280	270,000
Siraha	0.290	230,000
Udayapur	0.508	10,100
Dhanusha	0.269	158,000
Parsa	0.235	3,000
Sub-Total		737,370
Central and Eastern Hills and Mountains		
Nuwakot	0.374	7,500
Kavre	0.351	2,800
Sub-Total		10,300
Grand Total		917,265

Table 5.1 – Population at risk

Source: WFP Food Security Bulletin and Mission, November 2006

The number of people at risk might go even higher than this number, particularly in hill and mountain districts, mainly because of short supply of food grain from Terai. Furthermore, prices of food commodities are likely to inflate which may be beyond purchasing power of people below poverty level.

In Hill and Mountain districts like Dailekh, Doti, Achham, Bajura, and Dolpa, people have no or limited food stocks. In these districts, even in a normal year food stocks are not sufficient to cover household needs year round. This year the drought affected households will face food shortages much earlier in the year than normal, stretching their usual coping practices. Supporting development of community food grains banks could be one possible way of overcoming the traditional lean periods.

In the drought affected areas, marginal farmers are mostly unable to pay back loans incurred for buying agricultural inputs such as seeds and fertilizers. This will have repercussions for purchasing agricultural inputs for the winter crops. For example, the mission found that farmers in Banke have on an average a loan of NRs 16,000 which they normally are able to pay back after harvesting of the paddy crop.

Paddy harvesting and threshing provides ample opportunities for local wage earning which has been reduced due to crop failure. The impact of drought and other adverse weather conditions for 2006/07 are reflected in the following mission findings:

- On average affected households in the central and eastern Terai face food shortages for 4-6 months;
- In Hill and Mountain areas the period of food scarcity increased by 2-3 months with food scarcity months now ranging from 7- 8 months;
- Reduced on-farm wage earning opportunities due to reduced volume of work has major implications for poor landless agricultural labourers and their ability to supplement their livelihoods to purchase needed food;
- Household debt increased due to inability to pay back loans.
- Shortage of cereal seed, particularly for paddy and maize is realized

External food assistance is required to the most vulnerable households up to the harvesting of the winter crop which starts from May to August, depending on the geographic area.. This external food assistance is critically important for hill and mountain districts, in the form of targeted food aid. However, in order to address the food scarcity problem of vulnerable population of Terai, labour intensive income generating activities, in the form of cash for work or food for work, are appropriate. The most critical period is from February to May which coincides with the post-summer harvest period and the winter crop growing season. In addition, longer term strategies such as rehabilitation and construction of irrigation systems are required.

Replacement of old and degenerated seeds of major cereal crops like paddy, wheat and maize is urgently needed in order to minimize the magnification of pest infestation as observed in Pyuthan and enhance yield potentiality of the crop varieties. With the estimation of 0.06 ha of paddy per capita and 0.034 ha maize per capita seed requirement for vulnerable population stands as follows:

Paddy: 2750 mt Maize: 935 mt

Nutrition Situation

In general, the nutrition status of children has improved over the past five years. Stunting levels have decreased from 50.5% to 42.8% and underweight from 48.3 to 44.8%. Wasting levels however have increased from 9.6 to 11.7%. There is however considerable geographic variation in the incidence of malnutrition. Detailed malnutrition maps were published by CBS/WFP/WB in September 2006. They show that the highest incidence of

stunting and underweight can be found in the Mountain and Hill areas of the Far- and Mid-Western Development Region, where generally more than 60% of children are stunted and 50% are underweight. Wasting is very high in the Terai, where on average 13.3% of children are wasted. Factors such as differences in the status of women in society, eating habits and caring and hygiene practices compared to the Hill and Mountain areas are possible explanations for these high levels of wasting in the Terai.

Recently, UNICEF conducted a series of nutrition surveys in selected districts including those affected by drought and adverse weather conditions. Preliminary results find that in Bajura, 72% of children are stunted and 70.0% are underweight. For Jumla, the preliminary estimates are even worse with 82.3% of children stunted and 77.0% underweight. Wasting levels recorded for these districts are very high at 11.5 and 14.1% respectively which can be an indication of an acute food crisis.

Government's response

The Government of Nepal (GoN) has taken various steps to mitigate the damages caused by natural disasters. As a first step, the GoN released NRs 4,089,000 for immediate relief in nine drought affected districts (Mahottari, Sarlahi, Dhanusha, Siraha, Saptari, Jhapa, Rautahat, Bara, and Chitawan) in order to undertake rehabilitation of small irrigation, canal, dam construction, distribution of subsidized seed and provide diesel to operate tube wells during 2006/07.

As a second step, GoN made an arrangement to release allocated micro- irrigation budget of Rs 15 million during the first quarter instead of 2nd and 3rd quarter ranging from 1.5 million to 2.0 million in all the 75 districts to undertake the work of small irrigation projects such as canal, dam construction, and lifting water from shall tube well so as to minimize further damage and boost up production.

In addition to the above NRs 27.45 million was allocated as relief assistance to 20 Terai districts, and 25 Hill districts for providing 50 percent subsidy for purchases of wheat, lentil, mustard, maize seeds, and hundred percent subsidy on vegetable seeds, and rehabilitation of irrigation schemes to be spent on the recommendation of district disaster and relief committees. Out of the 20 Terai districts, Siraha, Saptari, Dhansusha, Mahottari, Sarlahi, Kapilbastu, Rupandehi, Banke and Bardia are the districts receiving more than Rs one million each. Similarly, 25 districts of Hill region were allocated Nrs 150,000 each. A total of RS 3.7 million was allocated to be spent through the department of Livestock services on the recommendation of district disaster relief committees of 20 Terai and 30 Hill districts.

These amounts are however not sufficient to compensate the loss in production and the DADO faced difficulties in distributing the support in a situation where demand outstripped available resources.

In addition to immediate relief to the drought affected households, the GoN through the Nepal Food Corporation (NFC) provides food grains, mainly rice, at subsidized rate to food deficit districts of Nepal. In 2006, NFC delivered approximately 38,000 MT of rice to the Hill and Mountain areas. Unfortunately, due to the conflict situation many of the food depots in rural areas remained closed and food subsidy programmes were limited to district headquarters leaving out those most vulnerable in remote rural areas. The NFC maintains a reserve grain stocks as part of the government policy on food security. The NFC is mandated to keep 4,000 MT for the South Asian Association for Regional Cooperation (SAARC) Food Security Reserve Stock, 20,000 MT for the National Food Security Reserve Stock and 15,000 MT for its operational reserve stock.

6. Recommendations

This is the third consecutive year that Nepal has faced drought and other adverse weather conditions. It considerably affected last year's winter crop, particularly in the Far- and Mid-Western regions. This monsoon, the rainfall was again below normal affecting the paddy production, particularly in the Eastern Terai, turning districts that typically are food surplus into food deficit districts. Faced by these conditions, livelihoods of marginal farmers and landless labourers are being compromised with some communities having high adoption rates of negative coping strategies, and decreased access to alternative income opportunities.

Over 900,000 people are at risk of food insecurity and require a total of 40.5 thousand metric tons of food assistance to cover lean periods of between the harvests.

To improve the food security status of poor households and the overall national food security, the mission proposes a dual approach of a set of immediate measures and longer-term interventions by both GoN and development partners. Immediate and longer term response measures are described below:

Immediate measures

- The MOAC seeks immediate targeted food support for 900,000 food insecure people. At least a three month food ration should be provided in order to bridge the gap between harvests, and to address carry-over food shortages from the last three droughts. An estimated 40.5 thousand metric tones of food is needed to supply this safety net for drought affected families.
- These food insecure populations are primarily located within two geographic areas: the 10 districts of Mid- and Far- Western Nepal covered under WFP's current emergency food aid operations and in districts of the Eastern Terai.
- In order to address continued food insecurity experienced by drought-affected communities in the Mid- and Far-West, it is recommended that WFP continue its emergency food assistance operations in those areas.
- For food aid to drought-affected populations living in the Eastern Terai, it is suggested that a food for work mechanism be applied as a condition for food aid distribution. By using this mechanism it will not only help to address short-term food insecurity, but will protect and build community assets and help to accrue longer term impacts on food production. Rehabilitation of irrigation schemes, rural road construction, and installation of treddle pumps for irrigation are suggested activities to be undertaken.
- As the availability of improved seeds remains a problem, cereal seed distribution to vulnerable households needs to be considered. To be effective, seeds need to be delivered by early February. Additional targeting is needed in order to identify where and what type of cereal seeds are the most needed

Longer term measures

The measures outlined below should be incorporated into a longer-term agricultural response policy developed by the MOAC in order to decrease the necessity of emergency food aid responses and improve crop productivity in Nepal. Development agencies should seek synergy by coordinating their activities and developing complementary projects with these recommendations in mind.

- NFC quota for food distribution needs to be increased and its role as a food safety net provider in remote areas strengthened.
- Where access to markets are difficult, the MOAC needs support in setting up of community managed grain banks for bridging lean period between harvesting periods.
- In addition, a control system on fertilizer quality needs to be strengthened. In order to enhance access to production inputs increased coverage for micro-credit schemes is recommended.
- Given the high levels of malnutrition, comprehensive package of nutrition education together with promotion of vegetable at homestead level through distribution of vegetable seeds and targeted nutrition interventions supporting children under the age of five and expecting and lactating women should be promoted.
- In order to better monitor the crop situation and to provide early warning information, the MoAC's crop monitoring system by making use of satellite imagery and Geographic Information Systems technology should be strengthened.
- Areas under irrigation are much less affected by drought conditions than rain fed areas. Bringing more agricultural land under irrigation through rehabilitation of existing irrigation systems, surface, shallow and deep tube wells, is essential to prevent future crop failures due to drought. In addition, to prevent further soil erosion, river training schemes need to be supported.
- Crop diversification needs to be further promoted with crops suitable to local conditions such as potato, groundnut, cardamom, pointed gourds, and herbal plants promoted within appropriate regions.
- Ongoing or pipelines MOAC projects should consider channeling resources to address the problems of drought and natural disasters and development of resource centers. Considering transportation constrains, it is recommended for DADOs and DLSOs to develop appropriate resource centers at farmer level (seed and breed stocks) based on the primary demand of the area. Ongoing seed multiplication programme, DISSPRO should be strengthened and supported.

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