2008/09 Winter Drought in Nepal

Crop and Food Security Assessment

Joint Assessment Report - May 2009

MINISTRY OF AGRICULTURE AND COOPERATIVES

WFP

WORLD FOOD PROGRAMME

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HIGHLIGHTS

- The 2008/09 winter drought in Nepal was one of the worst on record; according to the Department of Hydrology and Meteorology, rain monitoring stations across the country received less than 50 percent of average precipitation during the period November 2008 to February 2009.
- The winter drought had significant impact on crop production across Nepal. This assessment suggests a national decrease in wheat and barley production (the two major winter crops) of 14.5 and 17.3 percent respectively compared to last year.
- Despite a strong summer harvest, yearly crop production for 2008/09 resulted in a negative production balance of 133,000 Metric Tons of cereal (-2.5%) for all of Nepal.
- The poor crop harvest comes on-top of sustained high food prices for over a year; current year-on-year food price inflation is over 17 percent.
- Sixty-six percent of rural households that were heavily impacted by the drought are already experiencing food shortages; the worst hit areas are in the Far- and Mid-Western Hill and Mountain Districts.
- It is estimated that in addition to current WFP programming, an extra 707,000 people are in urgent need of immediate assistance.

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1. BACKGROUND AND OBJECTIVES

Socio-economic background: Nepal, one of the least developed countries in the world, is only recently beginning to emerge from a decade-long civil war. The progress has been marked by Constituent Assembly (CA) elections in April 2008 and the subsequent formation of a parliamentary government. However, there is still significant unrest within the country, fuelled by factors such as: poverty, food insecurity, and continued political instability – including the recent resignation of the Maoist Prime Minister from government. Food security is a major problem across Nepal, nearly 41 percent of the population are considered to be undernourished and nearly 35 percent of the rural population is classified as poor[1].

The global food crisis & Nepal: Nepal was particularly hard hit by the global food crisis and experienced steep food price inflation in 2007/08 as a result. Compared to other countries in the region, Nepal has not yet experienced the considerable price deflation which occurred across much of the region during late 2008 and early 2009. Official year-on-year food price inflation is still very high. In March this was 17.1 percent. In January 2008, 1.3 million people were identified by WFP Nepal as requiring urgent food assistance. Because of high food prices, this number had increased to 2.5 million by June 2008, and again to 2.7 million people by December. In addition, an estimated 3.7 million people had been identified as vulnerable to high food prices and at risk of needing aid to sustain acceptable levels of nutrition if prices increased or if reliance on purchased product increased.

Agricultural situation: Agriculture production contributes to 33 percent of Nepal's GDP and employs two-thirds of the work force. However, only forty percent of Nepal's agricultural land is irrigated which means that much of the agricultural output relies on favourable weather conditions, especially during the winter. The agricultural output growth is weak compared to other countries in Central Asia, and in recent years the rate has slowed. While the growth rate is still positive overall, it has not kept in-line with the population growth rate (Population is currently estimated at 27 million, up from 23.1 million in 2001). Since the 1990's Nepal has regularly experienced an annual food deficit, and is reliant on imports from India and other neighbouring countries. The Hill and Mountain regions are particularly food deficit and more vulnerable to drought.

Natural disaster: Nepal is a country which is particularly vulnerable to several types of natural and human induced disasters. This includes: flooding, landslide, earthquakes, drought, hailstorms, and fires. Floods and landslides are the most common disasters, however in recent years the prevalence of drought and fires has been increasing. Various demographic factors such as rapid population growth, improper land use, slow economic development, civil conflict and great remoteness of rural communities often compound the food security and livelihood impacts when these disasters occur.

The winter crop harvest: Following a record-setting paddy production of 4.5 million MT during the summer of 2008, the winter crop of 2008/09 was mired by a country-wide and extreme drought. Fifteen out of 35 precipitation stations set up across Nepal recorded monthly rain levels which either matched, or were lower than, the worst rain levels on record.[2] The impact of this on overall winter crop production has been severe. In April 2009, the Nepal Food Security Monitoring System issued an Emergency Alert forecasting 30-70 percent loss in the main winter crops (wheat and barley) across Nepal. Monitoring data indicated that household food stocks were already 20 percent below last year's level. Of high concern, was the potential impact on households in district's that also had a poor summer crop in 2008. This included districts such as Bajhang, Bajura, Dailekh, Rolpa, Humla, Mugu, Kalikot, Jumla, Dolpa, Jajarkot, and Rukum.[3] The reasons for poor summer crop harvest in these areas included pest/disease, heavy or insufficient rains, and localized flooding/landslides.[4] The Emergency Alert estimated that the possible affected population in rural areas could be over 2 million people.

[1] CFSAM, FAO/WFP, April 2007 and Nepal Living Standard Survey, 2003/04
[2] DHM "Dry and Warm Winter 2009"
[3] Emergency Alert 2009
[4] Crop Situation Update Issue 9

Objectives of the 2008/09 Joint Winter Crop and Food Security Assessment: In response to the emerging critical food security situation arising from winter crop losses, the Ministry of Agriculture and Cooperatives (MoAC) in cooperation with the UN Word Food Programme (WFP) and the UN Food and Agriculture Organization (FAO), undertook a rapid crop and food security assessment. The purpose of this assessment was to further analyze the loss of crops and impact on livelihoods. The objectives of the assessment were to:

- quantify the magnitude of the winter drought and its impact on crop production;
- gain a better understanding of the impact of drought induced crop losses on household food security;
- make recommendations for relevant short, medium and long term interventions by the government, WFP and FAO to address the problems and needs of vulnerable populations.

2. METHODOLOGY

The assessment methodology is based on national and district level analysis of the crop and food supply situation. It combines the national crop situation analysis method of MoAC together with crop and food security analytical methodologies used by WFP and FAO.

MoAC gathered initial information relating to the crop situation from District Agriculture Offices (through sampling crop cuttings from plots randomly selected within each district). This information was then ratified through a joint MoAC/WFP/FAO field assessment undertaken between the 18th -28th of March. Five teams were dispatched to each Development Region. In total, the teams covered 18 districts and visited 20 selected communities. The mission teams held district level meetings with various stakeholders to complete a standard community survey (see below) and also conducted at least one community meeting in each district. In addition, agricultural crop data was cross referenced with crop situation reports prepared by WFP field monitors through the Nepal Food Security Monitoring System.

WFP field monitors undertook a similar exercise in 77 communities and conducted household surveys covering 1,204 households in a total of 97 communities during the period 1 February to 15 May 2009. The communities surveyed are shown on Map 7 in Annex I.

The community survey tool was based on the Multi-Agency Initial Rapid Assessment (MIRA) tool that was developed by the Inter-Agency Standing Committee's emergency cluster system. It was adapted to better capture the likely impact of prolonged drought. The household questionnaire was similar to the quarterly checklist used by the Nepal Food Security Monitoring System to allow comparison with data collected in previous monitoring cycles (see Section 5). Household survey selection was conducted to best ensure even sampling across different food security phases and crop classifications.

The methodology for estimating the number of affected households and people in need of assistance is explained in *Section 5.4 People in Need of Assistance* and in Annex V.

Data on rainfall and extent of forest fires were provided by the Meteorological Department.

3. EXTENT OF THE 2008/09 WINTER DROUGHT AND IMPACT ON CROP PRODUCTION

3.1 Extent of the 2008/09 Winter Drought

Winter (December - February) is typically the driest season in Nepal. This period typically provides 3-5 percent of national annual rainfall. However, winter rainfall is typically greater in the west of the country (140mm average vs. 40mm average in the east), and in the west it also accounts for a greater percentage of total rainfall. The 2008/09 winter drought in Nepal was one of the worst on record; this was due to both significantly reduced levels of rainfall and the breadth of area impacted. According to the Department of Hydrology and Meteorology, almost all of the 35 rain monitoring stations set up across the country, received less than 50 percent of average precipitation during the period November 2008 to February 2009[5]. In addition, 15 of the stations recorded monthly rain levels which either matched, or were lower than, the worst rain levels on record[6]. Almost one third of all rain stations recorded no rain.

Figure 1 shows rainfall for the previous 4 winters (November to February) across 8 selected precipitation stations and compares the rainfall recorded to what is considered the 'normal level'[7]. All stations received less than 50 percent of what is considered normal rainfall. The graph also highlights the areas which experienced drought during the winters of 2007/08 and 2006/2007.

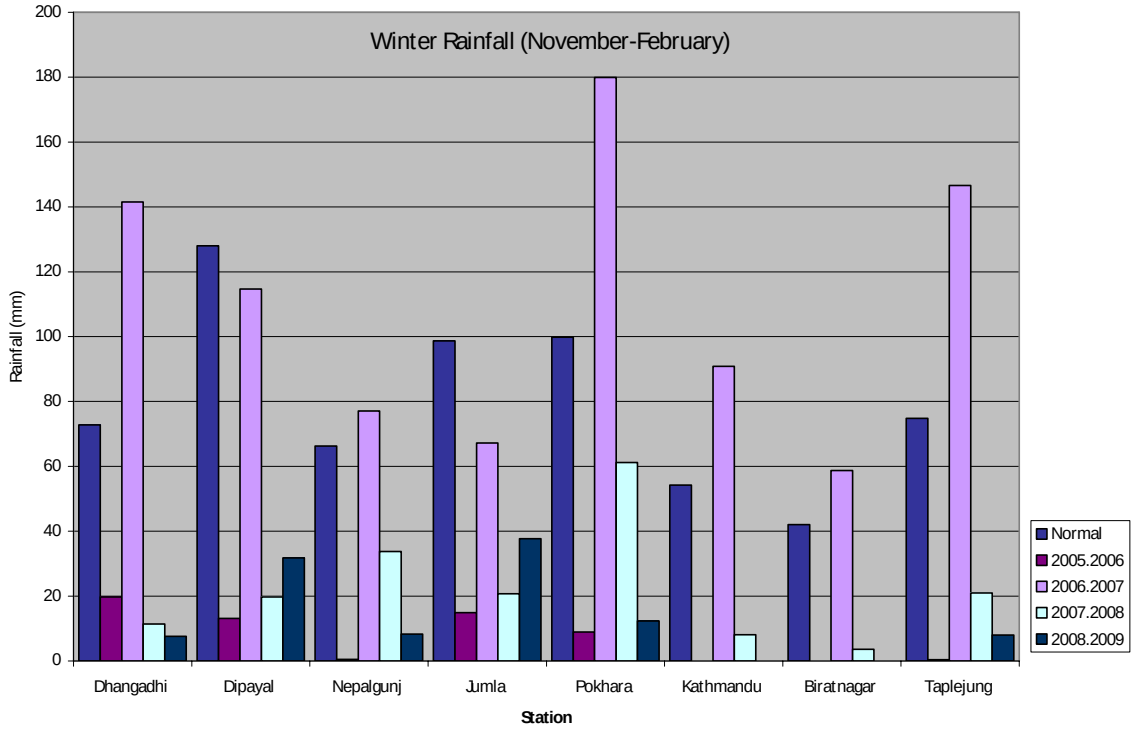


Figure 1- Winter rainfall, November to February

The 2008/09 winter was also an abnormally warm one. The average day time temperature across the country was up by around 1-2 percent. Record maximum temperature was also set in many districts across the country, particularly in the west. In the far west the maximum daily temperature for the month was 6 degrees warmer than last year.

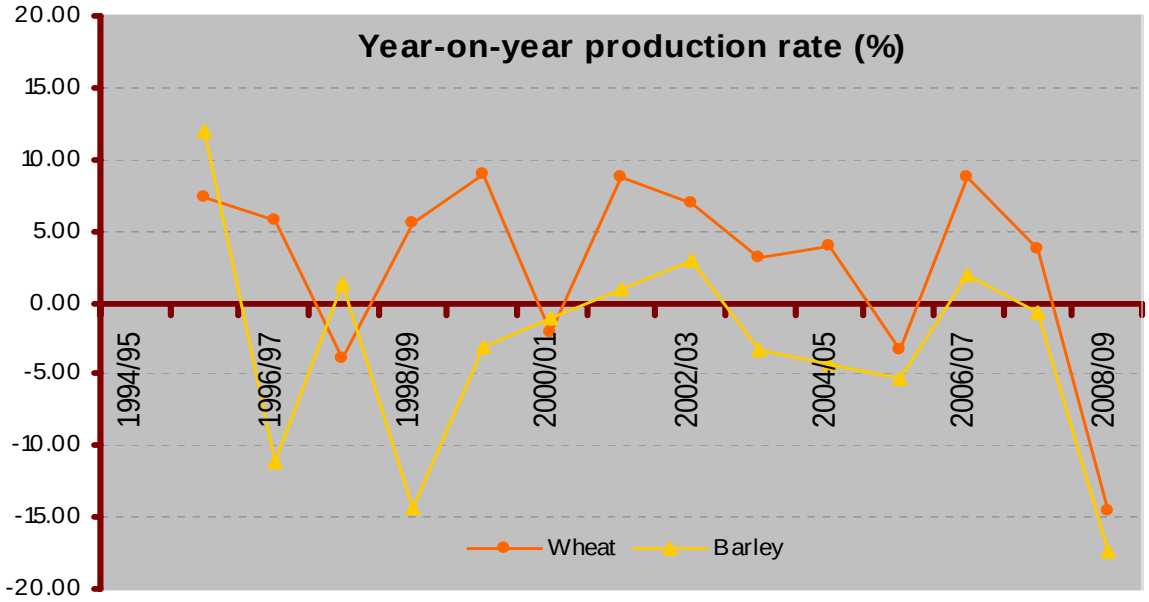
[5] Department of Hydrology and Meteorology "Dry and Warm Winter 2009"
[6] Ibid.
[7] The normal rainfall level is taken as the average rainfall for the period 1971-2000, 1973-2000, or 1983-2000 depending on the station.

3.2 Impact of the 2008/09 Drought on Crop Production

3.2.1 Winter Crop Situation Overview

The winter drought had significant impact on crop production across Nepal. Findings from this assessment, suggest a national decrease in wheat and barley production (the two major winter crops) of 14.5 and 17.3 percent respectively, when compared to last year. This constitutes a record low year-on-year decrease in production (see Figure 2). In addition, given the increase in population, this has created a near record annual deficit in supply vs. demand. The production in the Mountain, Hill, and Terai districts are reported to have decreased by 40 percent, 25 percent, and 10 percent, respectively.

Figure 2 - Year-on-year production increases and decreases



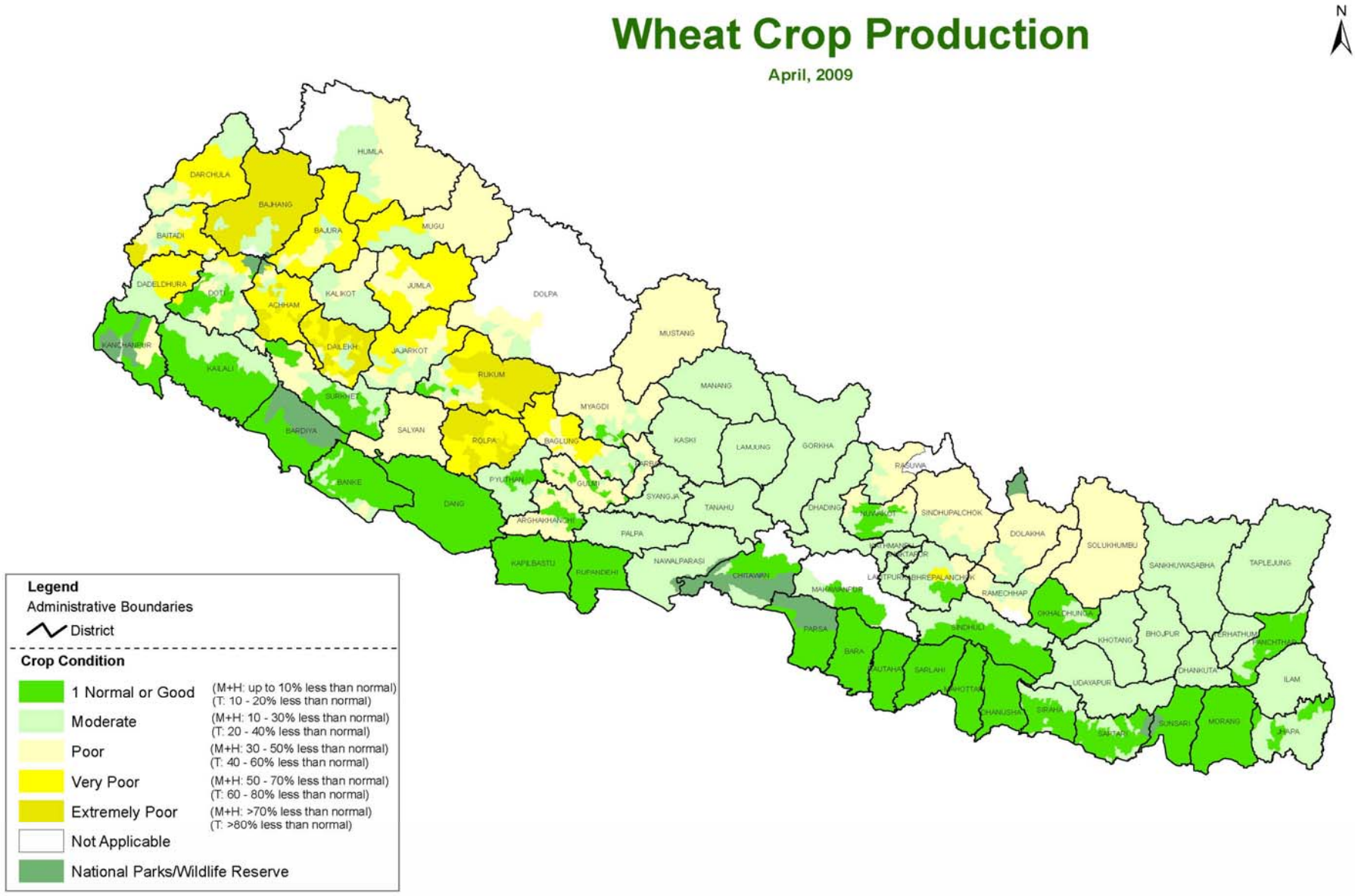
3.2.2 Regional and District Level Winter Crop Production and Losses

The most troublesome food production areas were predominantly in the Hill and Mountain regions, with the Far- and Mid-Western areas the worst affected. These regions are also generally the most food insecure areas across the country. Production in districts with high reliance on rain-fed crops (minimal or no irrigation) were the worst affected. Particularly districts in the Mid-Western Mountains (50 percent average loss in wheat) Far-Western Mountains (46 percent average loss in wheat) and the Far-Western Hills (36 percent average loss in wheat). Map 1 shows the district level losses suffered and Table 1 shows the reduction in production compared to last year.

The next section discusses the regional and district level importance of the winter crop harvest in terms of annual crop production and food security.

Wheat Crop Production

April, 2009



Legend

Administrative Boundaries

District

Crop Condition

1 Normal or Good	(M+H: up to 10% less than normal) (T: 10 - 20% less than normal)
Moderate	(M+H: 10 - 30% less than normal) (T: 20 - 40% less than normal)
Poor	(M+H: 30 - 50% less than normal) (T: 40 - 60% less than normal)
Very Poor	(M+H: 50 - 70% less than normal) (T: 60 - 80% less than normal)
Extremely Poor	(M+H: >70% less than normal) (T: >80% less than normal)
Not Applicable	
National Parks/Wildlife Reserve	

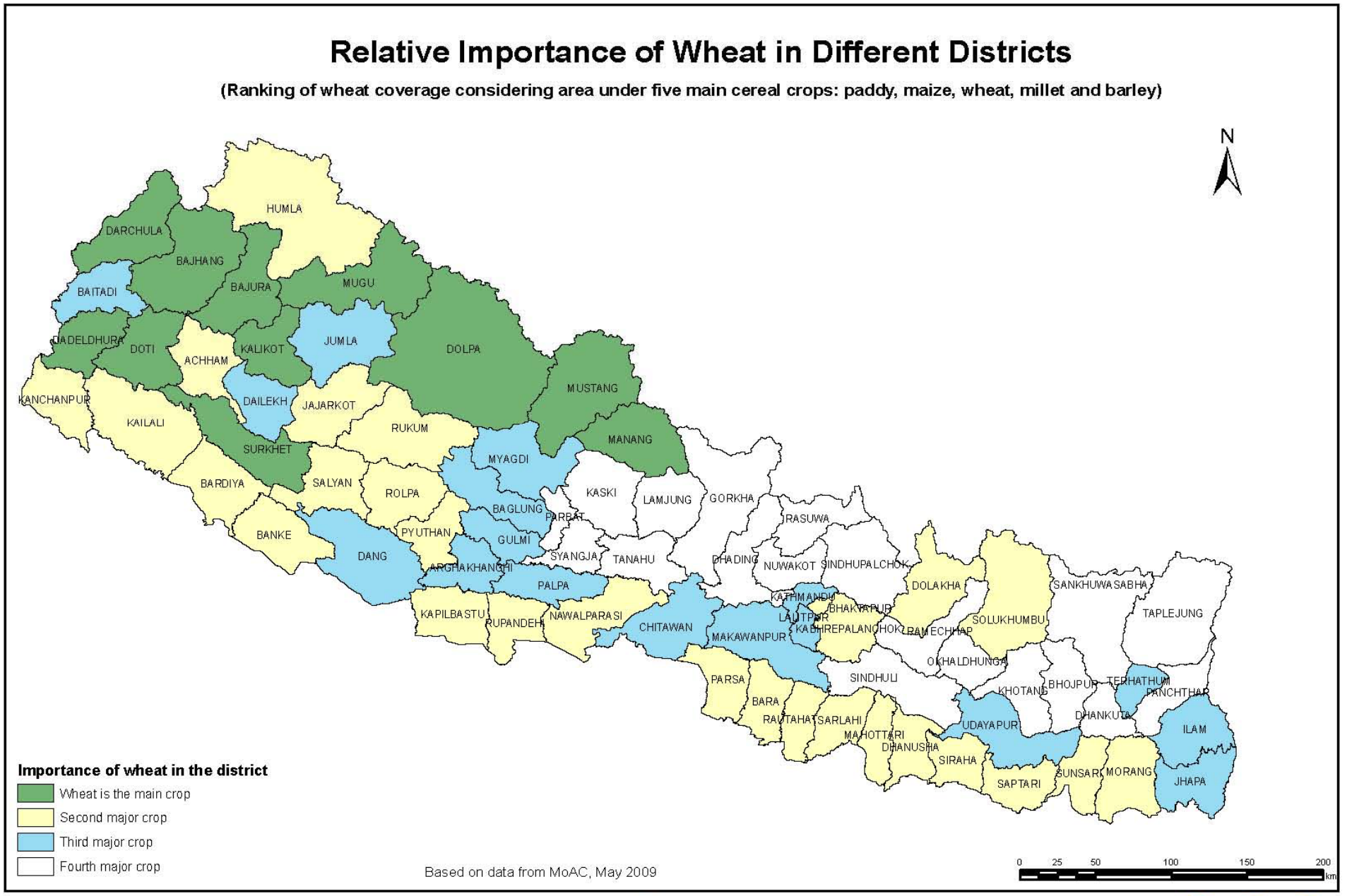
Map 1- District level winter crop production and losses

3.2.3 Importance of the Winter Crop

The drought induced winter crop losses will have varying impact across Nepal. One of the most important factors in determining the impact of the loss is the relative significance of wheat to the districts' overall crop production. Map 2 below illustrates this situation dividing the country into 4 categories: wheat as the main cereal crop (green), wheat as the second crop (yellow), wheat as the third crop (blue), and wheat as the fourth crop (white). This is based on wheat's total production area (in hectares) as a percentage of the total cereal (paddy, maize, wheat, barley, and millet) production area in the district. Table 1 below also provides an indication, based on the area of wheat and barley production alone. Areas that are likely to experience the largest impacts are those in Far-and Mid-Western Nepal, where wheat is primarily the first or second most important crop and large losses were experienced. Many of these districts experienced a 50 percent or higher loss in production because of the drought.

Table 1 - Winter Crop Production 2008/2009 and Percent Change Compared to 2007/2008

	WHEAT (2008/2009 Prod.)			BARLEY (2008/2009 Prod.)			WHEAT (% Change)			BARLEY (% Change)		
DISTRICT	Area	Prod	Yield	Area	Prod	Yield	Area	Prod	Yield	Area	Prod	Yield
E. MOUNTAIN	7075	8147	1152	470	517	1100	-0.3	-26.1	-25.9	0.0	-4.4	-4.4
E.HILLS	27807	44257	1592	1383	1325	958	-0.3	-19.2	-18.9	-6.4	-11.4	-5.3
E.TERAI	80275	181279	2258	10	10	1000	-4.9	-11.3	-6.7	0.0	0.0	0.0
E.REGION	115157	233683	2029	1863	1852	994	-3.6	-13.5	-10.3	-4.8	-9.5	-0.6
C.HILLS	50712	94451	1862	1557	1553	997	-2.7	-17.2	-14.9	-9.1	-13.2	-4.5
C.TERAI	152950	368386	2409	504	552	1095	-0.8	-8.2	-7.5	0.0	-12.0	-12.0
C.REGION	217934	481435	2209	2592	2679	1034	-1.5	-11.3	-10.0	-4.6	-13.0	-8.7
W. MOUNTAIN	910	1478	1624	510	640	1255	-0.5	-34.0	-33.7	0.4	-25.4	-25.7
W.HILLS	58589	85631	1462	3383	3544	1048	-3.9	-23.5	-20.3	-2.9	-11.6	-9.0
W.TERAI	79400	201962	2544	220	210	955	0.1	-5.2	-5.3	-12.0	-20.8	-9.9
W.REGION	138899	289071	2081	4113	4394	1068	-1.7	-11.7	-10.2	-3.0	-14.4	-11.7
MW. MOUNTAIN	13570	8669	639	6782	5585	824	-1.1	-49.6	-49.0	-4.8	-25.0	-21.2
MW.HILLS	71439	90935	1273	5317	4898	921	-1.1	-26.5	-25.7	4.4	-12.3	-16.1
MW.TERAI	47615	111187	2335	55	50	909	-1.3	-9.1	-8.0	0.0	0.0	0.0
MW.REGION	132624	210791	1589	12154	10533	867	-1.2	-19.9	-19.0	-1.0	-19.5	-18.7
FW. MOUNTAIN	17015	13864	815	3782	2699	714	-0.1	-46.2	-46.2	4.1	-19.8	-23.0
FW.HILLS	31071	27963	900	1153	914	793	0.1	-35.6	-35.6	2.5	-24.1	-26.0
FW.TERAI	42250	87055	2060	160	153	956	0.0	-12.4	-12.4	0.0	-10.0	-10.0
FW.REGION	90336	128882	1427	5095	3766	739	0.0	-23.5	-23.5	3.6	-20.5	-23.3
N E P A L :	**694950**	**1343862**	**1934**	**25817**	**23224**	**900**	**-1.6**	**-14.5**	**-13.1**	**-1.1**	**-17.3**	**-16.4**



Map 2 - Relative importance of wheat in different districts

Table 2 shows the districts in the Far- and Mid-Western Hill and Mountain region of Nepal, where wheat is one of the primary three crops. The table includes the three major crops, listed by importance, and then also the percentage of crop loss in wheat. In many of these districts, maize is either the most important or second most important crop. This highlights an additional concern which was raised during this assessment - that the outlook for maize also seems generally poor in many areas because of poor germination and growth due to late rainfall. The harvest for maize is in from July to September depending on the altitude. The other main crop in these areas is paddy or millet, which will not be harvested until November, leaving many of these already impoverished districts in a potentially dire food security situation unless external assistance is received.

Table 2 - Importance of wheat, and loss experienced

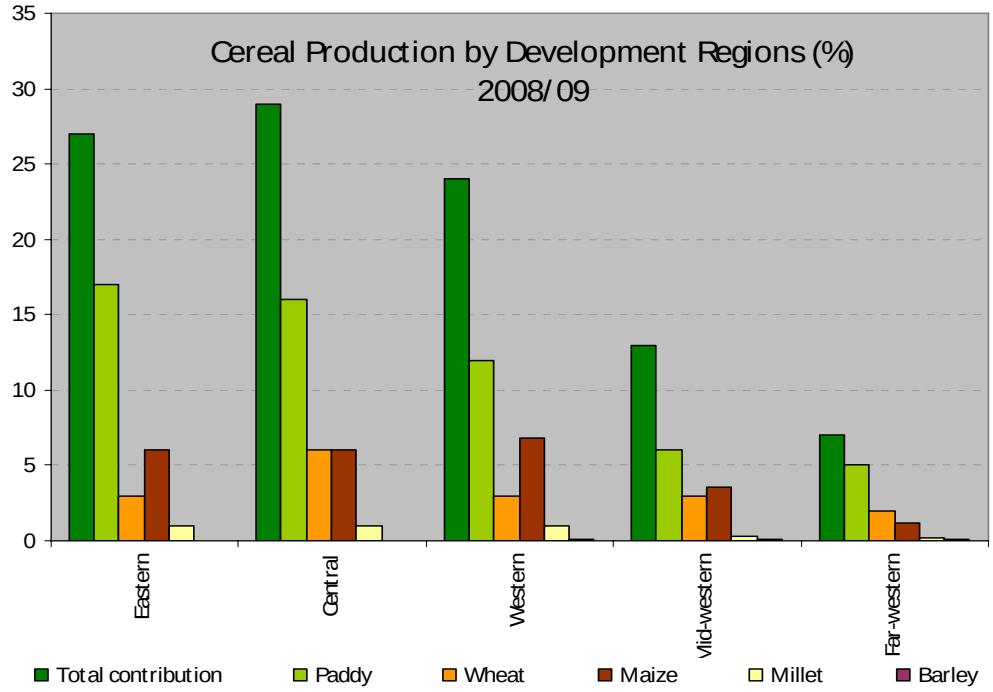
Region	District	Important Crops			Wheat crop loss (%)
		Most important	Second important	Third important	
Mid-Western Hills	Pyuthan	Maize	Wheat	Paddy	-29%
	Rolpa	Maize	Wheat	Paddy	-28%
	Rukum	Maize	Wheat	Paddy	-34%
	Salyan	Maize	Wheat	Paddy	-33%
	Surkhet	Wheat	Maize	Paddy	-13%
	Dailekh	Maize	Paddy	Wheat	-28%
	Jajarkot	Maize	Wheat	Paddy	-35%
Mid-Western Mountains	Dolpa	Wheat	Maize	Millet	-60%
	Mugu	Wheat	Millet	Barley	-35%
	Humla	Millet	Wheat	Barley	-56%
	Jumla	Maize	Millet	Wheat	-51%
	Kalikot	Wheat	Maize	Paddy	-49%
Far-Western Hills	Achham	Paddy	Wheat	Maize	-26%
	Doti	Wheat	Paddy	Millet	-33%
	Dadeldhura	Wheat	Paddy	Maize	-48%
	Baitadi	Maize	Paddy	Wheat	-33%
Far-Western Mountains	Darchula	Wheat	Maize	Paddy	-55%
	Bajhang	Wheat	Paddy	Maize	-31%
	Bajura	Wheat	Paddy	Millet	-55%

3.3 Impact of the Winter Drought on Annual Crop Production, 2008/09

3.3.1 National Crop Situation 2008/2009

Due to increasing population and declining rates of agricultural growth, Nepal has been considered a food deficit country since the 1990's. Crop production varies significantly by region and district. In terms of geographic areas, the Terai is food surplus and considered the grainery of the country. The other two areas, the Hills and Mountains are both generally food deficit. Food production also varies longitudinally; the Central Region is the most fertile, followed by the Eastern Region, and then the Western Region. Crop production is very poor in the Far-Western and Mid-Western Regions and this area typically has the highest rates of food scarcity. Figure 3 on the following page shows the contribution of regional production to the total national production in 2008/09.

Figure 3 - Contribution of regional production to total national production



The 2008 national summer crop harvest was strong in Nepal. According to MoAC reports, paddy, maize, and millet production increased by 5.20 percent, 2.80 percent, and 0.50 percent, respectively. However, despite good summer crop production at a national level, some of the areas in the Far- and Mid-Western regions experienced significant crop impairment. This was due to a variety of factors, including: excessive summer rainfall, floods, landslides, strong winds, and crop diseases. The production of the main summer crops, maize and paddy, were reduced by 10-70 and 10-50 percent respectively, in some Far- and Mid-Western districts. This included: Humla, Mugu, Jumla, Dolpa, Dailekh, Rukum, Rolpa and Jajarkot. [8]

3.3.2 National Change in Crop Production 2008/2009

Table 3 shows the changes in crop production of the main cereal crops for the year 2008/2009. The following section will discuss the crop production balance by district. More detailed information is provided in Annex II.

In addition to cereal crops, the potato is a very important crop for both income and consumption in several districts of Nepal. While the overall yearly potato output saw an increase of 1.39 percent overall, this does not reflect the winter potato crop which declined in most districts nationwide; a total of 11 percent decline in winter potato crop production. This was varied by geographic region, with the Hills (16 percent) experiencing the largest loss, followed by the Mountain region (6 percent) and then the Terai (5 percent).

Particular vulnerable areas to potato loss are those where the winter potato is a larger percentage of their overall cultivated area. Makwanpur, Dolakha, Jumla, Mugu, Rasuwa, Taplejung, Sindhupalchowk, Bara, and Jhapa all were districts where potato was more than 10 percent of their cultivated winter crop acreage. Fortunately, most of these districts did not suffer significant potato crop losses; most with the exception of Jhapa (12 percent loss) and Bara (16 percent) had a better potato production than the national average, some even increased production, e.g. Rasuwa and Mugu both up by 2 percent.

[8] Crop Situation Update, Issue-9

However, given that the winter potato is 8 percent of the national winter crop area, and its relative importance to some districts for both consumption and income purposes, it would be recommended in the future to include the potato in the list of staple crop production.

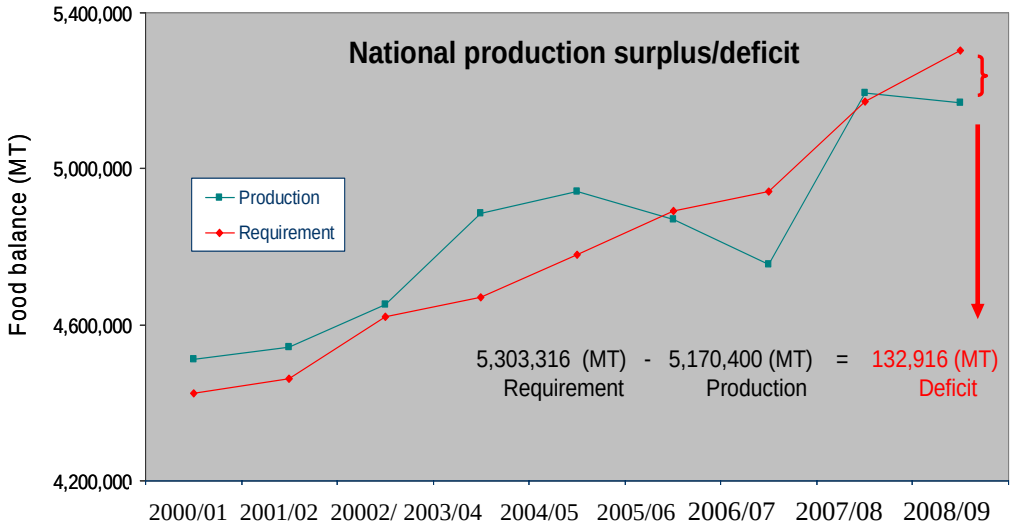
Table 3 – Changes in crop production

2008/2009 National Crop Situation (Percent Change in Production From 2007/2008)						
	Paddy	**Maize**	**Millet**	**Wheat**	**Barley**	**Total**
E.MOUNTAIN	0.00	0.00	0.00	-26.08	-4.44	0
E.HILLS	5.84	2.49	1.27	-19.17	-11.37	.3.37
E.TERAI	1.87	3.63	-0.13	-11.30	0.00	1.77
E.REGION	**2.44**	**2.33**	**0.88**	**-13.49**	**-9.48**	**2.09**
C.MOUNTAIN	8.36	6.78	6.65	-32.37	-13.29	0.26
C.HILLS	-0.30	3.14	-1.88	-17.21	-13.19	-1.64
C.TERAI	3.16	2.09	-24.17	-8.22	-11.96	-0.10
C.REGION	**2.55**	**3.39**	**-0.19**	**-11.33**	**-12.96**	**- 0.56**
W.HILLS	10.24	5.37	0.83	-23.47	-11.58	- 3.31
W.TERAI	16.94	4.58	1.37	-5.20	-20.75	10.26
W.REGION	**14.31**	**5.31**	**0.83**	**-11.65**	**-14.36**	**6.18**
MW.MOUNTAIN	0.10	9.01	1.47	-49.59	-25.02	-14.67
MW.HILLS	5.18	-1.08	-2.84	-26.46	-12.35	-6.58
MW.TERAI	7.88	-2.58	0.00	-9.14	0.00	2.39
MW.REGION	**6.99**	**-0.99**	**-1.27**	**-19.92**	**-19.52**	**-2.47**
FW.MOUNTAIN	0.00	0.00	0.17	-46.23	-19.79	-16.41
FW.HILLS	7.34	0.52	6.48	-35.57	-24.15	-7.51
FW.TERAI	0.07	-0.58	-7.89	-12.38	-10.00	-2.89
FW.REGION	**1.19**	**-0.07**	**3.36**	**-23.53**	**-20.55**	**- 15.51**
N E P A L :	**5.22**	**2.77**	**0.54**	**-14.52**	**-17.30**	**0.56**

3.3.3 National Cereal Crop Balance (Production vs. Demand)

In the Nepali calendar year, which corresponds to the western calendar year June 2008 – July 2009, 40 out of 75 districts will be considered food deficit districts. Overall, the Terai will remain food surplus, producing 11 percent more than it requires, or 287,000 Metric Tons. However, the other two geographic areas, the Hills (-14 percent deficit or -341,000 MT) and Mountain (-19 percent deficit or -68,000 MT) will both be deficit in food production. As a whole this results in a negative production balance of 133,000 Metric Tons of cereal (-2.5 percent) for all of Nepal (see figure 4).

Figure 4 - National production surplus/ deficit



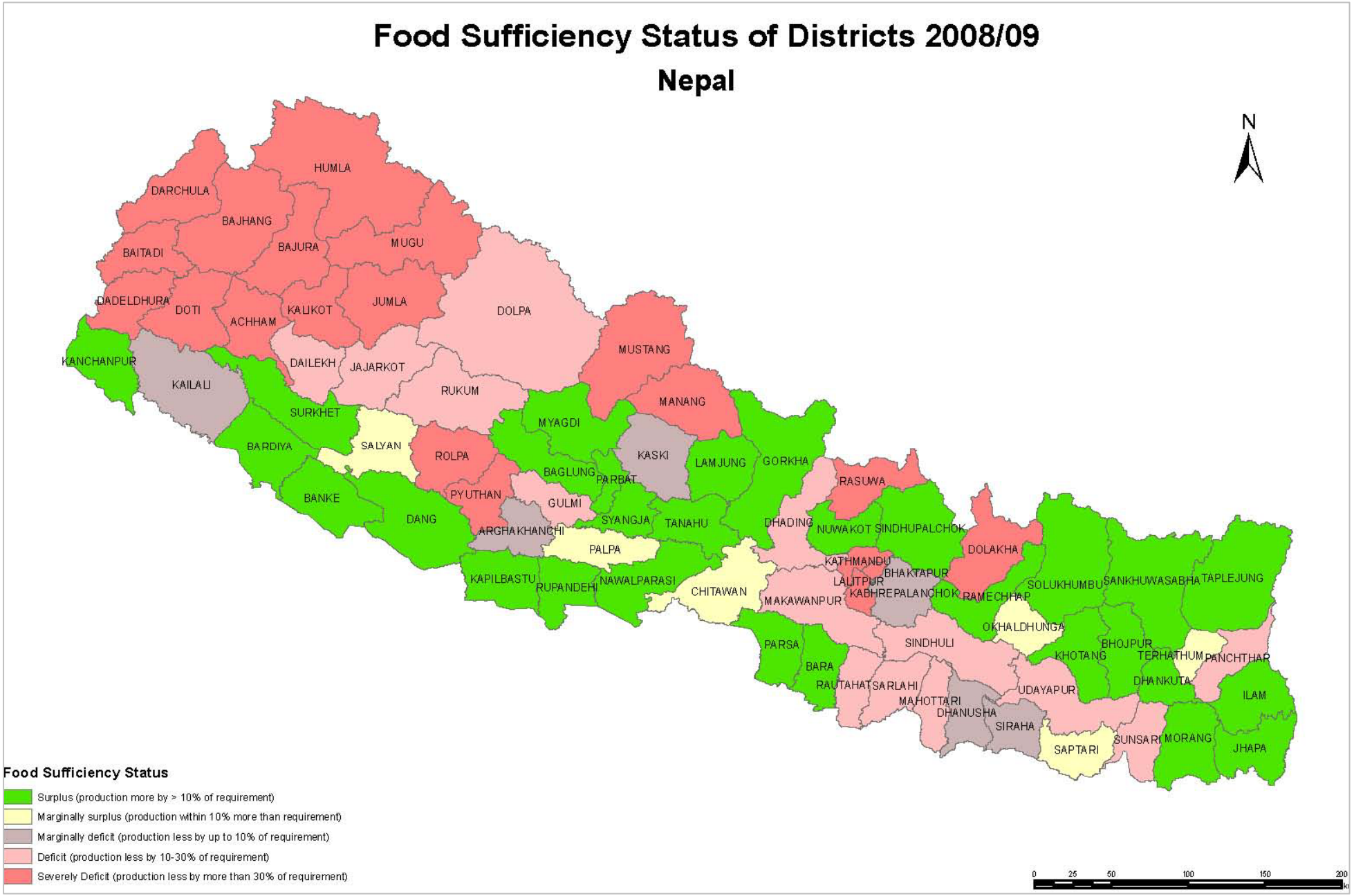
3.3.4 Regional Cereal Crop Balance (Production vs. Demand)

Several districts in the Hill and Mountain regions will have more than a 30 percent production deficit (Map 3). The worst region is the Western Mountains (Manang and Mustang) with a -63 percent production deficit. Other major deficit areas are: Far-Western Mountains (-57 percent), Far-Western Hills (-57 percent), Mid-Western Mountains (-53 percent), and Central Hills (-43 percent). The Far-and Mid-Western Hill and Mountain districts are particularly food deficit; every mountain district reports food deficits. The Mid-Western Hills, despite having only a 14 percent production deficit, has several districts with significantly worse levels of production, including Rolpa (-45 percent), Pyuthan (-36 percent), Dailekh (-21 percent), and Jajarkot (-18 percent). Table 4 below, summarizes the overall food production balance in Nepal in 2008/2009.

Table 4 - Food Production Balances 2008/09[9]

DISTRICT	Projected Population 2009	Net Edible Production (MT)	Requirement (MT)	Balance (+,-)	Balance (%)
Mountain	1914652	296510	365701	**-69,191**	**-18.92**
Hill	12071464	2080755	2426366	**-345,611**	**-14.24**
Terai	13819051	2783135	2501249	**281,888**	**11.27**
Nepal Total	27805166	5160400	5293316	**-132,914**	**-2.51**
Particular Food Deficit Regions					
C.HILLS	4462507	510460	896964	**-386,504**	**-43.09**
W.MOUNTAIN	30616	2178	5848	**-3,670**	**-62.76**
MW.MOUNTAIN	354880	31647	67783	**-36,136**	**-53.31**
FW.MOUNTAIN	458228	37788	87522	**-49,734**	**-56.82**
FW.HILLS	918082	78880	184535	**-105,655**	**-57.25**

9 The net edible gross production does not include potato, and has been calculated without inclusion of the crop seed rate, grains needed for animal feed, and overall wastage.



Map 3 - District Level Food Sufficiency / Deficit

3.4 Tentative Outlook for the Maize Crop

Maize is the second most important crop in Nepal after paddy but it is the most important crop in the majority of Hill districts. Farmers plant this crop during mid March until the month of May, however due to delayed rainfall, plantation has been delayed this year. Based on interviews with farmers and communities it is expected that the production of maize may decline this year because of late rainfall, which resulted in poor germination during the planting season.

Maize is normally harvested between July and September, depending on the altitude. It is a very important food security crop, and often ends the lean period (June - August). If drought impacts this crop also, the food security situation can be expected to drop considerably. This will be on top of the already somber predictions made in this report following winter crop losses. This will be particularly so for many Hill populations, especially in the Far-and Mid-Western districts, where maize is one of the two most important crops along with wheat.

3.5 Summary of the Crop Situation

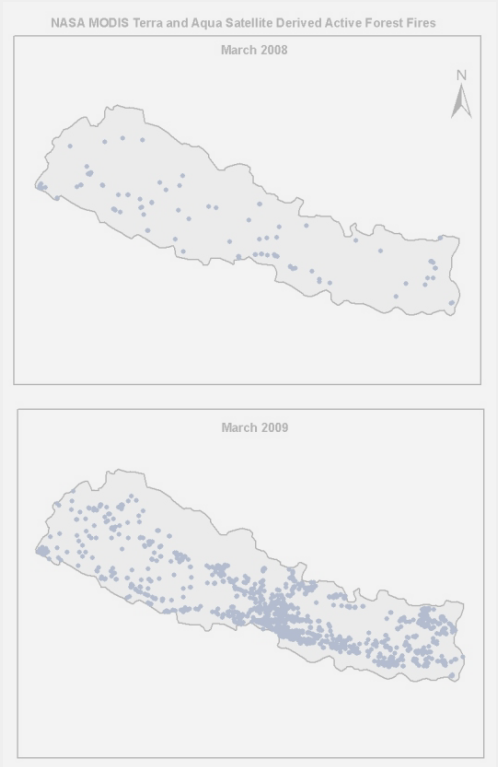
The poor winter crop heightens an already miserable crop and food security situation in the Far-and Mid-Western Hills and Mountains of Nepal. Many of these areas suffered a poor summer crop and were already significantly food deficit in their food production. Wheat and maize are the most important crops in these areas. The poor winter wheat crop and the negative outlook for the summer maize production will have significant ramification on the food security situation.

Box 1 - Drought and Forest Fires

The period March-April is generally the dry time of the year and every year forest fires affect livelihoods, destroy natural resources and claim lives. Often these fires start due to "slash and burn" practices that farmers traditionally employ to prepare the soil and produce higher agricultural yields.

The number of forest fires this year are however much higher than in previous years ant the location of such fires are spread across the country. This increase is due to an unusually dry environment combined with strong winds. Fires affected numerous conservation areas at higher elevations, including Kanchanjanga, Langtang, Annapurna and Makalu national parks.

An analysis of the fires detected with MODIS satellite data by ICIMOD (see Map 4) revealed a large increase in the number of forest fires in March 2009 compared to the same month last year – 1500 fire locations compare to just 100 in March 2008!



Map 4 – Active forest fires detected with MODIS satellite data (courtesy of ICIMOD)

4. FOOD MARKET SITUATION

4.1 Food Market Overview

In periods of poor agricultural production, reliance on local markets for adequate food supply becomes critical. However, in the case of Nepal, the agricultural market system is defined by poor integration, frequent supply constraints, large price differentials in rural districts and complete lack of private traders in some Mountain areas. This is generally related to poor transportation infrastructure and high transportation costs in rural and remote areas. Compared to other countries in the region, these factors tend to exemplify the negative impacts on food security following periods of poor harvest.

The 2009 winter crop losses come on top of an already deteriorated food security situation in Nepal due to steeply rising food prices in 2007/ 2008 as a result of the global food crisis.

A detailed assessment of market prices, purchasing power and supply constraints is provided below. This is based on information provided by the Nepal Food Security Monitoring System, and is based largely on the output of the monthly Nepal *Market Watch* report (produced jointly by MoAC, WFP, Federation of Nepalese Chamber of Commerce and Industries (FNCCI) and the Consumer Interest Protection Forum (CIPF)).

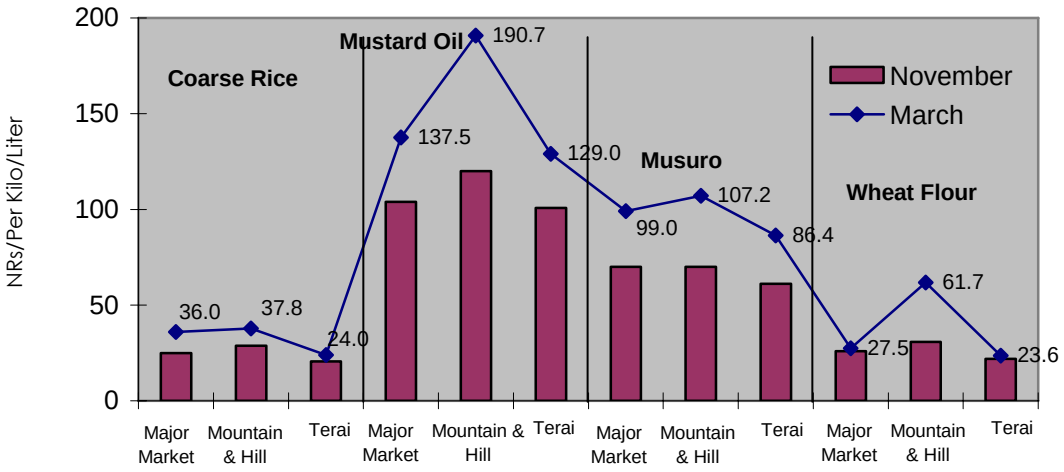
There are strong reasons to believe that households in some of the worst affected districts, particularly in the Far- and Mid-Western Hill & Mountain areas, will not have sufficient purchasing power to procure sufficient food items and/or will not have access to adequately stocked markets to meet their consumption demand. It is likely that Nepal's poorly integrated market system will also result in prices increasing most steeply in the areas where local production has generally been most impaired – due to increased demand, with more people depending on the markets for their food access, and only limited increased supply.

4.2 Market Prices & Purchasing Power

4.2.1 Market Food Prices

It is the Far- and Mid-Western Hill & Mountain districts which typically have the worst functioning rural markets and will also face some of the greatest winter crop losses on top of already poor levels of food security. Recent analysis has shown that when compared to the Terai, the price of rice in the Western Mountain region is generally 177 percent higher, the price in the Eastern Mountain region is generally 123 percent higher, and the price in the Central Mountain region is generally 37 percent higher. Figure 5 highlights price differentials between Hill, Mountain and Terai markets and also shows the 1 18 month price increase between November 2008 and March 2009.

Figure 5 - Market Prices of Key Commodities; Nov 2008 and Mar 2009



4.2.2 Impact of the Global Food Crisis & Continued Food Price Inflation

Nepal experienced particularly steep food price inflation in 2007/08 as a result of the global food crisis and has not yet experienced the considerable price deflation which occurred across much of the region during 2009. Compared to 18 months ago, the price of rice remains up by 19 percent, the price of mustard oil stayed up by 30 percent, and the price of musuro remains up by 37 percent.

Official year-on-year food price inflation is very high, in March this was 17.1 percent. Sustained high food prices in Nepal are largely a result of ongoing strikes and bandhs[10] which are impacting supply and increasing transportation costs, relatively high fuel prices compared to global prices, a prevailing Indian trade ban on key food commodities, and reportedly anti-competitive behavior by traders in some rural markets.

The poor winter harvest will reduce supply in local markets (particularly those most isolated) and increase market demand across much of the country as more people will become dependent on markets for their access to food. This will likely continue the trend of increased food price inflation in Nepal. In addition, Nepal's poorly integrated markets will likely result in the most food deficit areas experiencing the sharpest increases. This unfortunately will further reduce the already low purchasing power of the poorest households in Nepal.

4.2.3 Household Purchasing Power

Household income reported in the household data of the Nepal Food Security Monitoring System collected during the months of January to March is shown in Table 5. The percentage of this income spent on food in rural areas is estimated below in Table 6. As can be seen, the ability of households to increase their expenditure on food when their harvests are poor is minimal due to already very high rates of expenditure on food items. In the case of the current situation, where the harvest is down by 50 percent or more in the worst affected areas, the majority of households will not have sufficient income to cover additional requirements to purchase food. This is particularly so, as it is the Far- and Mid-Western Hill & Mountain districts that have suffered the worst crop losses, and these districts are also generally classified as being amongst the poorest within Nepal [11].

Table 5 - Average household income

Area	Ave. Household Income Jan – March
Mountain	3,250 per month
Hill	3,560 per month
Terai	4,060 per month

Table 6 - Average share of household expenditure on food

Wealth category	Ave. share of expenditure on food[12]
Poorest quarter	73-78%
Lower middle	65 -70%
Upper middle	55-60%
Most well off quarter	40-45%

Source: Nepal Food Security Monitoring System

10 A bandh is a forced closure typically organized for the purposes of political advocacy. In general, bandhs include the forced closure of roads and markets.
11 Small Area Estimation of Poverty, Caloric Intake and Malnutrition in Nepal, CBS Government of Nepal, WFP Nepal & World Bank, 2006
12 Expenditure is typically used as a proxy for household income.

4.2.4 Debt Financing of Food Purchases

Due to sustained high food prices, normal seasonal food deficits, and other household shocks, the level of household borrowing is already very high. In the Mountain regions, over 80 percent of households borrowed money at least monthly in the first quarter of the year. In the Hill districts this was 75 percent and in the Terai area around 60 percent. While it is normal that the poorest households borrow money during lean periods, the current rates of borrowing are already concerning. Borrowing money to cover market purchases, or purchasing on credit, often comes at a high cost to households, and can often have strong livelihood flow-on effects. According to household data of the Nepal Food Security Monitoring System, the average household was being charged 14 percent interest on loans, and 20 percent of households were being charged more than 30 percent interest.

The already high levels of borrowing to cover food purchasing, and the often high interest rates, means that this is not a sustainable food security solution to cover consumption needs until the summer crop harvests which will start in September.

4.3 Market Supply

In addition to low purchasing power, in many remote areas of Nepal, poor market functioning results in supply commonly not meeting demand. Depending on the nature of the supply constraint, even major rural markets can be shut down for days or weeks at a time. Supply constraints can be caused by strikes or bandhs in the food producing area of the Terai (or anywhere on route to the final market destination), lack of trader access caused by natural disaster, seasonal stock reductions, or lack of trader willingness to reach certain remote areas. This is of particular concern, as the households worst affected by crop losses are typically in the more remote areas of the country; of particular concern is the Far- and Mid-Western Hills & Mountains.

In recent months, the market supply situation in Nepal has worsened in many rural areas. This has largely been the result of strikes and bandhs in the Terai. In March, nearly 40 percent of Mountain and Hill markets surveyed had insufficient or depleted supply of coarse rice and across Nepal only 40 percent of markets had sufficient cooking fuel supply.

A 13-day bandh organized by Tharus and other Janajati groups in the Terai caused particular market problems. The impact of this bandh included blocked supply and restricted trading for up to 13 days in the key Terai markets of Kailali, Banke and Parsa. This lead to serious supply constraints and food scarcity in many of the Mountain and Hill feeder markets including: Ilam, Dadeldhura, Baitadi, Bhajanj, Achham, Bajura, Salyan, Sindhuli and Udayapur. Other recent minor bandhs have included regular disruption along the key transport route of the Karnali hwy and smaller localized activity relating to specific regions.

5. FOOD SECURITY SITUATION

5.1 Food Security Context

With stagnating growth in the overall cereal production, increasing population numbers, continuing high food prices and ongoing drought conditions for the past several years, the overall food security status of Nepal is worrisome. Around one third of the population lives under the poverty line and about 40 percent do not have minimum caloric consumption required for a healthy life. According to the report, Small Area Estimates of Poverty, Caloric Intake and Malnutrition in Nepal published by the Central Bureau of Statistics, WFP and World Bank in 2006, there is large geographic variation in food insecurity. This variation is generally in line with variations in crop production between regions, as previously discussed.

Generally, the Terai area is more food secure compared to the Hill and Mountains. Similarly, Eastern, Central and Western Development regions are relatively more food secure than the Far- and Mid-Western regions. Populations in the Hill and Mountain districts of the Far- and Mid-Western regions are the ones which suffer most from food insecurity as seen by different indicators such as poverty incidence, population below minimum caloric intake, stunting and underweight. The situation in some districts is so severe that prevalence of stunting in children below the age of five is as high as 70 percent or higher. Food security of many households is further compromised by the lack of awareness in proper food utilization and sanitation. Ability to purchase food, especially for the poor, has become significantly more difficult over the past 18 months, due to the steep rise in food prices, as outlined in the Food Market section of this report. The severity of this can be understood by a simple example – the poorest 20 to 25 percent of the population in Nepal spend on average, 70 to 75 percent of their income on food alone; so a 40 percent increase in food prices means that they have to spend all of their income on food just to maintain minimal levels of consumption. Indeed, during the second half of 2008 it was shown that up to 15 percent of households were enduring some entire days without food[13].

As discussed, winter crop losses of up to 70 percent have been experienced in some districts, and the shortage in total national cereal production for 2008/09 is estimated at almost 133 000 MT. Despite a general strong summer harvest, this was not uniform and some of the worst affected districts by winter drought also experienced significant summer crop losses. On top of high food prices, the impact of crop losses on household food security has been severe in districts across Nepal – particularly those in the Far- and Mid-Western Hill and Mountain regions.

Box 2. Food Security Impact at the Household Level

Through the household survey, great insight has been gathered relating to the impact of the crop losses and consequences of high food prices at the household level. The following has been observed in rural areas highly impacted by crop losses:

- ***66% of households are experiencing food shortages***
- ***43% of households are skipping or reducing meals***
- ***30% of households in Hill and Mountain districts impacted by drought were forced to consume seed stock***
- ***23% of households took children out of school to work***
- ***73% of households in Mountain districts impacted by drought had a family member out-migrating***

5.2 Household Food Security Situation

5.2.1 Winter Crop Loss as the Major Household Shock

More than 76 percent of households indicated that either high food prices or winter drought had caused a primary shock/problem during the past 3 months. Crop loss is the most important of these two factors, and is pushing whole communities

[13] WFP Nepal, Nepal Market Review 2008 and Outlook 2009

into more severe food security conditions. Table 7 shows the percentage of households that indicated drought as their most important problem by food security phase classification.

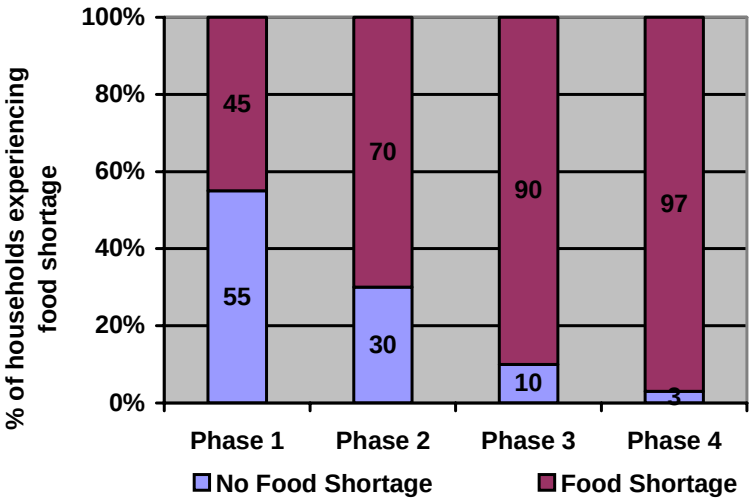
The Nepal Food Security Monitoring System distinguishes 5 phases of food security. These are (1) generally food secure, (2) moderately food insecure, (3) highly food insecure, (4) severely food insecure and (5) humanitarian disaster[14], based on a set of indicators and predefined threshold values. Poor crop harvest is the most important concern for households across all phases, however high food prices are generally the most important concern in only the more food secure areas.

Table 7 – Most important household shock

Phase	Most important shock (%)	
	Crop Loss	High food prices
1	39	22
2	55	25
3	64	7
4	87	4

Overall, 66.3 percent of the households claim that these shocks have caused shortage of food within their household. Figure 6 shows the percentage of households who report a food shortage by food security phase. More than 90 percent of households in phase 3 and 4 reported a food shortage.

Figure 6 - Households experiencing food shortages



5.2.2 Food Security and Household Food Stocks

The average level of household food stocks supports the claims of household food shortages. Table 8 shows the total quantity of cereal in stock at the household level and from this calculates the number of months that an average household has sufficient access to staples. This has been calculated based on an average household size of 6 and a daily requirement of 500 grams per person. Households in phase 4 have sufficient food in stock for only 2 more weeks (from early May) while households in phase 3 have sufficient for about 8 weeks.

[14] No area is currently being classified as phase 5 in Nepal and therefore in the remaining of this section the analysis only includes four food security phases.

Table 8 - Average quantity of food product in stock (Kg)

Phase	rice	paddy	wheat	wheat flour	maize	millet	barley	buck wheat	potato	total (kg)	Self-sufficiency (no of weeks)
1	80.1	261.3	44.3	3.8	49.8	19.9	1.2	0	21.5	481.9	23
2	29.1	58.9	26.5	2.9	48.5	37.3	2.3	1.7	11.3	218.5	10
3	31.6	42.6	23.1	2.3	42.2	15.8	2.8	0.3	3.7	164.4	8
4	7.4	0.7	13.2	1.4	11.2	0.5	1.3	4.4	4	44.1	2

5.2.3 Household Food Consumption & Coping Mechanisms

The food consumption score, which measures household food consumption, is a simple and useful proxy for measuring food security; a more frequent and varied food basket yields a higher score. Annex III provides more information on how this score is calculated. Figure 7 shows the trend in the average nationwide food consumption score for each quarter since mid 2007. The national trend is concerningly close to the standard adequate nutrition borderline of 35 (considering it is an average). This graph demonstrates a decline in consumption in the later half of 2007 which corresponded to rising food prices and seasonal trends. An increase was then experienced in line with summer crop harvests, and now a decline has started. It is expected that this decline will continue and become particularly steep in the months ahead.

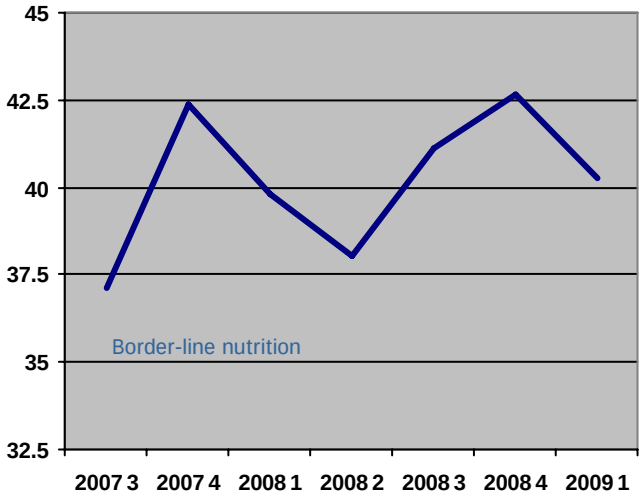


Figure 7 - Food consumption score per quarter 2007 -09

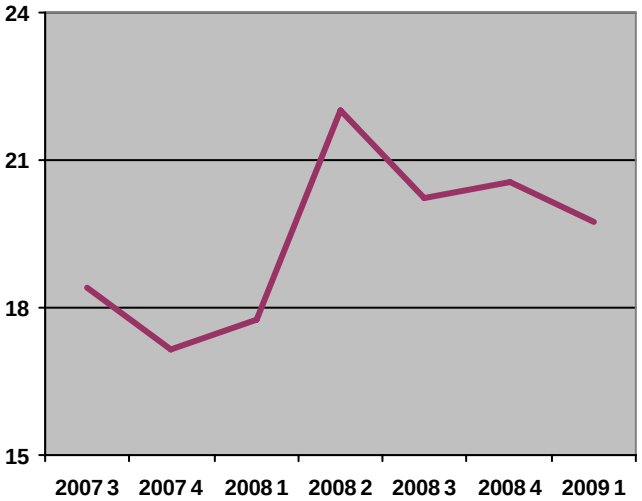


Figure 8 – Coping strategy index per quarter 2007-09

In addition to measuring declining food consumption, it is useful to measure the coping mechanisms which households employ to maintain consumption levels. Analysis of a well established WFP Nepal coping index[15], demonstrates a strong relationship between food insecurity and coping mechanisms. That is, as food consumption declines the severity of coping mechanisms employed increases. This is shown in Figure 8 which depicts the coping

[15] This index combines a set of coping strategies, such as for example, borrowing, eating less and less preferred food and/or selling assets, into a single index. The higher the coping index the more frequent a household makes use of various coping strategies. Particular severe coping strategies receive a higher weight-age in the calculation of the index.

strategy index. A clear upward trend in the use of coping strategies can be observed during 2008. The coping index is up by 11 percent in the first quarter of 2009 compared to one year ago.

A more detailed breakdown of household food security at the district level is provided in the following section.

5.3 District Food Security Situation

5.3.1 District Food Stocks

District level surveys showed that the average stock of rice and paddy available through millers and traders in the Terai districts is relatively strong, an estimated average of 7300 MT[16]. However, the average food stock in the markets of Hill and Mountain districts has been found to be 558 and 125 Mt respectively. This shows that availability of food in the market poses a significant problem in many Hill and Mountain districts even if people have money to purchase food items.

The situation is particularly worrisome in the most food insecure districts such as Bajhang, Bajura, Humla and Mugu where there is almost no food stock at all available in the market locally (less than 5 Mt of rice in the market in the whole district). The stock of wheat and maize is low compared to rice since they are traded in much smaller volumes in the market. There is some rice available through the Nepal Food Corporation mostly at the district headquarters, but the quantity is very little compared to the needs of the population and for many households the access to this rice is also very difficult due to their remoteness and inability to purchase this rice even at subsidized rate. Thus survival of many poor households in these districts depends on whatever meager stock they have at their own home unless they have some other way out to acquire food.

Section 4.3 of this report discusses food market supply in more detail and provides an overview of the key issues relating to adequate supply in Hill and Mountain markets across Nepal.

5.3.2 Food Security Phase Classification

Although Section 3 showed that crop losses were substantial in the Hill and Mountain districts across the country, the worst impacts were seen in the Far- and Mid Western Regions. This is because (i) the worst crop impairment was generally in the Far to Mid-West of the country, (ii) households in the western, central and eastern districts typically have better resilience to food shocks, and (iii) households in the western, central and eastern districts generally have relatively less reliance on wheat and barley in agricultural production.

The current classification of the food security status is based upon a set of reference indicators. A description of the revised indicators and their threshold levels for each phase are provided in Annex IV. Classifications were made by the District Food Security Networks. Verification was done by the mission teams through consultation with district government officials, local and international NGOs, and triangulation with other data sources.

Using the reference indicators and their agreed thresholds, each VDC was classified into their respective food security phase: severely food insecure (phase 4), highly food insecure (phase 3), generally food insecure (phase 2) and generally food secure (phase 1). Section *5.3.3 Food Security Phases and Food Consumption / Coping Mechanisms* provides an overview of what these classifications mean in terms of food consumption and coping mechanisms.

16 This figure is based on trader provided information and should be used as a guide only.

Many of the districts in the Far- and Mid-West are currently classified as highly to severely food insecure). Map 5 provides an overview of the food security situation across the country.

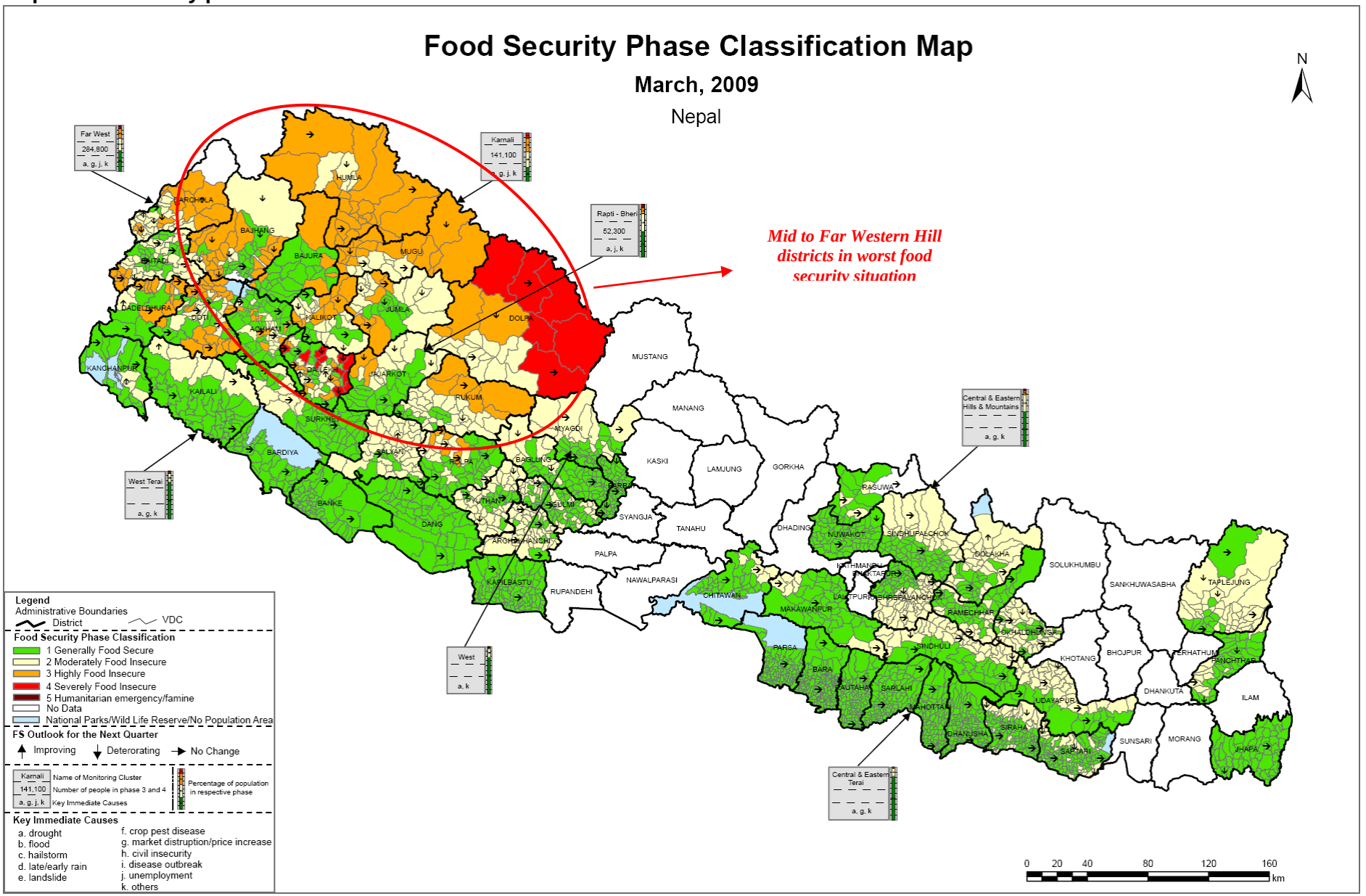
5.3.3 Food Security Phases and Food Consumption / Coping Mechanisms

Table 9 shows the current coping index and the food consumption score by food security phase classification. Consumption intake deteriorates drastically in areas of severe food insecurity. The average food consumption score in these areas is just above the very poor threshold of 21 – this is the threshold at which malnutrition becomes very poor if consumption levels do not improve, see Annex III. Similarly the use of household coping strategies increases sharply with households in phase 4 having a coping index more than 3 times as high as households in generally food secure areas of the country.

Table 9 - Consumption score and coping index for each food security phase classification

Phase	Food consumption score	Coping index	Explanation of Coping Mechanisms Employed
1	45.7	16.8	Traditional coping strategies that are part of the normal livelihood strategy, i.e. migration, wage labor, selling of non productive assets, and consumption of wild food.
2	38.7	20.4	All of the above and changes in regular food consumption, i.e. reduce quantity and/or quality of food, less preferred food, borrow money or food.
3	37.8	27.7	Skipping meals and adoption of irreversible coping mechanisms, i.e. sale of productive assets such as livestock, land and/or seed.
4	21.9	53.4	High dependence on wild foods, adoption of high levels of irreversible coping mechanisms such as final sale of productive assets (livestock, tools, land) and less conventional methods such as looting.

Map 5- Food security phase classification



5.3.4 Detailed Food Security Situation in Selected Districts

Eastern & Central Region: no serious food security concern

Eastern Region: *In **Taplejung, Panchthar** and **Jhapa** the main winter crop (wheat) decreased by 21%, 15%, and 16% respectively. However, there is no serious food security concern as Taplejung and Pachthar districts earn billions of rupees each year by exporting cardamom outside of the district. This income is shared well among locals through well functioning co-operatives. These regions also had a relatively good summer crop harvest.*

Central Region: *In **Rasuwa, Nuwakot** and **Makwanpur** wheat production decreased by 7%, 9%, and 26% respectively. However, in Rusuwa, potato is the main crop, and production was very good, reaching 35,000 Mt. for a total population of 50,000. In addition, Nuwakot earned considerable income through remittances and from the sale of vegetables, fish, and strawberries to Kathmandu. Likewise, Makwanpur district also earned a substantial income by selling vegetables. However, some 10 VDCs in the Hills towards the north-west edge of this region are experiencing moderately impaired food security due to a decrease in potato production. This situation might worsen if the outlook for the main summer crop of maize does not improve.*

Western Region: moderate food security concern

Western Region*: In Kapilbastu, Arghakhanchi, Gulmi, Baglung, and Myagdi received virtually no precipitation between mid October and mid April (> 6 months). Hence the main winter crop (wheat) decreased in Kapilbastu by 7%, Arghakhanchi by 37%, Gulmi by 43%, Baglung by 15%, and Myagdi by 16%. Lack of rainfall and disease, also decreased the production of potato, in Kapilbastu by14%, Arghakhanchi by 50%, Gulmi by 25%, Baglung by 50%, and Myagdi by 19%. Consequently this led to a sharp increase in market food prices in some of these districts. For instance, in a 3 month period the price of potato went up by 47% in Arghakhanchi and Baglung. And by 157% in Kapilbastu. However, in terms of overall food security, the situation was only moderately impaired in these areas. Kapilbastu is a major rice producing district and the summer paddy production was up by 23% in 2008/09. In most of the VDCs in Arghakhanchi people have alternate sources of income to access food, such as: remittances, coffee production, wage labour, and/or GoN work opportunities. Similarly, in Gulmi approximately 50% of households have at least one member out-migrated, or are in the military service in the Indian or British Armies. Households in this region also typically keep food stocks of rice from Terai areas (Kapilbastu, and Rupandehi). In Baglung and Myagdi the majority of the population depends more heavily on the summer harvest of maize and paddy, which was good in 2008/09. There is also good income from remittances, tourism, herb collection, and wage labour.*

Mid-Western & Far-Western Region: high to severe food security concern

Mid-Western Region: In Mugu, Dailekh, Surkhet, and Banke wheat production declined by 35%, 28%, 13%, and 1% respectively. However, some areas have been very severely affected – particularly in Mugu, and Dailekh. For instance, in Dailekh the wheat production was impaired by >70% in 24 VDCs[17], by 50-70% in 22 VDCs[18] and by 30-50% in 5 VDCs[19]. In Mugu, crops were impaired by 50-70% in 11 VDCs[20] , and by 30-50% in 5 VDCs[21]. In these areas income opportunities are also highly limited or often not available at all, therefore many households are facing high to severe levels of food insecurity. Already 8 VDCs in Dailekh (Dwari, Kalika, Jagannath, Katti, Salleri 5-9, Kasikandh, Chamunda, and Sigaudi) are severely food insecure. In addition,14 VDCs in Dailekh (Bindyabasini, Paganath 1-4 & 8, Awalparajul, Malika, Khadkabada, Padukasthan, Layatibindrasaini, Tilepata, ChhiudiPusakot, Meheltoli, Raniban, Bansi, Toli, and Rakamkarnali), and 16 VDCs in Mugu (Mugu, Dolphu, Kimri, Pulu, Mangri, Ruga, Photu, Jima, Kalai, Natharpu, Bhie, Dhainakot, Hyanglu, Kotdanda, Shreekot, Sukhadhik) are highly food insecure. The food security situation in Surkhet and Banke is not so critical due to good summer crop harvests, local wage labor opportunities, remittances, and easy access to food markets.

Far-Western Region: In Kailali, Dadeldhura, and Bajhang wheat production decreased by 15%, 48%, and 31% respectively. In Kailali, the worst affected area is the north where wheat production has decreased by 20-40% (Sahajpur, Nigali, Khairala, Mohanyal, Pandaun, and Sugarkhal). In this area there are limited employment opportunities and households are facing moderate food insecurity. This will likely turn into high food insecurity towards the end of June when current household food stock deplete. In Dadeldhura and Bajhang, there were high losses of wheat production, crop impairment was >70% in 30 VDCs in Bajhang[22]. Similarly, 50-70% of wheat crop was lost in 16 VDCs in Dadeldhura [23] (about half of the district's area in the north-east). In these districts employment opportunities are limited, household food stock is low, and remittances provide only minimal additional income. Therefore, the food security situation has become precarious in some areas. Some 20 VDCs in Bajhang and 11 VDCs in Dadeldhura are highly food insecure. This situation will likely worsen from May onwards as the small household food stocks deplete.

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17 Bisalla, Kasikandh, Baluwatar, Dwari, Tilepata, Sigaudi, Chamunda, LayatiBindrasaini, Padukasthan, Raniban, Bansi, Kalika, Toli, Salleri, Meheltoli, Bindyabasini, Rum, Pagnath, Jagannath, Katti, Awalparajul, ChhiudiPusakot, Malika, and Khadkabada (Dailekh)

18 Pipalkot, RakamKarnali, Singhasain, Tolijaisi, Lakandra, Sattala, Jambukandh, Kusapani, Bhairikalikathum, Badalamji, Rawatkot, Dullu, Gamaudi, Bhawani, Kharigaira, Badakhola, Gauri, Baraha, Dandaparajul, Lalikanda, Chauratha, and Naumule (Dailekh)

19 Nepa, Kalbhairab, Seri, Goganpani, and Piladi (Dailekh)

20 Ruga, Photu, Jima, Natharpu, Kalai, Dhainakot, Hyanglu, Kotdanda, Shreekot, and Sukhadhik (Mugu)

21 Mugu, Dolphu, Kimri, Pulu, and Mangri (Mugu)

5.4 Impact of Current Assistance on Food Security Situation

5.4.1 WFP Assistance in Far- and Mid-West Hills and Mountains

WFP is currently providing food aid to about 765 thousand beneficiaries in the Far-and Mid-West Hill and Mountains, or, about 23 percent of the population. This matches with the household survey which found that 27.3 percent of households have received WFP assistance during the past three months. The average number of working days was 17 days which entitled the household to about 68 kg. For a household of 6 this would provide sufficient food for about 23 days. Table 10 shows households in the Far-and Mid-West that experienced significant crop losses and either received or did not received WFP food assistance. Households that received food assistance through food-for-work have less need in using coping strategies and have better access to sufficient food.

Table 10 –Households in the Far- and Mid-West with crop loss receiving WFP assistance

WFP	Household reported food shortage (%)	Coping index	Sufficient food (%)			
			< 1 month	1-2 months	2-3 months	> 3 months
Assistance	**68.5**	**18.4**	**25.9**	**41.8**	**20.6**	**11.8**
No Assistance	**88.5**	**35.7**	**53.7**	**28.5**	**12**	**5.8**

Table 11 shows the percentage of households that responded that a WFP programme was being implemented in the past three months in areas where crop production was extremely poor. Almost 70 percent of households in phase 1 that experienced extremely high crop losses reported that a WFP food for work programme is currently in place. In phase 2, this is 41 percent and in areas under phase 3 and 4 this is a little more than 9 percent of the households.

Table 11 – WFP Programming and impact on Food Security Phase

Food Security Phase	WFP programme being implemented (% hh)
1 (best)	68.6
2	41.2
3 or 4 (worst)	9.4

It appears therefore that the ongoing WFP food assistance has had a significant effect in preventing further deterioration in the food security situation in many areas affected by extremely high crop losses. With the upcoming lean period it is therefore essential for these programs to continue.

22 Kanda, Dhamena, Melbisauna, Dantola, Rilu, Sunikot, Mashtadev, Kotdewal, Kailash, Gadaraya, Daulichaur, Surma, Dahabagar, Lekhgaun, Byasi, Kadel, Sainpasela, Maulali, Bhairabnath, Rayal, Parakatne, Dangaji, Sunkuda, Deulek, Syandi, Deulikot, Kaphalseri, Banjh, Bhamchaur, and Pipalkot (Bajhang)

23 Bhageshwor, Dewaldibyapur, Bagarkot, Chipur, Bhadrapur, Ajayameru, Samaiji, Koteli, Manilek, Belapur, Nawadurga, Ganeshpur, Kailpalmandu, Asigram, Gankhet, and Amargadhi municipality (Dadeldhura)

5.4.2 Food Supplies Through the Nepal Food Corporation

In addition to WFP assistance, the Nepal Food Corporation (NFC), is currently supplying subsidized food to 30 districts including 22 remote districts across Nepal. In many remote district headquarters, such as Dolpa and Humla, the NFC rice is almost the only source of rice available. However, the quantity of food available is insufficient and many poor families have difficulty in accessing the food due to their remoteness from NFC food depots (these are usually located the district headquarters) and lack of purchasing power.

With increasing cases of food insecurity, NFC is under increasing pressure to increase district supply. A total of 17,000 Mt of rice is planned to be supplied by NFC in the country. A total of 16,108 Mt has already been supplied to respective districts and of this 11,042 Mt has already been sold against a subsidized rate. 5,066Mt is available in stock at the moment at various NFC depots. However, the NFC is facing transportation challenges in remote areas due to the high cost of transportation and lack of adequate transport capacity. The amount of rice available through NFC for different districts varies widely from one district to another. During the assessment it was found that there was a larger amount available in districts which already serve as market hubs, such as Surkhet (460 Mt) or Jumla (970 Mt). In other districts, the stock was generally less than 100 Mt except Rukum (330 Mt), Rolpa (245 Mt) and Dolpa (320 Mt).

5.5 Need for Immediate Additional Assistance

5.5.1 Methodology for Estimate of Population Affected

As demonstrated throughout this report, the food security impact of winter crop losses was particularly severe in the Far- and Mid-Western Hills and Mountains. Although crop losses occurred in almost all Hill and Mountain districts across the country, the most severe impacts were generally seen in this area. This is because (i) the worst crop impairment was generally in the Far to Mid-West of the country, (ii) households in the western, central and eastern districts typically have better resilience to food shocks, and (iii) households in the western, central and eastern districts generally have relatively less reliance on wheat and barley in agricultural production. For these reasons, it is likely that poor winter crop harvests caused some households in the central and eastern regions to become food insecure, however it is believed that there is no critical mass of highly or severely food insecure households residing in these areas. The estimation of people requiring immediate food assistance due to winter crop losses, is therefore limited to the Far- and Mid-Western Hill and Mountain regions only[24].

To gauge the number of people in the Far- and Mid-Western Hill and Mountain regions who are severely affected by winter crop losses (and therefore the number of people that require urgent assistance), a two thronged approach was undertaken. This process is explained further below, Annex V provides a more detailed description.

Food Access Variable: The first stage was a bottom up calculation, in which household data collected as part of the assessment, was utilized to determine which households would have poor access to food. This information was used to create a food access variable which is a cross tabulation between the extent of crop loss and the wealth category of each household. The wealth category serves as a proxy of a household's resilience and ability to purchase additional food on the market. The assumption is that the better-off a household (in economic terms), the more resilient the household is against crop loss and the better the household's access to food through market purchase.

The households with the worst crop losses and the lowest resilience (as measured by household asset ownership) are those which will be most severely affected by this crisis, especially given current market conditions of high food prices. Households of highest

24 Preliminary analysis across the country shows that approximately 3.3 percent in food secure areas and 18.4 percent in moderate food insecure areas are suffering from food insecurity due to crop losses and high food prices.

concern are those which are in the bottom wealth categories and experienced significant crop losses (more than 30 percent). These households are likely to have severely restricted food access in the upcoming lean period. Using this method it was estimated that they constitute approximately 63 percent of the population in the Far- and Mid-Western Hills and Mountains or almost 2 million people.

Food Security Network Ratification: The second stage was to ratify the information with the household food security phase ranking prepared by the District Food Security Networks. This was discussed in the previous section on district level food security. As can be seen by comparing Table 13 and Table 14, the findings of these Networks supported the figures generated through the household Food Access Variable.

5.5.2 The Need for Immediate Food Assistance

The need for immediate assistance depends on the current level of household food consumption. The impaired winter crop will cause people with already low food consumption to face an even more severe food security situation. People with a current consumption intake that is borderline may become food insecure and people with current adequate food intake levels may become borderline. Without intervention this will have significant impact on the nutrition status of those worst affected. Nutrition is already at very low levels with almost every other child under the age of five stunted, 39 percent of children underweight and 13 percent wasted.

To estimate the needs for immediate food assistance, a further cross tabulation was made between the food access variable and the food consumption score. Households with poor food consumption scores and poor or moderate food access and households with food consumption scores that are borderline were classified as priority one, indicating severe food insecurity and limited possibilities to access alternative food sources. This group was further analyzed to take into account WFP's current food deliveries in these areas to calculate the additional immediate food aid needs.

Table 12 shows the percentage and number of additional people in need of immediate food assistance and those at risk for the Far- and Mid-West Hills and Mountains.

Table 12 – Number of additional people in need of immediate food assistance

	Percentage	Total number
People in need of immediate food assistance	22.9 %	707,265
People at risk of becoming food insecure	15.7 %	485,955

The total additional caseload for the Far-and Mid-West is approximately 707 thousand people.

5.5.3 Targeting of the People in Need – District Level

Taking into account programming and logistical constraints it will be difficult to target individual households in areas without a critical mass of food insecure households. Geographically, food assistant programs should be targeted to areas classified as highly (phase 3) or severely (phase 4) food insecure or in VDCs currently in phase 2 where external assistance has prevented a further deterioration in the food security situation (see Section 5.5) but where the food security situation is likely to deteriorate in the near future when people run out of food stocks.

Table 13 shows the current number of food insecure people as identified by the District Food Security Networks of the Nepal Food Security Monitoring System in areas currently classified as phase 3 or 4. The total identified population is 502,900 people. The remaining number of

people in need of immediate assistance is located in areas currently classified as phase 2 or phase 1 but with a deteriorating outlook for the upcoming lean period until the maize harvest in August and September.

Table 13 – Highly and severely food insecure population

SN	District	Nos. of VDCs at Risk	Highly food insecure (starting affecting livelihood assets)	Severly food insecure (acute food and livelihood crisis)	Total Population highly and severly food insecure
			Phase 3	Phase 4	
I. Karnali belt					
	Jumla	7	20,700	-	20,700
	Humla	23	42,700	-	42,700
	Mugu	17	31,400	-	31,400
	Dolpa	9	2,200	5,400	7,600
	Kalikot	9	38,700	-	38,700
		Sub-Total_I.	**135,700**	**5,400**	**141,100**
II. Rapti Bheri Hills					
	Jajarkot	2	13,000	-	13,000
	Dailekh	20	27,500	34,300	61,800
	Rolpa	6	15,100	-	15,100
	Rukum	6	13,000	-	13,000
		Sub-Total_II.	**68,600**	**34,300**	**102,900**
III. Far-Western Hills and Mountains					
	Bajhang	20	78,600	-	78,600
	Bajura	6	23,000	-	23,000
	Darchula	15	41,700	-	41,700
	Baitadi	7	15,500	-	15,500
	Dadeldhura	11	20,000	-	20,000
	Doti	20	56,300	-	56,300
	Achham	11	23,800	-	23,800
		Sub-Total_III.	**258,900**	**-**	**258,900**
		Grand Total	**463,200**	**39,700**	**502,900**

5.5.4 Targeting of the People in Need – Household Level

Who are those the people in need of food assistance? Apart from targeting geographically, could the effectiveness of the programme be improved by targeting individual households?

Table 14 provides and overview of some of the characteristics of the households in need of assistance. It only covers households from the Far- and Mid-Western Hill and Mountain areas. Given the predominance of Brahmin/Chhetris in the Far- and Mid-West Hills and Mountains, most of the people in need of assistance are from this caste (61 percent). Almost one third is Dalit and 11 percent belong to Janajati minorities. Although almost all households (97 percent) own land, the average land ownership is very small with those in need of assistance having less than 0.3 hectares of land. Livestock farming is important in these areas and the average households in need of assistance owns about 3 cattle. In comparison, those at risk and those that are food secure own on average about 4 or 5 cattle.

Household asset ownership is another targeting criterion that can be used. No one in need of assistance owns a wrist watch and radio ownership is about half or one third of those households at risk or food secure. Households in need of assistance live predominantly in housing with thatched roofs and have no access to electricity. Their main source of lighting is wood burning.

Households in need of assistance spend a very high proportion of their total expenditure on food (75 percent). About half of the households at risk or food secure are currently receiving WFP food assistance. For households in need of assistance this is 23 percent (see also next Section).

Table 14 – Characteristics of the Households in Need of Assistance

		In need of assistance	At risk	Food secure
Caste/ethnicity	Dalit (%)	27.5	23.7	10.4
	Janajati (%)	11.4	10.5	18.3
	Brahmin/Chhetri (%)	61.1	64.9	69.6
Productive assets	Land ownership (ha)	0.29	0.32	0.49
	Livestock:			
	No. of buffalos/cows/yaks	3.1	4	4.7
	No. of goats/sheep/pigs	2.2	4	5.4
	No. chicken	1.7	2	3.5
Household assets	Radio (%)	32	54	90
	Watch (%)	0	5	79
Living conditions	Roof material:			
	Thatched	61.7	12.9	16.7
	Slate	34	67.7	60
	Mud	4.3	16.1	18.3
	Lighting source:			
	Electricity	0.7	14	7.8
	Wood	32.6	5.3	3.9
Livelihoods	Food Expenditure (%)	74.9	64.9	62
	Received WFP assistance in past 3 months	23.6	48.1	50.0

6. CONCLUSION & RECOMMENDATIONS

The 2008/2009 winter drought in Nepal was one of the worst on record, with much of the country receiving little or no rain between November and March. Although the 2008 summer harvest was generally strong, many of the areas worst impacted by the winter drought, the Far and Mid Western Hill and Mountain Regions, also experienced significant summer crop losses due to excessive rainfall and disease. In addition, the impacts of this drought on food security have occurred at a time when much of the population is still reeling from the sharp food price spikes of 2008 which have continued through 2009.

An increasing prevalence of natural disasters within Nepal, including: droughts, flooding, landslides and large hail storms, correlates with the increasing concern of global climate change. These natural disasters continue to expose the vulnerability of Nepal's agricultural situation (the country has commonly experienced food production deficits since the 1990s). If Nepal is to obtain and maintain basic levels of food security then there is a need for urgent investment, both to cover the immediate food shortages caused by this drought and long term agricultural improvement.

Short-term, Quick Impact Interventions:

1. Extend the WFP PRRO "Food Assistance to Vulnerable Populations" to provide immediate assistance through short-term and targeted Food or Cash for Work activities to highly food insecure populations in the Hill and Mountain regions. This means assisting an additional 707,000 people which are currently not covered by the PRRO and extending support to these food insecure populations until the maize harvest in September.
2. Combine the immediate assistance programmes of WFP with the seed and fertilizer provision programmes of FAO in strong co-ordination with MoAC.
3. Stimulate the use of organic farming techniques including the effective use of farm yard manure and compost in remote inaccessible districts.
4. Continue to closely monitor the situation through the Nepal Food Security Monitoring System so as to be able to quickly and easily respond to additional crises such as a nutrition emergency.
5. Continue to monitor market prices and market supply closely, particular supply issues relating to bandhs and strikes.
6. Government to import key food items.

Medium-term Impact Interventions:

1. Improve the knowledge about improved cereal crop production, and include potato in the overall key crop balance.
2. Increase agricultural investment, to improve knowledge and proper usage of agricultural inputs and machinery.
3. Consider the subsidization of fertilizer, improved seeds, and irrigation facilities so as to increase crop yield and decrease drought vulnerability.
4. Improve the research, utilization and awareness of cash crops. In addition, research potential markets for these crops and how to improve access to these markets.
5. Establish and promote the use of community seed banks and community seed production and marketing schemes.
6. Continue consultation between WFP and MoAC with the objective of transferring the Nepal Food Security Monitoring System of WFP to the government to strengthen assessments.

Longer-term Impact Interventions:

1. Improve road access and implement crop diversification and commercialization programs.
2. Support the development and utilization of drought resistant crops and farming methods that are appropriate for the Hill and Mountain districts.
3. Support the rehabilitation or construction of irrigation systems and water harvesting techniques.
4. Improve crop assessment methods to include scientific methods such as remote sensing and updated field techniques

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The assessment team consisted of the following experts:

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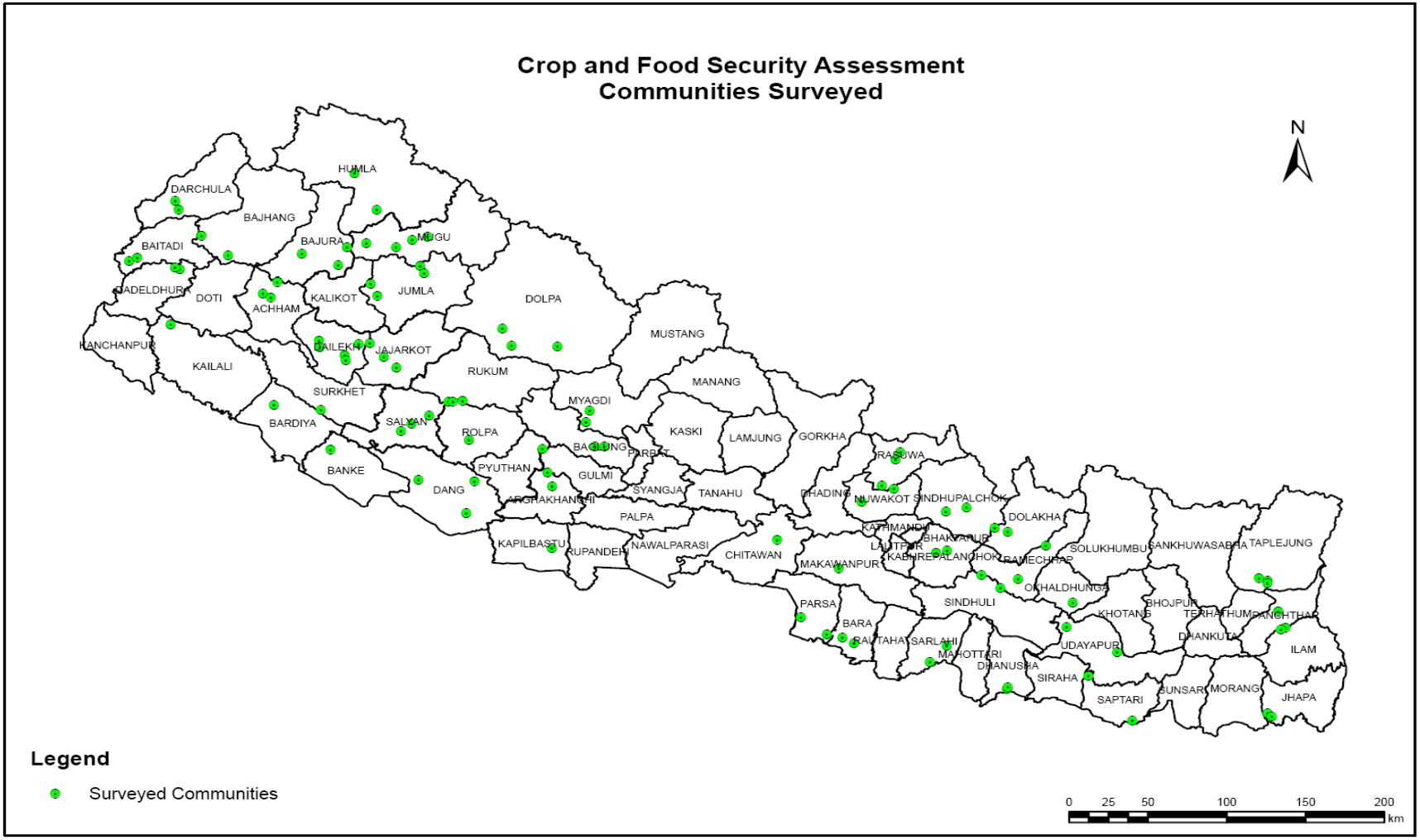
ANNEX I. MAP 7 – CROP AND FOOD SECURITY ASSESSMENT, COMMUNITIES SURVEYED



April, 2009

World Food Programme
Food Security Monitoring and Analysis System

ANNEX II – DISTRICT LEVEL CEREAL PRODUCTION 2008/09

DISTRICT	Paddy			Maize			Millet			Wheat			Barley		
	Area	Prod	Yield	Area	Prod	Yield	Area	Prod	Yield	Area	Prod	Yield	Area	Prod	Yield
TAPLEJUNG	8783	16048	1827	13187	28495	2161	3050	3567	1170	1890	2285	1209	240	264	1100
SANKHUWASHAVA	15932	28677	1800	14672	28209	1923	9977	9956	998	1505	2288	1520	30	29	967
SOLUKHUMBU	1620	2916	1800	12950	29100	2247	2052	2566	1250	3680	3574	971	200	224	1120
E.MOUNTAIN	**26335**	**47641**	**1809**	**40809**	**85804**	**2103**	**15079**	**16089**	**1067**	**7075**	**8147**	**1152**	**470**	**517**	**1100**
PANCHTHAR	8854	15879	1793	14160	22133	1563	5992	7750	1293	4130	6300	1525	515	515	1000
ILLAM	13200	36300	2750	23480	57526	2450	3314	2884	870	4735	8250	1742	75	75	1000
TERHATHUM	10186	20372	2000	12092	16164	1337	2505	2520	1006	2600	3272	1258	100	110	1100
DHANKUTA	8695	23770	2734	19985	50960	2550	8129	8563	1053	2725	4208	1544	10	10	1000
BHOJPUR	15361	36866	2400	20857	38585	1850	4600	4500	978	2510	3867	1541	30	40	1333
KHOTANG	14899	33586	2254	22580	53687	2378	14511	14000	965	3500	5147	1471	500	400	800
OKHALDHUNGA	5860	14943	2550	12545	24462	1950	7756	10100	1302	2807	3519	1254	115	138	1200
UDAYAPUR	14150	42262	2987	16900	38025	2250	2572	3458	1344	4800	9694	2020	38	37	974
E.HILLS	**91205**	**223978**	**2456**	**142599**	**301542**	**2115**	**49379**	**53775**	**1089**	**27807**	**44257**	**1592**	**1383**	**1325**	**958**
JHAPA	96700	322640	3337	22600	58600	2593	2000	2000	1000	15000	36500	2433	10	10	1000
MORANG	88200	279912	3174	15170	35200	2320	1415	1698	1200	20275	44690	2204	-	-	-
SUNSARI	51158	141360	2763	7300	14900	2041	1350	1350	1000	14000	36720	2623	-	-	-
SAPTARI	68400	173500	2537	4000	8800	2200	300	300	1000	15000	32085	2139	-	-	-
SIRAHA	70750	164176	2321	2100	5040	2400	800	800	1000	16000	31284	1955	-	-	-
E.TERAI	**375208**	**1081588**	**2883**	**51170**	**122540**	**2395**	**5865**	**6148**	**1048**	**80275**	**181279**	**2258**	**10**	**10**	**1000**
E.REGION	**492748**	**1353207**	**2746**	**234578**	**509886**	**2174**	**70323**	**76012**	**1081**	**115157**	**233683**	**2029**	**1863**	**1852**	**994**
DOLAKHA	3125	6318	2022	5390	10800	2004	3575	3580	1001	4400	5105	1160	231	230	996
SINDHUPALCHOK	13920	36439	2618	21895	51490	2352	19295	21070	1092	9030	12100	1340	-	-	-
RASUWA	1325	3300	2491	2350	4500	1915	1050	1155	1100	842	1393	1654	300	344	1147
C.MOUNTAIN	**18370**	**46057**	**2507**	**29635**	**66790**	**2254**	**23920**	**25805**	**1079**	**14272**	**18598**	**1303**	**531**	**574**	**1081**
RAMECHHAP	8743	15757	1802	23008	46016	2000	5057	6068	1200	4803	7060	1470	100	79	790
SINDHULI	6065	11143	1837	16500	38693	2345	10775	11153	1035	5500	8930	1624	45	45	1000
KAVRE	11275	31899	2829	24279	56288	2318	3505	3505	1000	12550	18286	1457	760	740	974
BHAKTAPUR	4400	28248	6420	2035	6441	3165	100	140	1400	3665	9884	2697	50	50	1000
LALITPUR	4650	22645	4870	8640	18500	2141	605	786	1299	4060	7820	1926	220	250	1136
KATHMANDU	8050	43250	5373	5800	17920	3090	850	850	1000	5800	14284	2463	7	7	1000
NUWAKOT	18965	59700	3148	20120	43658	2170	5822	7051	1211	5451	11447	2100	4	3	750
DHADING	16720	42500	2542	19465	33950	1744	7540	7540	1000	4680	7914	1691	350	350	1000
MAKWANPUR	12700	37500	2953	18050	44520	2466	2900	3300	1138	4203	8826	2100	21	29	1381
C.HILLS	**91568**	**292642**	**3196**	**137897**	**305986**	**2219**	**37154**	**40393**	**1087**	**50712**	**94451**	**1862**	**1557**	**1553**	**997**
DHANUSHA	55000	176000	3200	1555	3850	2476	400	450	1125	27500	57405	2087	-	-	-
MAHOTTARI	40250	95500	2373	2930	5860	2000	355	426	1200	21540	41380	1921	50	50	1000
SARLAHI	38750	96480	2490	7250	15298	2110	120	120	1000	27100	55834	2060	50	50	1000
RAUTAHAT	46800	124480	2660	2694	5050	1875	60	54	900	15300	34093	2228	52	52	1000
BARA	55335	213565	3859	3100	6900	2226	75	100	1333	28900	88900	3076	68	66	971
PARSA	46200	177980	3852	4100	12600	3073	75	75	1000	23600	69770	2956	34	34	1000
CHITWAN	32755	107815	3292	21150	59660	2821	1815	1815	1000	9010	21004	2331	250	300	1200
C.TERAI	**315090**	**991820**	**3148**	**42779**	**109218**	**2553**	**2900**	**3040**	**1048**	**152950**	**368386**	**2409**	**504**	**552**	**1095**
C.REGION	**425028**	**1330519**	**3130**	**210311**	**481994**	**2292**	**63974**	**69238**	**1082**	**217934**	**481435**	**2209**	**2592**	**2679**	**1034**
MANANG	-	-	-	166	365	2199	3	3	1000	290	454	1566	180	240	1333
MUSTANG	-	-	-	537	795	1480	4	4	1000	620	1024	1652	330	400	1212
W.MOUNTAIN	**0**	**0**	**0**	**703**	**1160**	**1650**	**7**	**7**	**1000**	**910**	**1478**	**1624**	**510**	**640**	**1255**
GORKHA	17900	48500	2709	19350	47212	2440	11680	13821	1183	4155	6157	1482	230	200	870
LAMJUNG	16030	36541	2280	15990	38890	2432	7500	7500	1000	3840	6289	1638	28	25	893
TANAHU	19050	55524	2915	22150	59362	2680	6710	6274	935	1900	3200	1684	6	5	833
KASKI	20100	61990	3084	16300	41645	2555	16101	19410	1206	6900	13396	1941	160	150	938
PARBAT	9021	22150	2455	14180	34037	2400	8890	8110	912	3500	3693	1055	290	220	759
SYANGJA	17550	51589	2940	30800	88300	2867	16800	19341	1151	7450	11920	1600	200	110	550
PALPA	8795	23900	2717	20210	47940	2372	2540	2550	1004	6235	9903	1588	35	33	943
MYAGDI	3895	10680	2742	11115	27788	2500	3048	3105	1019	3020	4975	1647	590	545	924
BAGLUNG	5735	14900	2598	21370	53852	2520	18920	23900	1263	6815	9165	1345	1015	1502	1480
GULMI	9958	24753	2486	21034	39864	1895	2915	3971	1362	7434	8303	1117	344	282	820
ARGHAKHANCHI	8735	19545	2238	16889	36311	2150	825	998	1210	7340	8630	1176	485	472	973
W.HILLS	**136769**	**370072**	**2706**	**209388**	**515201**	**2461**	**95929**	**108980**	**1136**	**58589**	**85631**	**1462**	**3383**	**3544**	**1048**
NAWALPARASI	46490	165425	3558	9700	24950	2572	500	500	1000	18850	44200	2345	90	75	833
RUPANDEHI	72500	253750	3500	1250	3180	2544	100	100	1000	32000	94150	2942	30	25	833
KAPILBASTU	69960	190350	2721	1240	3013	2430	140	140	1000	28550	63612	2228	100	110	1100
W.TERAI	**188950**	**609525**	**3226**	**12190**	**31143**	**2555**	**740**	**740**	**1000**	**79400**	**201962**	**2544**	**220**	**210**	**955**
W.REGION	**325719**	**979597**	**3007**	**222281**	**547504**	**2463**	**96676**	**109727**	**1135**	**138899**	**289071**	**2081**	**4113**	**4394**	**1068**
DOLPA	270	475	1759	2282	4360	1911	317	275	868	2365	1088	460	180	95	528
MUGU	1050	1785	1700	565	1000	1770	1572	1550	986	2015	1690	839	1200	1260	1050
HUMLA	550	910	1655	82	140	1707	1360	1300	956	990	431	435	680	280	412
JUMLA	2850	4844	1700	4625	6850	1481	4000	4400	1100	2850	1532	538	3650	3200	877
KALIKOT	2225	4610	2072	2255	3834	1700	1252	1260	1006	5350	3928	734	1072	750	700
MW.MOUNTAIN	**6945**	**12624**	**1818**	**9809**	**16184**	**1650**	**8501**	**8785**	**1033**	**13570**	**8669**	**639**	**6782**	**5585**	**824**
RUKUM	3750	10100	2693	18650	31705	1700	925	860	930	11800	10894	923	900	950	1056
ROLPA	4715	9666	2050	11621	17500	1506	1067	1173	1099	8544	10150	1188	537	507	944
PYUTHAN	6540	15280	2336	12058	18158	1506	1985	1985	1000	8650	11877	1373	690	670	971
SALYAN	6961	16300	2342	20500	39278	1916	1920	2496	1300	11500	13616	1184	1150	950	826
JAJARKOT	3570	6920	1938	8810	17200	1952	2060	2860	1388	8500	8622	1014	758	425	561
DAILEKH	8200	20500	2500	16090	29035	1805	2095	2723	1300	6190	7304	1180	187	181	968
SURKHET	12800	42800	3344	16100	40300	2503	2095	2726	1301	16255	28472	1752	1095	1215	1110
MW.HILLS	**46536**	**121566**	**2612**	**103829**	**193176**	**1861**	**12147**	**14823**	**1220**	**71439**	**90935**	**1273**	**5317**	**4898**	**921**
DANG	37458	124327	3319	25200	55100	2187	170	160	941	12700	25630	2018	35	30	857
BANKE	36500	110550	3029	6600	10920	1655	-	-	-	18000	43380	2410	10	10	1000
BARDIYA	38500	123200	3200	8100	14900	1840	-	-	-	16915	42177	2493	10	10	1000
MW.TERAI	**112458**	**358077**	**3184**	**39900**	**80920**	**2028**	**170**	**160**	**941**	**47615**	**111187**	**2335**	**55**	**50**	**909**
MW.REGION	**165939**	**492267**	**2967**	**153538**	**290280**	**1891**	**20818**	**23768**	**1142**	**132624**	**210791**	**1589**	**12154**	**10533**	**867**
BAJURA	3310	6103	1844	990	1659	1676	2520	2650	1052	4950	3292	665	1072	557	520
BAJHANG	6005	9200	1532	3650	6261	1715	2285	2170	950	6100	6317	1036	1510	1350	894
DARCHULA	3950	7480	1894	5900	10970	1859	1115	1000	897	5965	4255	713	1200	792	660
FW.MOUNTAIN	**13265**	**22783**	**1718**	**10540**	**18890**	**1792**	**5920**	**5820**	**983**	**17015**	**13864**	**815**	**3782**	**2699**	**714**
ACHHAM	7480	14960	2000	5336	8870	1662	2545	2418	950	7151	6671	933	185	104	562
DOTI	7555	18500	2449	2550	4850	1902	4075	4080	1001	11000	10760	978	250	183	732
BAITADI	5330	9660	1812	9500	17270	1818	870	950	1092	5000	4355	871	500	500	1000
DADELDHURA	6221	17500	2813	3744	6313	1686	318	320	1006	7920	6177	780	218	127	583
FW.HILLS	**26586**	**60620**	**2280**	**21130**	**37303**	**1765**	**7808**	**7768**	**995**	**31071**	**27963**	**900**	**1153**	**914**	**793**
KAILALI	60000	165000	2750	17000	33500	1971	200	180	900	21000	40120	1910	150	144	960
KANCHANPUR	46655	119700	2566	6050	11313	1870	170	170	1000	21250	46935	2209	10	9	900
FW.TERAI	**106655**	**284700**	**2669**	**23050**	**44813**	**1944**	**370**	**350**	**946**	**42250**	**87055**	**2060**	**160**	**153**	**956**
FW.REGION	**146506**	**368103**	**2513**	**54720**	**101006**	**1846**	**14098**	**13938**	**989**	**90336**	**128882**	**1427**	**5095**	**3766**	**739**
NEPAL:	**1555940**	**4523693**	**2907**	**875428**	**1930669**	**2205**	**265889**	**292683**	**1101**	**694950**	**1343862**	**1934**	**25817**	**23224**	**900**

ANNEX III - FOOD CONSUMPTION SCORE METHOD

The analysis is based on the frequency of consumption of one or more items from the following food groups:

- Cereals/tubers (e.g. sorghum, millet, wheat, maize)
- Pulses (e.g. beans, groundnuts)
- Meat (e.g. beef, goat, poultry, eggs, fish);
- Milk and dairy products (e.g. milk, cheese, yoghurt)
- Vegetables
- Fruits
- Oils/Fats
- Sugar

Households are grouped together to create 3 household food consumption groups — poor food consumption, borderline food consumption, and adequate food consumption.

Thresholds for separating these three groups were generated by using a weighted food score. Each food group is given a weight based on its nutrient density and then multiplied by the number of days a household consumed one or more items from that group. Table below provides a breakdown on each food group and associated weight.

Table 15 - Food Groups and Weights

Food items	Food Groups	Weight
Maize, rice, sorghum, millet, bread, pasta, and other cereals	Cereals and Tubers	2
Cassava, potatoes, sweet potatoes		
Beans, peas groundnuts	Pulses	3
Meat, fish, eggs, fish, goat, poultry	Meat/Fish	4
Milk, yoghurt, cheese	Milk and Dairy	4
Vegetables	Vegetables	1
Fruit	Fruit	1
Sugar and sugar products	Sugar	0.5
Oils, fats and butter	Oil	0.5

A rank is then given to each household depending on its total food score. The minimum score is 0 and the maximum score is 112. Note that the score is a calculated weekly value. In this context:

- Households with poor food consumption have a food score of ≤ 21
- Households with borderline food consumption have a food score of 21.5 – 35
- Households with adequate food consumption have a food score of ≥ 35.5

ANNEX IV – FOOD SECURITY PHASE CLASSIFICATION INDICATORS

Food Security Phase Classification: Reference Indicators

Reference Indicators			phase 1	phase 2	phase 3	phase 4	phase 5	Observations
			Generally Food secure	Moderately food insecure	Highly food insecure (starting affecting livelihood assets)	severely food insecure (acute food and livelihood crisis)	Humanitarian emergency/famine	
1. Food availability	a	*crop production / situation*	T: up to 10-20% less than normal M+H: up to 10% less than normal	T: 20-40 % less than normal M+H: 10-30% less than normal	T: 40-60% less than normal M+H: 30-50% less than normal	T: 60-80 % less than normal M+H: 50-70% less than normal	T: >80 % less than normal M+H: >70% less than normal	Normal yield is based on 5 years average in the district (M=mountains, H=hills, T=Terai)
	b	*HHs food stocks*	> 50% HHs with more than 3 months food stocks	T: > 50% HHs with 1-3 months food stocks M+H: > 50% HHs with 2-3 months food stocks	T: > 30% HHs with < 1 month food stocks M+H: > 30% HHs with 1-2 months food stocks	T: 30-50% HHs with depleted food stocks M+H: 30-50% HHs with < 1 month food stocks	>50% HHs have depleted food stocks	
	c	*stock of main staples in key markets*	2- 3 months stocks	1-2 months stocks	less than 1 month stock	stocks depleted	stocks depleted	
2. Food access	a	*wage employment opportunities within district*	as per normal situation	10-30 % fewer opportunities compared to normal situation	30 - 50 % fewer opportunities compared to normal situation	Opportunities decreased by > 50 % or no opportunities	no opportunities	normal employment condition is based on people's perception
	b	*sale of NTFP, cash crops and other agr. products*	income as per normal situation	income decreased by up to 30 % compared to normal situation	income decreased by 30 - 60 % compared to normal situation	income decreased by > 60 %	no sales	Normal income earnings are based on people's perception
	c	*market price of rice*	decreased, constant or up to 10% of normal price	increased by 10-20% of normal price	increased by 20-40% of normal price	increased by more than 40-80% of normal price	increased by more than 80-100% of normal price	compared to average price during same period last year
3. Hazards	a	*natural disasters*	No natural disasters or occurrence causing <20 % loss of food stocks and assets	occurrence of natural disaster causing 20-30 % loss of food stocks and assets	occurrence of natural disaster causing 30-50 % loss of food stocks/assets and human casualties	occurrence of natural disaster causing >50% loss of stocks and assets and human casualties	occurrence of large scale devastating natural disasters (i.e. earthquake) causing complete destruction, significant human casualties, displacement	assets include land, agricultural tools, cattle, houses
4. Out-migration	a	*Out-migration*	up to 10% increase of traditional seasonal out-migration	10-20% increase of traditional seasonal out-migration	up to 20-40% increase of traditional seasonal out-migration	>40% increase of traditional seasonal out-migration	large scale out-migration	Traditional seasonal out-migration is based on people's perception
5. Coping	a	*Coping*	Traditional coping mechanisms that are part of livelihood strategy (migration, wage labour, sell NTFP, consumption of wild food)	change in regular food habits (reduce quantity food, less preferred food), borrowing food/money, selling of non-productive assets	HHs adopt irreversible coping strategies (selling of productive assets - livestock, land, seed) and skipping meals	HHs adopt a high level of irreversible coping strategies including, increased sale of productive assets, looting, and high dependence on wild foods	no more coping mechanisms, starvation and death	
6. Food utilization	a	*acute child (<5 years) malnutrition*			10-15%	> 15%	>30%	to measure and consider only if the other indicators give evidence of being in phase 3, 4 or 5 (random measurement of MUAC by FMs)
	b	*disease*	no significant cases of disease	significant cases of diseases under control	epidemic outbreak; increasing	pandemic outbreak	pandemic outbreak	
7. Civil security	a	*Civil security*	general peaceful situation	security situation deteriorating (bandhs and roadblocks 7-15 consecutive days / 3 months)	movement restricted (bandhs and roadblocks 15-30 consecutive days / 3 months)	movement restricted (bandhs and roadblocks > 30 consecutive days / 3 months)	high intensity conflict situation, displacement	

ANNEX V - CALCULATION METHOD FOR THE NUMER OF PEOPLE NEEDING ASSISTANCE

To gauge the food security impact of the crop losses for the rural population in the Far- and Mid-West Hills and Mountains a food access variable was created first. This indicator was subsequently cross referenced with the consumption situation of the affected households.

Food Access Variable

This variable was created based on a cross tabulation between the extent of crop loss and household wealth category ranking. Five wealth categories were distinguished based on asset ownership (including land, livestock, other agricultural assets, and household assets), namely extremely poor, poor, lower middle, upper middle and well-off. The wealth categories serve as a proxy of a household's resilience and ability to purchase food on the market. The assumption is that the higher the wealth category, the more resilient the household is against crop loss and the better the household's access to food through market purchase.

Cross tabulating the wealth categories and the extent of crop losses to create a food access variable provided the following results:

Table 16 - Household food access, as a function of wealth and crop production

		Household Wealth (Enumerator Perception)					
		Extremely Poor	Poor	Lower Middle	Upper Middle	Well-off	
Crop	Very poor (>50% of normal)	15.8	19.0	10.2	7.7	4.4	
	Poor (less by 30-50% of normal)	8.3	9.4	8.3	6.5	0.8	
	Moderate (less by 10-30% of normal)	0.2	1.5	4.4	2.5	0.4	
	Normal	0.0	0.4	0.2	0.0	0.0	%

Access		
	Poor Access	62.9
	Moderate Access	28.8
	Good Access	8.3 %

Households that fall within the red area will be those most affected by this crisis, especially given current market conditions of high food prices. These include households from the lower wealth categories that experienced significant crop losses (more than 30 percent) These households are likely to have 'poor food access' in the upcoming lean period. They constitute 62.9 percent of the rural population in the Far- and Mid- Western Hill and Mountain regions, or almost 2 million people. Households with 'moderate food access' and 'good food access' include those of better wealth and/or those less impacted by crop failure.

Number of people in need of immediate food assistance

To estimate the needs for immediate food assistance, a further cross tabulation was made between the food access variable and the food consumption score.

This yielded the following results:

Table 17 – Cross tabulation, food consumption score and food access variable

		Access			
		Poor Access	Moderate Access	Good Access	
FCG	Poor	19.5	1.0	0.0	
	Borderline	17.9	10.8	0.6	
	Adequate	25.4	17.1	7.7	%

Priority 1	38.3	
Priority 2	36.2	
Priority 3	25.4	%

Households with poor food consumption scores and poor or moderate food access and households with food consumption scores that are borderline were classified as priority 1 indicating severe food insecurity and limited possibilities to access alternative food sources. This involved 38.3 percent of the population in the Far and Mid-Western Hills and Mountains. In addition, a total of 36.2 percent are at high risk of food insecurity and would need to be closely monitored (priority 2).

Given that WFP is currently distributing food assistance in the Far- and Mid-West, the number of people currently receiving food assistance was subtracted to calculate the additional number of people requiring immediate food assistance. In doing so the final additional caseload for immediate food assistance in the Far- and Mid-West adds up to approximately 707,000 people. While 486,000 additional people are at risk of becoming food insecure due to the drought (see Table 18).

Table 18 – Calculation of additional caseload

	Percentage	Population in need or at risk	Population currently receiving food assistance	Additional caseload or need to monitor
Priority1	38.3	1,185,482	478,217	707,265
Priority 2	36.2	1,120,482	634,527	485,955