NEPAL

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mVAM Food Security Monitoring Survey
Karnali Province and Mountain Districts of Province 7

Karnali Province, together with three mountain districts of Province 7 are some of the most food insecure areas of Nepal with higher prevalence of poverty and stunting as compared to other areas and the national average. Frequent occurrence of shocks such as the 2015/16 winter drought further poses to the risk and thereby lead to the chronic food insecurity. For more information on the food security situation of these areas, please visit the website **www.neksap.org.np**

To track seasonal changes over time, a food security monitoring survey was started in November 2016 and repeated in June 2017, November 2017 and April 2018. In September 2018, we conducted a baseline survey for Karnali Province incorporating a new SDG 2.1.2 Indicator (prevalence of moderate or severe food insecurity of the population).

Key points:

- Overall food insecurity situation in Karnali Province and mountain districts of Province 7 remained relatively high with 28 percent of households consuming an inadequate diet as compared to the national average of 15 percent (AHS, 2016/17). Likewise, about 28 percent of households were moderately or severely food insecure in Karnali, while the prevalence of severely food insecure population in Karnali mountain districts (23%) was more than thrice higher than that of the Province as a whole (7%). Similarly, about 45 percent of children aged between 6-23 months did not meet the recommended level of minimum dietary diversity in Karnali Province.

- Cereal-based agriculture remains the primary source of income for a majority of households (74%), followed by livestock farming (40%) and remittances (32%). However the contribution of unskilled daily wage labour, employed salaries and skilled labour wage to household income have continued to increase over time.

- About 45 percent of households in September 2018 faced multiple shocks, relatively higher than April 2018 and June 2017, using common coping strategies such as borrowing food or money, consuming less preferred food and reducing size of meals, and exhibited a lower propensity to recover from shocks.

- The majority of markets in Karnali Province and the mountain districts of Province 7 in September 2018 were functioning smoothly in terms of supply, demand and transportation services and the retail prices of most food commodities remained relatively stable.
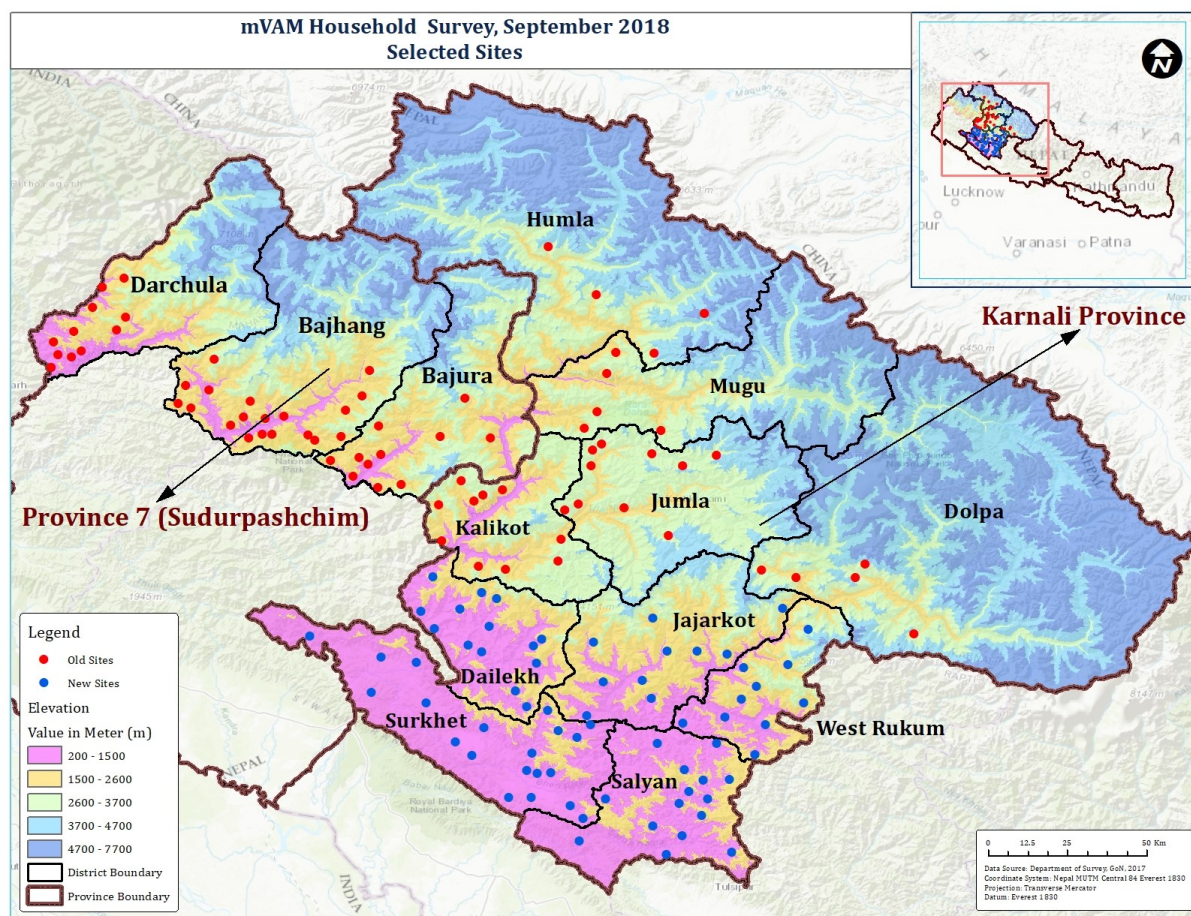
Survey methodology

The mVAM household survey followed a November 2016 baseline survey in the five mountain districts in Karnali Province and three mountain districts of Province 7, and also conducted a baseline survey in the five hill districts of Karnali Province in September 2018 - see Map 1.

The household survey was conducted in September 2018 using a multi-stage stratified sampling design, selecting 174 primary sampling units (PSUs): 75 in Karnali hills and 49 each in Karnali and Province 7 mountain areas. A total of 15 households were interviewed in each PSU, using both face to face and telephone interviews. A total of 2029 sampled households were surveyed: 1,124 in Karnali hills, 584 in Karnali mountains and 321 in Province 7 mountains, of which 551 were surveyed by telephone. Moreover, 195 traders from 96 markets were also interviewed regarding the market situation in their area.

Household characteristics

2029 respondents interviewed

5.6 members per household on average

25 percent female headed households

38 percent illiterate household heads

mVAM Household Survey, September 2018
Selected Sites

Legend
- Old Sites
- New Sites

Elevation
Value in Meter (m)
- 200 - 1500
- 1500 - 2600
- 2600 - 3700
- 3700 - 4700
- 4700 - 7700
- District Boundary
- Province Boundary

Data Source: Department of Survey, GoN, 2017
Coordinate System: Nepal MUTM Central 84 Everest 1830
Projection: Transverse Mercator
Datum: Everest 1830

Adequacy of food consumption and prevalence of food insecurity

In Karnali Province, 28 percent of the population was moderately and severely food insecure and about 7 percent of households were severely food insecure. In Karnali Province and mountains of Province 7, about 28 percent of households consumed an inadequate diet with insufficiently diversified food.
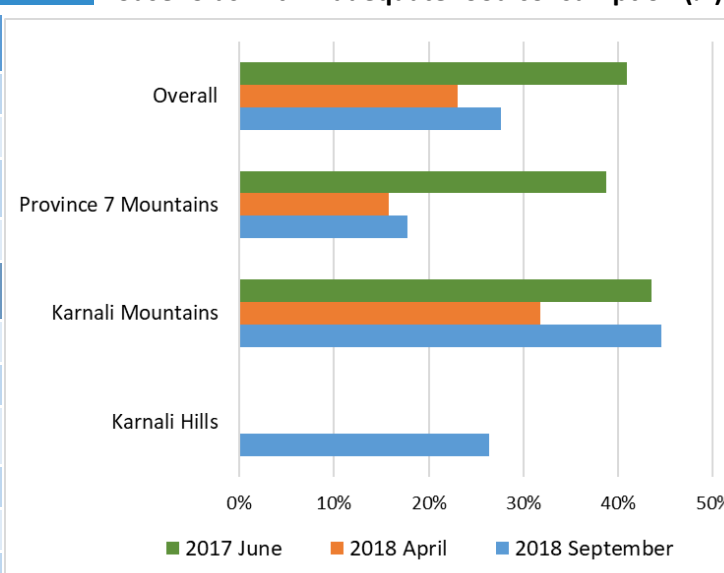
♦ The findings of the survey show that an average food consumption score (FCS[1]) was 54.2 in September 2018, around 1.2 and 4.4 points lower than the average FCS of Karnali hills and Province 7 mountains respectively (Table 1). However, Karnali mountains have much lower FCS (44.8), indicating a relatively lower average food consumption score in the Karnali mountain. About 28 percent households in the survey districts have inadequate food consumption. Relatively worsening household food security situation in the mountain districts of Karnali Province is due to depletion of household food stock caused by poor harvest of cereal crops as a result of insufficient rainfalls during the growing and maturity period of crops, together with lean season of the survey period, a major source of household food consumption together.

♦ The proportion of households with inadequate food consumption (FCS <= 42) was 28 percent in September 2018, in which the figure is much higher in Karnali mountain (45%) and lower in Karnali hill (26%) and Province 7 mountain (18%). A significant percent of people in Karnali mountain have poor food consumption (22%), while households with poor food consumption are about 5 percent in Karnali hills and Province 7 mountains. However, border line food consumption has relatively low variation by ecological belt.

♦ Based on the food insecurity experience scale[2] results, 28 percent of households were moderately and severely food insecure, while about 7 percent of households were severely food insecure, meaning that these households were run out of food for whole day or did not eat meal, even if they were hungry during the last one year. The Karnali mountain belt has the highest prevalence of moderate or severe (61%) and severe (23%) food insecure population, indicating a chronic and alarming food insecurity situation in Karnali mountains. Overall, food insecure populations were relatively high in rural area (31%) as compared to the urban area (25%) (Table 2).

♦ The improved food security situation in mountain districts of Province 7 and hilly districts of Karnali Province as compared Karnali mountain was linked with an increased household food stock contributed by relatively good harvest of crops and improved supply with an increased access to roads in the rural and remote areas. However, the food security situation was relatively worse in September 2018, as compared to April 2018 due to the agriculture lean period, indicating a seasonal impact on household food intake, mainly in the rural and remote areas.

Table 1 — FCS and no. of days food groups consumed

Food Consumption	2018 September	2018 April	2017 June
Karnali Hills	55.5		
Karnali Mountains	44.8	45	47.1
Province 7 Moun-	58.6	52.8	51.6
Overall	54.2	49.3	49.6
Total days con-	**2018 September**	**2018 April**	**2018 June**
Cereals and tubers	6.8	6.8	6.9
Pulse beans	4.0	4.8	4.7
Milk and dairy	3.0	2.7	2.3
Meat fish egg	1.0	0.8	0.6
Vegetables	5.7	4.2	4.4
Fruits	1.6	0.5	0.7
Oils and fats	6.6	6.5	6.4
Sugar and honey	3.3	3.5	3.7

Figure 1 — Households with inadequate food consumption (%)

Table 2 — Prevalence of moderate or severe food insecurity (%)

	Moderate and Severe	Severe
Karnali hill	16	2
Karnali mountain	61	23
Karnali	28	7
Male HH head	27	7
Female HH head	28	8
Rural	31	9
Urban	25	5

1: https://www.wfp.org/content/technical-guidance-sheet-food-consumption-analysis-calculation-and-use-food-consumption-score-food-s

2: http://www.fao.org/fileadmin/user_upload/voices_of_the_hungry/docs/Cafiero_Nord_Viviani_IMEKO_2016_rev_2.pdf

Diversity of diet

Nearly 30 percent of households in Karnali mountain districts had a less diverse diet, close to double the total incidence in Karnali Province and Province 7 mountain districts.

♦ The findings on dietary diversity show that out of a total eight food groups, households on average consumed about six food groups in the previous seven days, marginally lower in the mountain districts (5.7 food groups) of Karnali Province, but close to overall average in the mountain districts (6.1 food groups) of Province 7 and hill districts (6.2 food groups) of Karnali Province. Consumption of cereal foods is highest (almost 7 days), followed by oil and fats (6.6 days) and vegetables (5.7 days). However, the consumption of nutritious food such as meat, fish and eggs, and milk and dairy products, and fruits is found to be relatively very low, indicating a consumption of unbalanced and less nutritious food. This practice is even higher in the mountains districts of Karnali.

♦ About 15 percent of households had poor dietary diversity, characterised by consumption of less than five food groups in a week. The proportion of households with poor dietary diversity dropped by 66 percent in September 2018 compared to April 2018 in the mountain districts of Karnali. However, the proportion remained the same in the mountain districts of Province 7 compared to April 2018. This could be due to an increased access to markets in rural remote areas, resulting in access to more varieties of foods, as well as vegetables and high value crop promotion interventions

♦ Households with poor dietary diversity consumed less meat/fish/egg, fruits and milk compared to households with acceptable dietary diversity (Table 3). The consumption of staple foods, however, is almost the same (all seven days), whereas the consumption of meat/fish/eggs and fruits is almost negligible (less than one day) for both groups.

♦ There were no detectable differences in dietary diversity between male and female-headed households, with point estimates of 15percent and 16 percent respectively. However, the gender of a household head matters in the consumption of adequate diversified nutritious foods. This could be an indication of gender disparities, mainly in the rural households that may be due to better access to resources, information and greater awareness (Table 4).

Figure 2 **Households with poor dietary diversity (%)**

Legend: ■ 2017 June   ■ 2018 April   ■ 2018 September
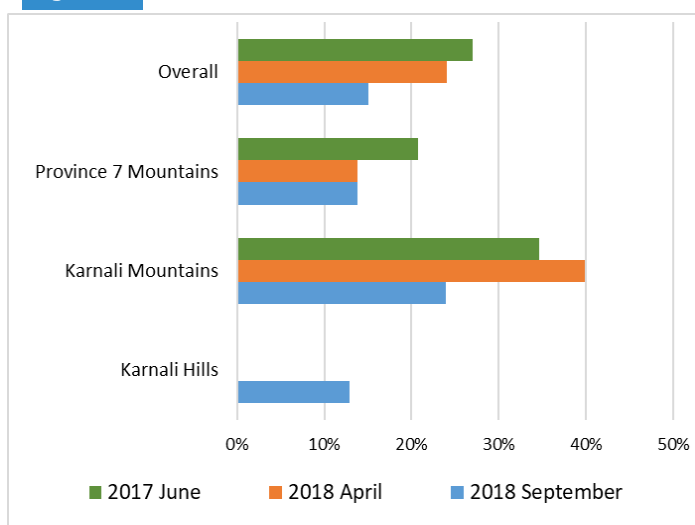
Table 3 **Mean number of food groups consumed last week by diet diversity**

Food Group	Household with acceptable dietary diversity	Household with poor dietary diversity
Cereals	6.9	6.6
Pulses	4.4	1.8
Milk and dairy	3.4	1.0
Meat fish	1.1	0.1
Vegetables	5.9	4.8
Fruits	1.9	0.2
Oil fats	6.7	6.3
Sugar	3.8	0.3

Table 4 **Food consumption by gender of household head (%)**

Household	Inadequate consumption	Adequate consumption
Male	26	74
Female	32	68
Overall	28	72

Household	Acceptable dietary diversity	Poor dietary diversity
Male	85	15
Female	84	16
Overall	85	15

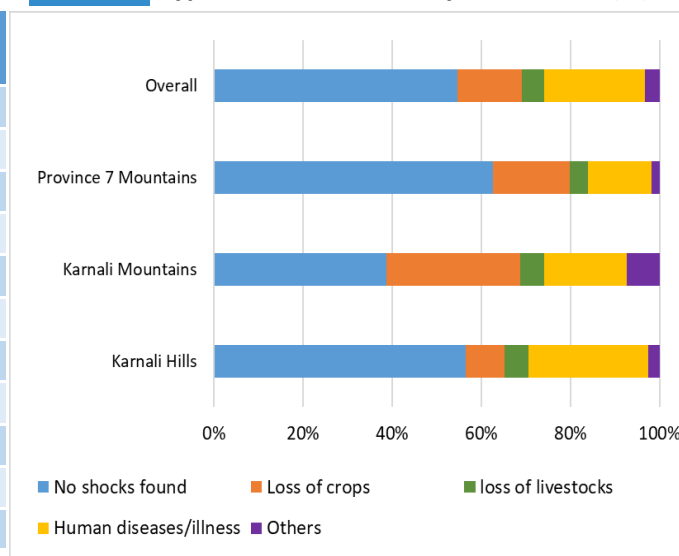# Vulnerability: shocks and coping strategies

45 percent of all households encountered multiple shocks in September 2018, though this number was higher (61%) when just looking at Karnali mountain districts. Close to two-thirds of households did not adopt any coping strategies.

- On average, about 45 percent of households faced some type of shocks in Karnali Province and mountain districts of Province 7 during the past six months. Disaggregated, this number was highest in Karnali mountain districts at 61 percent, while about 37 percent of households faced multiple shocks in the mountain districts of Province 7, an increase compared to April 2018. The findings from several rounds of survey show a consistent difference in shocks between the mountain districts of Karnali Province and Province 7, and indicate a chronic problem associated with persistent food insecurity in the mountain districts of Karnali Province.

- The major shocks encountered were human diseases or illness or accident of household members (50%), followed by crop loss due to flood and landslides (14%), livestock loss (11%) and crop loss due to drought (8%). Poor health and sanitation caused by poor dietary diversity, relatively poor health care infrastructure and limited market access could be the major factors contributing to the recurring multiple household shocks in the region (Figure 3). These shocks may also be influenced by unpredictable weather events such as drought and hailstorms that negatively impact on crop production.

- Out of the 45 percent of households that faced some type of shocks, only 8 percent reported having completely recovered, while 60 percent reported partially recovering and close to a third reported being unable to recover from the shock. This finding indicates a low level of resilience, possibly resulting from limited income sources and vulnerable livelihoods in the survey area.

- Out of the 45 percent of households that faced some type of shocks, 25 percent adopted stress coping strategies, while 6 percent and 4 percent adopted crisis and emergency coping strategies respectively. A significant percentage of households faced crisis coping strategies (16%) and emergency coping strategies (14%) in the mountain districts of Karnali, which was higher than rates in the mountain districts of Province 7 and hilly districts of Karnali Province, revealing a persistent vulnerability/low resilience situation in the region. Crisis coping and emergency coping strategies results are significant and do matter by ecological belt, but this is not the case for the stress coping strategies, which could be perhaps due to their being more common coping strategies, often adopted by the household regardless of region and ecological belt.

- The major coping strategies adopted by households in the survey area were: borrowing money or food from lenders, friends or relatives (33%), followed by eating less preferred food (20%), reducing portion size of meals and harvest immature crops (8%) (Table 5).

Table 5 **Coping strategies adopted by households (%)**

Households (%)	2018 September	2018 April	2017 June
Borrow money food	33	24	27
Sell more animals than usual	2.6	1.9	3.4
Sold household assets	0.4	0.7	0.6
Sell productive assets	0.3	0.1	0.4
Withdraw from school	1.0	0.3	1.2
Harvest immature crops	7.8	6.0	4.0
Sella last female animals	3.2	2.6	1.7
Reduce portion size of meal	7.8	8.3	7.7
Reduce number of meal	6.7	7.3	6.7
Eat less preferred food	19.9	11.9	12.2
No coping strategies adopted	63.6	72.9	70.0

Figure 3 **Types of shocks faced by households (%)**

Legend: No shocks found · Loss of crops · loss of livestocks · Human diseases/illness · Others

Table 6 **Households without food or money to buy food (%)**

Households (%)	2018 September	2018 April	2017 June
Karnali hills		40	
Karnali mountains	51	47	21
Province 7 mountains	8	35	40
Overall	27	36	30

Household livelihoods

Despite cereal-based agriculture remaining the major source of livelihoods, livestock farming, remittances and unskilled daily wage labour play a significant role in the household income in September 2018,. Major sources of income, however vary by ecological belt and Province. At least 46 percent of households in the survey area have at least one migrant member.

♦ Survey findings show a relatively higher dependency on agriculture-based livelihoods in the survey area. A majority of households reported cereal crop production as the primary source of income[3] (74%), followed by livestock farming (40%) and remittances (32%). Compared to the mountain districts of Province 7 and hilly districts of Karnali Province, 86 percent of the households in Karnali mountains reported cereal-based crop production as the main source of livelihoods , followed by unskilled labour (51%) and livestock farming (40%), while 31 percent of households in Karnali hills reported remittances as a major source of income and about 71 percent reported livestock farming in the mountain districts of Province 7.

♦ 67 percent of households reported that women members were involved in some sort of income generating activities (IGA), of which the dominant form of IGA was cereal-based agriculture (72%), followed by livestock farming (31%) and other unskilled labour (9%). Compared to the mountain district of Province 7 and hilly districts of Karnali Province, a higher percentage of women engaged in high value and cash crops (29%), together with unskilled labour (36%) in Karnali mountains, while greater proportions of women engaged in livestock farming in the hilly districts of Karnali (32 %) and the mountain districts of Province 7 (33%) (Table 6).

♦ Overall, less sustainable livelihood strategies such as daily wage unskilled labour both in farm and off-farm sectors, and humanitarian assistance seem to be dominant in the survey area (54% of households). Greater percentage of households in the mountain and hill districts of Karnali Province adopted less sustainable livelihood strategies, accounting to 56 percent and 57 percent respectively. However, households in the mountain districts of Province 7 were found to be adopting more sustainable sources of incomes such as remittances, salaries from employment and trade, and shop-keeping compared to mountain districts in Karnali Province (Table 7).

♦ About 46 percent of households have at least one migrant member. India is the most preferred destination (53%) for migration, followed by internal migration (33%) and Gulf countries and Malaysia (19%). A significant proportion of migrants went for employment (85.3%). The highest proportion of migrants in Province 7 mountains went for employment (87.4%) (Table 8). The pattern of migration seems to vary with the season and destination, revealing relatively higher percentage of migration in the lean period and low during the planting, harvesting season, and festivals such as Dashain and Tihar (Figure 4).

Table 7　Sources of household income (%)

Type of household livelihoods	Karnali Hills	Karnali Mountains	Province 7 Mountains	Overall
Agriculture (mostly cereal production)	71	83	73	74
Livestock farming	28	40	71	40
Remittance	31	27	37	32
Other unskilled labour (porter, stone quarry worker etc)	14	51	26	23
Salaried Employment (gov/private companies/NGO/Ingo)	17	10	14	15
Skilled labour (masonry, carpentry etc.)	15	7	11	13
Agriculture wage labour (unskilled)	6	24	17	12
Trade/Shop keeping	12	7	11	11
Social benefit	8	19	8	10
Agriculture (mostly cash/high value crops)	4	14	12	8
Sale of NTFP	1	31	3	7
Other	6	2	1	4
Humanitarian/Development assistance	1	18	0	4

Figure 4　Migration destination as percentage of households (%)

■ 2018 September　■ 2018 April　■ 2017 June
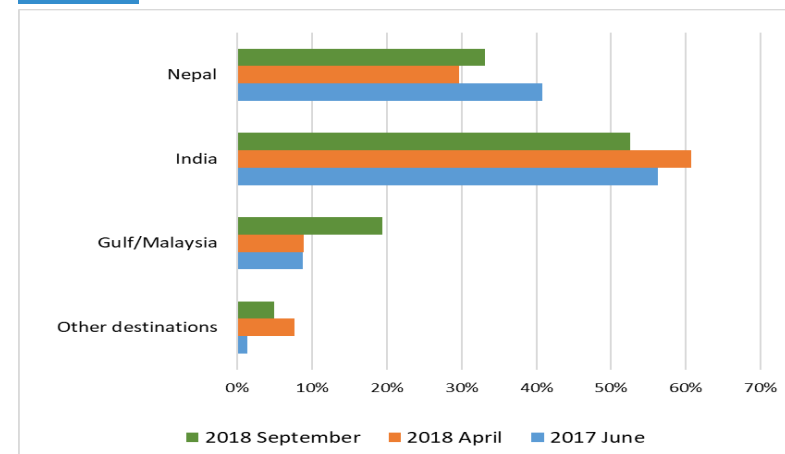
Table 8　Purpose of migration (%)

Province	Employment	Others
Karnali Hills	86	14
Karnali Mountains	75	25
Province 7 Mountains	87	13
Overall	85	15

3 Household sources of income are asked in multiple answer, so the sum of percentage of total income can be higher than 100 percent.

Market situation

The majority of markets in Karnali Province and Province 7 mountains are operating normally with relatively stable food commodity prices

♦ More than 65% of traders reported that the supply of food and non-food items was improved or stable in September 2018, while some 71% of them reported that demand was increased or stable in the survey area. About 58% of traders reported an improvement or stable transportation services in the mountains of Province 7 and Karnali Province (Figure 5).

♦ Retail prices of most food commodities show a variation by ecological belt and access to roads; average retail prices of most food commodities were lower in those hill districts with better road access and higher in those districts without or with limited access to roads. For example, the average price of coarse rice was almost one and half times higher in Karnali mountains (71.97 NPR/kg) compared to Karnali hills (49.5 NPR/kg) in September 2018. Likewise, the average price of wheat flour was 42 percent higher in Karnali mountains (73.4 NPR/kg) than Karnali hills (52.01 NPR/kg). Such price variation due to type and quality of road access was also observed within districts (Table 11).

♦ The average retail price of most food commodities in September 2018 was higher than in April 2018 but lower than August 2017 (Table 11) driven by increased road access that improved supplies with relatively lower transportation costs.

♦ Overall, about 60% of traders reported that markets had sufficient stock of food commodities to meet consumer demand, with higher availability of food stocks in hills where the road network is relatively better.
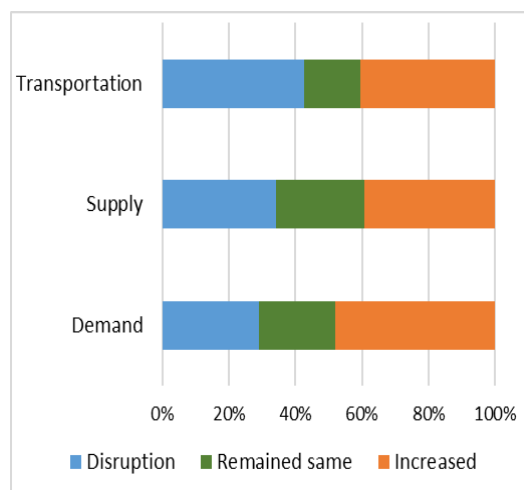
Figure 5 **Situation of the markets (% traders)**

- Disruption - Remained same - Increased

Table 10 **Market food availability (% traders)**

Area	Insufficient	Sufficient
Karnali Hill	28	72%
Karnali	46	54
Province 7	43	57
Overall	41	59

Table 11 **Retail prices of food commodities (NPR per kg/ltr)**

Ecological belt	District	Coarse rice (Rs/Kg)	Wheat flour (Rs/Kg)	Soybean oil (Rs/Litre)	Broken lentil (Rs/Kg)	Potato (Rs/Kg)	Chicken meat (Rs/Kg)
Karnali Hill	Jajarkot	59.8	60.8	150.0	168.3	45.0	416.7
	Salyan	47.1	43.6	146.5	132.0	38.0	322.0
	Surkhet	47.4	43.3	149.6	123.3	43.3	335.0
	Dailekh	48.0	62.5	132.9	127.0	44.3	338.9
	West Rukum	45.0	49.8	141.7	115.8	42.5	350.0
Karnali Mountain	Dolpa	81.8	91.3	196.8	200.0	42.6	504.6
	Humla	118.1	114.6	240.0	254.4	66.9	525.0
	Jumla	52.6	61.1	165.8	142.9	25.8	463.9
	Kalikot	50.8	48.4	170.6	147.4	39.1	415.3
	Mugu	56.5	51.5	175.8	140.0	26.3	510.0
Province 7 Mountain	Bajhang	48.4	45.5	170.0	163.3	30.4	416.0
	Bajura	52.6	51.7	171.4	145.9	36.8	401.3
	Darchula	50.6	65.4	166.7	148.4	38.0	420.0
Average of Aug-18		56.9	59.8	169.5	151.8	39.6	410.9
Average of Apr-18		55.2	57.6	167.6	173.0	34.8	443.8
Price change in August 2018 against April 2018		1.8	2.3	1.9	-21.3	4.8	-32.8
Average of Jun-17		57.8	64.0	181.7	187.0	40.0	481.0
Price change in August 2018		-0.8	-4.2	-12.2	-36.1	-0.4	-70.0