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An Assessment of the Impact of the Global Crisis and Other Shocks on Household Food Security in Nepal

Eighth Round of Household Livelihoods, Food Security and Vulnerability Survey



April 2023

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Executive Summary

The global crisis has continued to disturb global food systems, causing price shocks in food commodities and agricultural inputs. Combined with frequent climatic and economic shocks, this has continued to impact poor and vulnerable households. Although Nepal performed relatively well in poverty and food security indices compared to other similar countries with low per capita income¹, across the country the impact of the crisis often varies by geographical region, type of livelihood and the economic situation of the household. WFP conducted a nationally representative household survey from the first week of April to the first week of May 2023 to explore the impact of the effect of the global crisis across the country's different regions and livelihood groups using a two-stage random sampling technique to collect data².

Overall, the findings indicate that food security in Nepal has improved slightly compared to October 2022. This improvement could be partially attributed to the relative stability in food prices during recent months due to improvements in supply and food availability following the winter crop harvest, as shown in the regular WFP Nepal market updates. Policy measures taken by the Government of Nepal to ease the supply of essential goods as well as crisis response programme interventions by development partners may have also contributed to improving or preventing the worsening of the food security situation in Nepal.

However, the prolonged global crisis, together with the frequent occurrence of different types of shocks can continue to lead to increased challenges being faced by poor and vulnerable households in accessing their essential needs. Consistent with earlier assessments, households relying on the informal sector and living in remote and rural areas were more likely to be food insecure. There is therefore a need for stakeholders and policy makers to remain vigilant and monitor the situation regularly to prevent more households from sliding into food insecurity in the absence of targeted support.



Food insecurity decreased in April 2023, with approximately **4.26 million people (14.6 percent)** in Nepal not consuming an adequate diet (a **2.2 percent** decrease compared to October 2022 and a **1.4 percent** increase compared to June 2022). **CARI** estimates indicated that the prevalence of moderately food insecure households was 13.7 percent, and 0.6 percent were severely food insecure.



Nearly **7 percent of households** – almost half the number compared to October 2022 – reported that they did not have enough food to meet their daily needs for the seven days preceding the survey. Lack of money (**49 percent**) and increased food prices (**41 percent**) were the main reasons cited.

¹ IMF 2023 "Climate Change, Food Insecurity and Remittances in Nepal", IMF Country Report No. 23/151.

² Methodology outlined in Annex 1.



Approximately 2 in 5 households (**40 percent**) reported using at least one livelihood based coping strategy (a 0.9 percent decrease compared to October 2022), of which 33 percent adopted stress coping strategies, 6 percent resorted to crisis coping strategies and 1 percent to emergency coping strategies during the 30 days preceding the survey. Around 15 percent of the households adopted at least one food based coping strategy (such as consuming less expensive food).



More than **45 percent** of children aged 6-23 months (no change from October 2022) and **31 percent** of women of reproductive age did not meet the minimum recommended dietary diversity threshold.



More than **42 percent** of households reported that their income had decreased in the previous six months, compared to 34 percent reported in October 2022. Nearly 45 percent of households faced at least one shock in the six months preceding the survey, with higher prices of food, agriculture input and transportation costs being the highest shocks reported. As a result of this, respondents reported that basic food items were much more expensive and unaffordable.



Overall, the findings indicate that households with a disabled member, female-headed, headed by an illiterate household member or informal sector worker and poor households in urban slum areas were more likely to be food insecure. The prevalence of moderate and severe food insecurity remained high in rural areas.

Introduction

The global crisis resulting from the prolonged conflict in Ukraine, coupled with economic shocks and climate extremes continues to destabilize the existing global and regional food systems, ultimately limiting the ability of the most vulnerable households to access food. In addition, increases in food prices at the backdrop of decreasing incomes leading to weakened household economic capacity due to impacts of COVID-19 pandemic, continues to impede progress towards achieving SDG 2 targets. Overall, the global crisis has driven the cost of living higher due to the rising prices of essential commodities, both food and non-food, as well as energy prices. This has led to limited access to food for the poor and vulnerable households of Nepal. The impact and severity of the crisis needs to be assessed and updated regularly to cope with and put in place a response plan. A recent market survey conducted by WFP revealed that prices of key food commodities – including wheat flour (atta), rice, milk and fruits – have all increased by more than 10 percent compared to the previous year.³ Inflation data published by Nepal Rastra Bank, the Central Bank of Nepal, also showed that the food component of the Consumer Price Index (CPI) in April 2023 was up by 7.8 percent year-on-year (Y-o-Y) and 1.12 percent month-on-month (M-o-M). Fuel prices are similarly impacted, with petrol, diesel, and Liquid Petroleum (LP) gas up by 44, 49 and 28 percent respectively, compared to April 2022. Moreover, the rising food prices resulted in an increase in the cost of food basket, by 14 percent compared to April 2022.

In order to monitor the food security situation, WFP conducted a nationally representative survey to assess the food security and livelihood situation and understand the impact of the crisis and shocks at the household level⁴. The food security and livelihood report presents the findings from the combined face-to-face (F2F) and remote household surveys. This survey conducted in April 2023 is the eighth round of such surveys conducted in Nepal since the start of COVID-19 pandemic.⁵

- Round 1:** April 2020
- Round 2:** August 2020
- Round 3:** December 2020
- Round 4:** June 2021
- Round 5:** October 2021
- Round 6:** June 2022
- Round 7:** October 2022

³ See [Nepal Market Update](#) April 2023.

⁴ A combination of primary and secondary data was used, including a range of tools such as household surveys, market assessments and desk reviews as well as consultations with relevant stakeholders (ranging from policy makers, experts, communities, and other key informants) both at national and provincial level in close coordination and collaboration with the Government of Nepal

⁵ Building on the experiences from the 2020 surveys, WFP increased the survey sample size of both remote and F2F in 2021 to enhance precision of the estimates and more accurately identify the most affected household types.

Round 8: April 2023

Data was collected from a nationally representative sample of 11,292 randomly selected households (using both telephone and Face to Face interviews), across all seven provinces of Nepal. A total of 6,266 households were interviewed via Telephone while the rest (5,026) were interviewed face-to-face. The questionnaires covered food security, expenditure and livelihood related themes and the assessment measured:

- Food consumption score
- CARI (Consolidated Approach for Reporting Indicators of Food Security)
- Minimum Dietary Diversity of Children 6-23 months and women in reproductive age
- Coping behaviours
- Access to food and markets
- Livelihoods and income
- Breastfeeding practices and child diet diversity
- Demographic and household characteristics

Additional details on the methodology are presented in the Methodology and Annex sections at the end of this report.

Household Food and Nutrition Security

The April 2023 survey aimed to assess the household food security and nutrition situation to get better insights of the global crisis and frequent shocks, together with some possible relationship of the findings with price volatility and government fiscal conditions that often impact on the availability and access to food in Nepal.

The April 2023 survey findings show a marginal improvement in the food security situation of households compared to October 2022 and was similar to the COVID-19 pandemic period of 2021. Limited access to food due to reduction in income or limited employment opportunities and rising food price appear to be driving the overall poor food security outcomes, especially among the lowest wealth groups, households with low levels of education of household head and female members of households and those living in rural areas and relying on single source of income.

Food Consumption

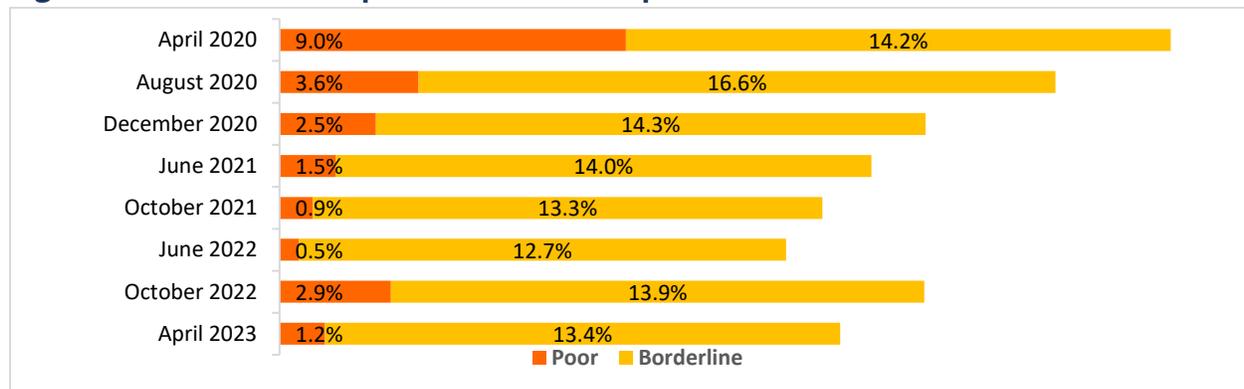
According to the findings of the survey, approximately **4.26 million people** (14.6 percent) in Nepal were not consuming adequate diet in April 2023.⁶ This represents more than 2.2

⁶ This estimate is based on the Food Consumption Score (FCS) indicator which measures dietary diversity and food frequency. A household food consumption score is calculated according to the types of foods consumed during the previous seven days, the frequencies with which they are consumed, and the relative nutritional weight of the different food groups.

percentage points decrease compared to October 2022 (16.8 percent) and 1.4 percentage points increase compared to June 2022 (13.2 percent), however these findings are relatively stable since December 2020 (see Figure 1). This is slightly lower than the Annual Household Survey of 2016/17 where 14.9 percent of households consumed an inadequate diet.⁷

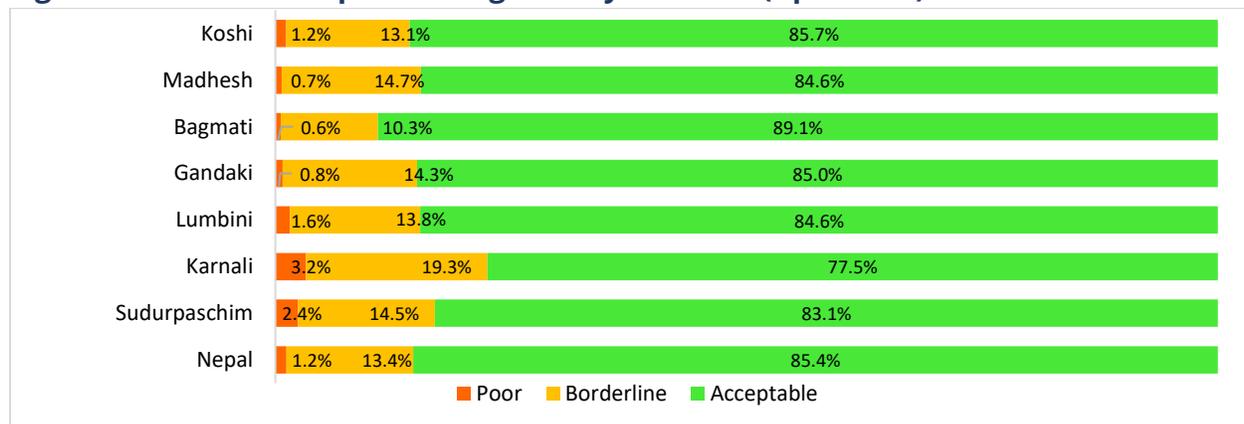
The proportion of households with poor food consumption – which represents a diet consisting mostly of cereals and vegetables - was at 1.2 percent in April 2023, slightly lower compared to October 2022 (2.9 percent).

Figure 1: Trend in Inadequate Food Consumption



Source: April 2023 Household Food Security Monitoring

Figure 2: Food Consumption Categories by Province (April 2023)



Source: April 2023 Household Food Security Monitoring

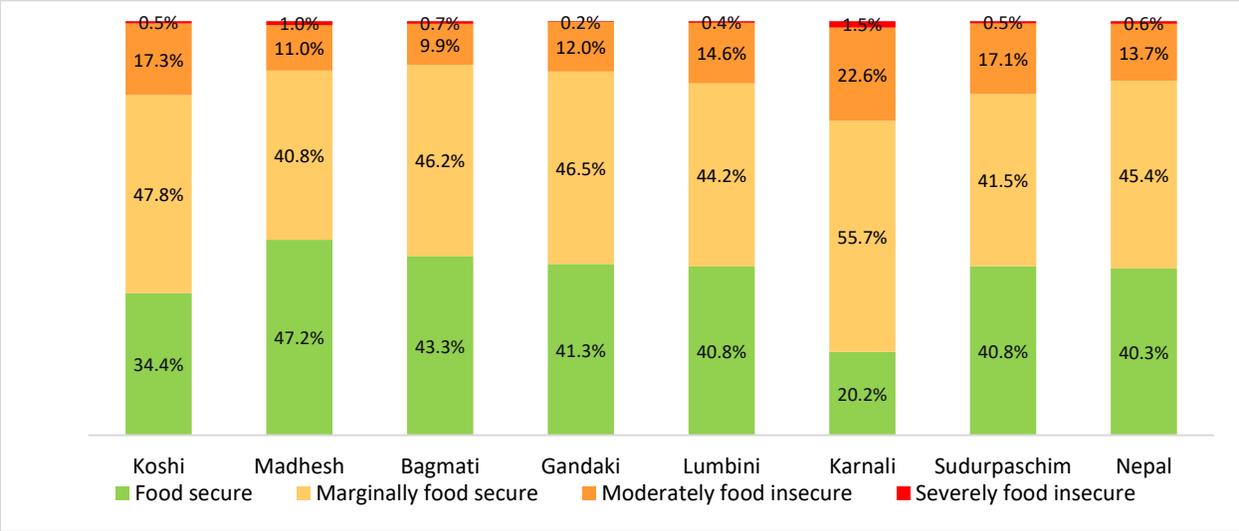
Provincial disparities in the proportion of households consuming inadequate diet (borderline and poor) were visible, with higher proportion of households being reported in Karnali Province (22.5 percent), followed by Sudurpaschim Province (16.9 percent) in April 2023, while the lowest proportion was reported in Bagmati Province (10.9 percent). However, the

⁷ The Annual Household Survey V 2016/2017, Central Bureau of Statistics

proportion of households consuming inadequate diet showed an improvement in all provinces when compared to October 2022, but a deterioration compared to June 2022.

The food insecurity prevalence based on the CARI⁸ (Consolidated Approach to Reporting Food Insecurity) approach revealed that 14.37 percent of households were moderately and severely food insecure and nearly 1 percent of households were severely food insecure.

Figure 3: Food Insecurity Prevalence by Province (April 2023)



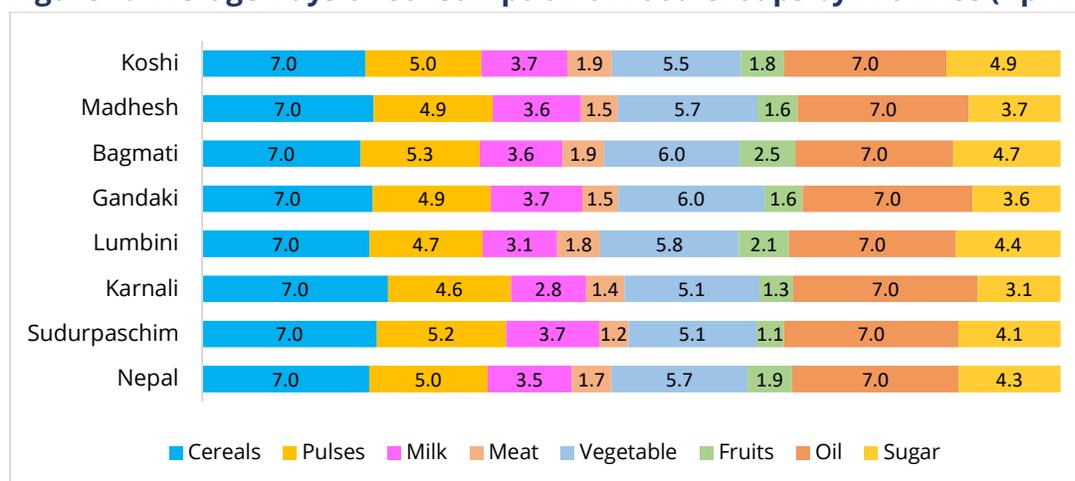
Source: April 2023 Household Food Security Monitoring

The food insecurity prevalence was found to be high in Karnali Province with 24.1 percent of households moderately and severely food insecure and 1.5 percent severely food insecure, followed by Koshi Province (17.8 percent), while Bagmati Province had the lowest food insecurity prevalence of 10.5 percent.

Slight improvement was reported in the food consumption patterns across the three categories compared to October 2022: households with poor food consumption consumed on average 3.7 food groups in the 7 days preceding the survey; households with borderline food consumption consumed on average 5.8 food groups; and households with acceptable food consumption consumed on average 7.1 food groups (Figure 4).

⁸ WFP introduced CARI approach using face to face survey in April 2023. Detail description of CARI approach is presented in the Annex.

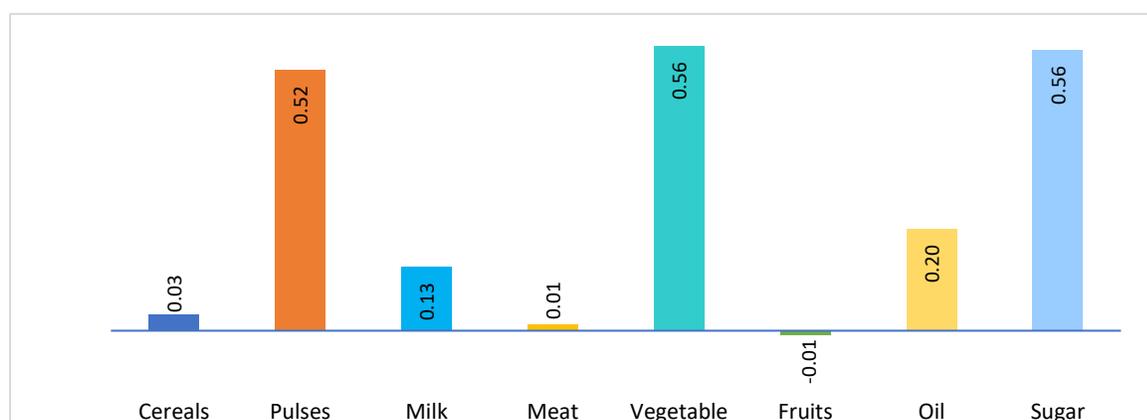
Figure 4: Average Days of Consumption of Food Groups by Province (April 2023)



Source: April 2023 Household Food Security Monitoring

Overall, the average frequency of consumption for most food groups remained the same as reported in October 2022. However, there was a little improvement in the average frequency of pulse consumption (Figure 5).

Figure 5: Change in Average Days of Consumption of Food Groups (April 2023 to October 2022)



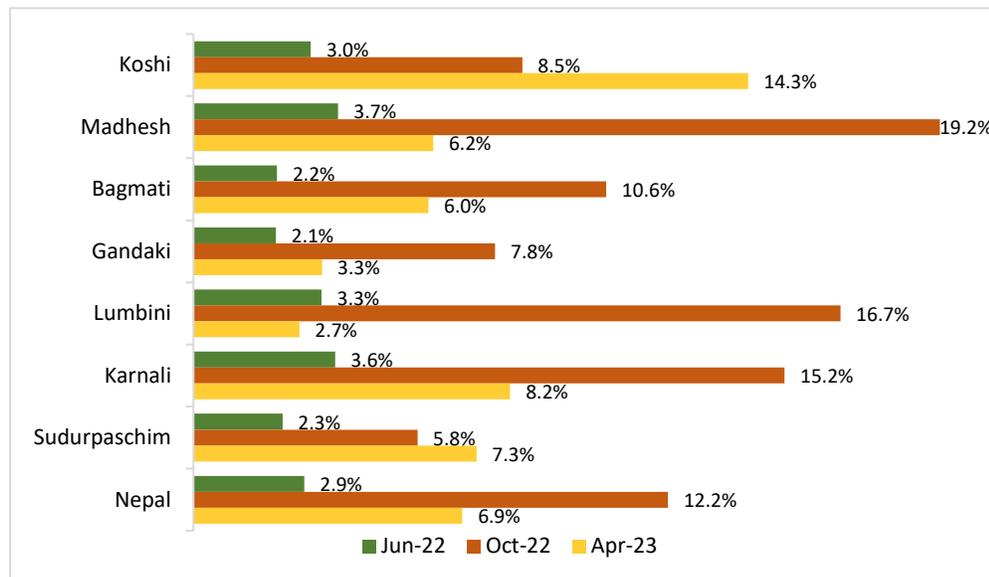
Source: April 2023 Household Food Security Monitoring

Food Availability

Household food availability is considered as proxy measure for assessing household food security status. This indicator is especially important due to frequent crisis and pandemics that often disrupt smooth food logistics and supply chains. Respondents were asked whether they had adequate quantities of food to meet their basic needs during the week prior to the survey. Nearly 7 percent of households reported that they did not have adequate food to meet their daily needs representing a decrease of 5.3 percent points when compared

to October 2022 (Figure 6). More than 14 percent of households in Koshi, followed by Karnali (8.2 percent) and Sudurpaschim (7.3 percent) reported not having enough food to meet their basic needs, which is higher than the national average of 6.9 percent.

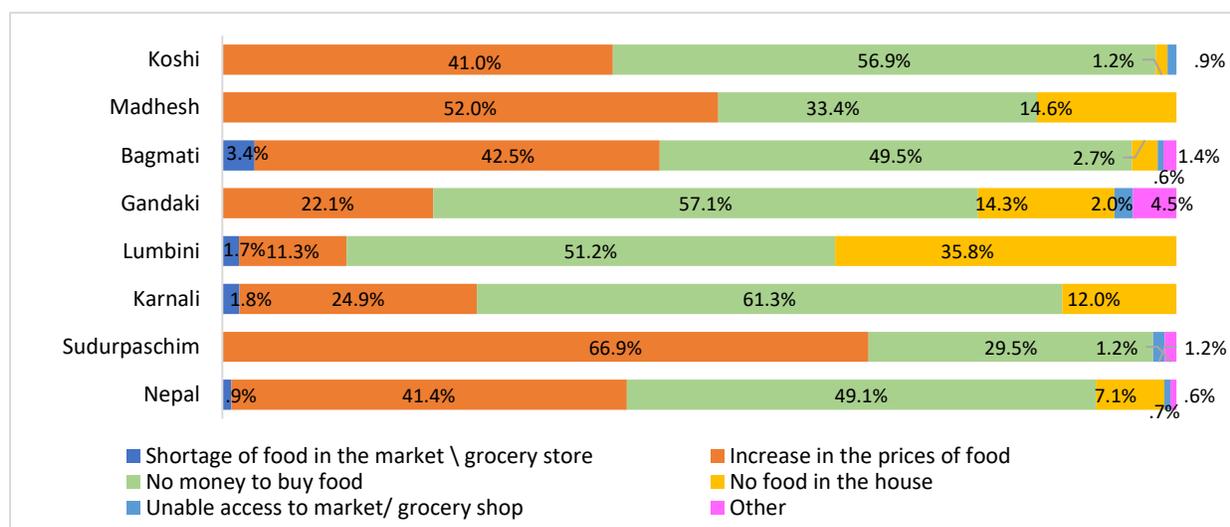
Figure 6: Trend in Reported Food Insufficiency by Province



Source: April 2023 Household Food Security Monitoring

Among households reporting that they did not have adequate food, nearly 50 percent of them attributed not having enough money, followed by increase in the price of food commodities (41.4 percent). This has been consistently reports showing that economic capacity remains a major factor hindering households to access adequate quantities of food.

Figure 7: Reported Reasons for Food Insufficiency by Province (April 2023)



Source: April 2023 Household Food Security Monitoring

Relatively higher food insecurity levels without major improvement when compared to last year indicates that the global crisis and other shocks continue to negatively impact on household's economic access to food. For example, the global crisis seems to have long term impact on access to food as most of the households reported no money to buy food as well as increasing food prices to be the major contributing factors of household food insufficiency. However, the data presented above is just one indication of an overall situation, this provides the information on increased awareness among policy makers and the need to continue monitoring of the situation.

Household Coping Strategies

The reduced Coping Strategy Index (rCSI)⁹ and livelihood coping strategies are often used to assess households' response to food insecurity and shocks, capturing changes in diet and behaviour caused by reduced access to food. In other words, coping strategies refer to social responses adopted by households when faced with food shortages and lack of financial capacity to purchase the food. The survey explored both coping mechanisms for different recall periods i.e., during the seven days prior to the survey for the rCSI and during the 30 days prior to the survey for the livelihood-based coping – to gather more accurate information regarding food and livelihood related challenges that households experienced at a time of hardship.

The findings show that households adopted a variety of strategies to cope with insufficient food. About 1 in 7 households (15 percent) reported using at least one food-based coping strategy during the 7 days prior to the survey.¹⁰ Relying on less expensive food was the most commonly adopted food-based coping strategy (13.1 percent), followed by borrowing from neighbours (7.6 percent) and reduced portion size of meals (2.7 percent).

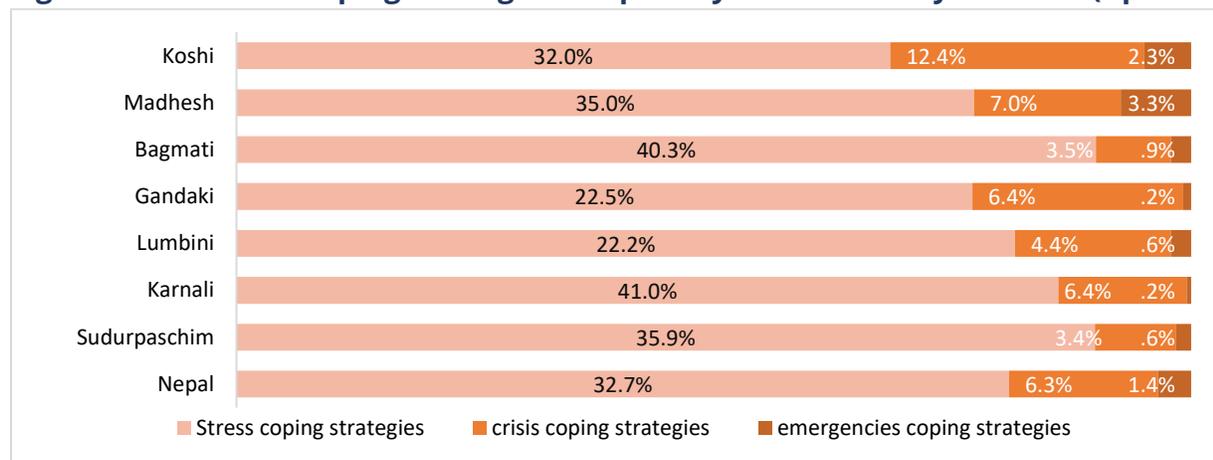
Apart from adjusting their food consumption patterns, more than 40 percent of households adopted livelihood-based coping strategies (Figure 8), out of which nearly 33 percent of households adopted stress coping strategies, such as borrowing money, selling household unproductive assets and other household assets, followed by crisis coping strategies (6.3 percent) such as sale productive assets, reduce essential non-food expenses on health and education, and harvest immature crops to eat. Of concern are the 1.4 percent who resorted to emergency coping strategies like begging, sell last female animals and mortgage or sell house or cultivated land. This is an indication that these households might no longer have the capacity to meet their daily food needs without external assistance.

⁹ rCSI measures the frequency and severity of the behaviour households engage in when faced with shortage of food. Modified version of the rCSI and LCSI were used in this report and should be used for indicative purposes only.

¹⁰ A small change was applied to the methodology for capturing food- and livelihood-based coping strategies which complicates comparisons with data from previous rounds. Subsequent reports will reincorporate trend comparisons for these indicators.

Among various livelihood coping strategies, the most frequent strategy to adopt was spending their savings reported by more than 25 percent of households, followed by borrowing money or food from formal and informal lenders (21.4 percent) and purchasing food and non-food items on credit (20 percent). These strategies undermine the future productive capacity of the household as well as their ability to cope with future shocks.

Figure 8: Livelihood Coping Strategies Adopted by Households by Province (April 2023)



Source: April 2023 Household Food Security Monitoring

Diet Quality of Children Aged 6-23 Months and Women in Reproductive Age

Minimum dietary diversity (MDD) is used as a proxy indicator for measuring the micronutrient adequacy of a household. The survey asked households to report on the consumption of 7 food groups for children between 6-23 months of age and women of reproductive age (15 to 49 years of age) within the 24-hour recall period.¹¹ A total of 1,123 children aged between 6-23 months and 10,371 women in reproductive age were surveyed.

Overall, the results show that 45.4 percent of children between 6 and 23 months of age did not meet the minimum recommended dietary diversity, which is similar to October 2022 (45.5 percent). The percentage of children who did not meet minimum dietary diversity is the same as in the first round of mVAM household survey to assess the impact of COVID-19 pandemic on food security and livelihoods conducted in April 2020, where 45.9 percent of children did not meet the minimum dietary diversity. At provincial level, Karnali province had the highest prevalence of children whose diet did not meet the minimum diversity (52.3 percent), followed by Sudurpaschim (51.7 percent) and Lumbini (51.4 percent). However, Madhesh province had the lowest prevalence of children who did not meet the minimum diversity requirements (39.4 percent).

¹¹ The MDD indicator definition for children aged 6-23 months and women in reproductive age (25-49 years) has recently been updated to 8 food groups (the 7 previous ones plus breastmilk). Subsequent survey rounds will reflect these updated guidelines.

Nearly 31 percent of women in reproductive age did not meet the minimum dietary diversity. At provincial level, similar to the findings for children between 6-23 months, Karnali province had the highest prevalence of women in reproductive age who did not meet the minimum recommended dietary diversity (41.3 percent), followed by Gandaki (38.4 percent) and Sudurpaschim (34.6 percent). However, Bagmati province has the lowest prevalence of the minimum dietary diversity of women in reproductive age which accounts 23.3 percent.

Nearly seventy three percent of respondents reported no change in breastfeeding practices, while 14.2 percent were breastfeeding more than usual and 11 percent less often than usual.

Livelihoods and Income

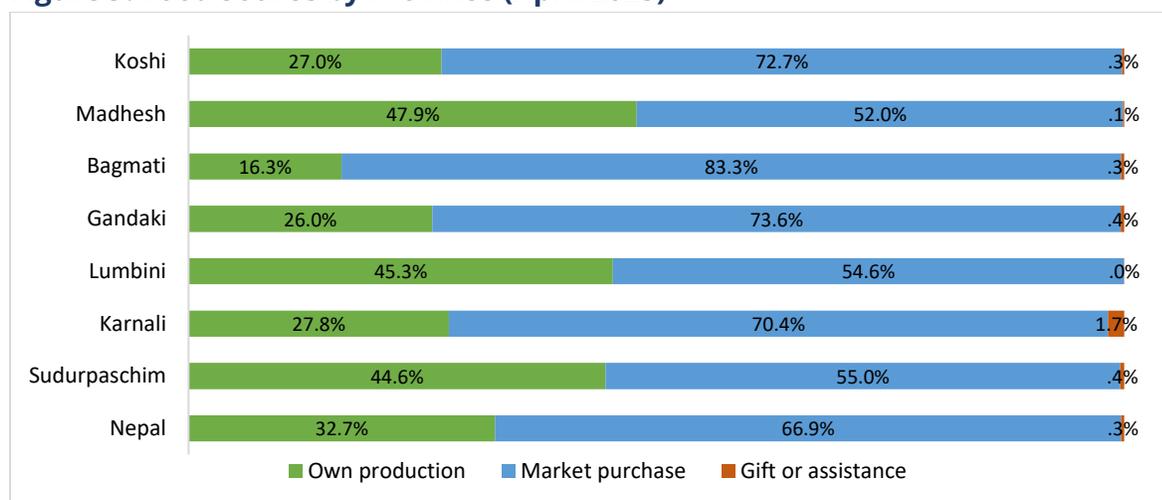
Access to Food

The continuous rise in food prices can have extremely negative consequences for poor and vulnerable households particularly to those whose incomes are less likely to match inflation. Moreover, wage pressure can lead to limited employment opportunities in the formal sector, thereby further pushing most households into the informal sector, reducing their earnings and purchasing power. Therefore, it is essential to continue to monitor and enhance the understanding on the associations between access to food and the financial situation of households. As in previous rounds, this survey assessed the major sources of household food and their food stocks. In addition, to livelihoods and income, other essential elements for assessing a household's ability to obtain adequate food were also examined in this section.

Source of Food

Nearly 70 percent of households reported depending on markets as their main source of food, more than 10 percent increase compared to October 2022 and in line with findings from October 2021 (67 percent) (see Figure 9). Bagmati province had the highest proportion of households relying on market purchases estimated at 83.3 percent. On average 32.7 percent of households consumed food from their own production with relatively higher proportion reported in Madhesh (45.3 percent).

Figure 9: Food Source by Province (April 2023)

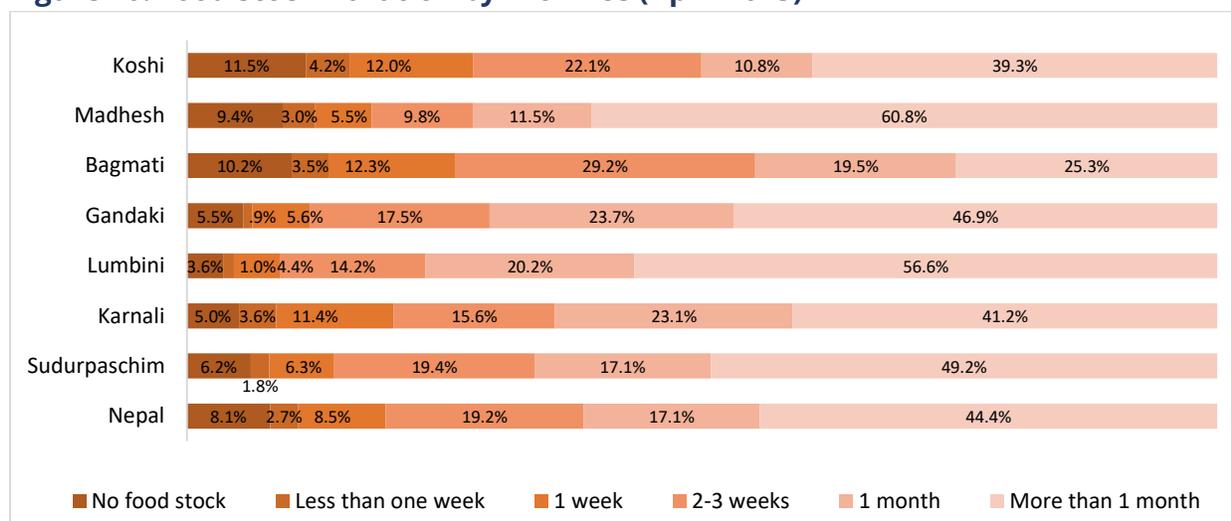


Source: April 2023 Household Food Security Monitoring

Household Food Stocks

Household food stocks contributes to the availability dimension of the food security, assuming that the larger the food stock the more likely the household has better consumption patterns. Overall, more than 92 percent of households reported that they had at least one week of food stocks available (see Figure 10). These results are similar to the findings from October and June 2022 where about 90 percent reported having at least one week of food stocks. As in previous rounds, food stocks are highest in provinces where own production is the major source of household food such as Sudurpaschim and Lumbini.

Figure 10: Food Stock Duration by Province (April 2023)



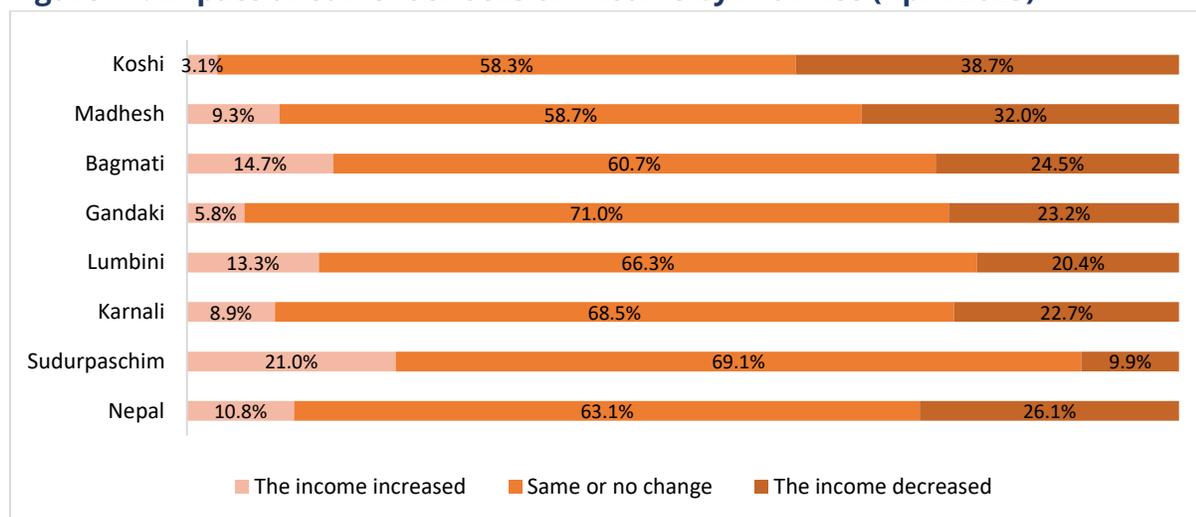
Source: April 2023 Household Food Security Monitoring

Change in Income

When assessing the ability of households to access food and their resilience to future shocks, it is imperative to understand the effects of the current global crisis and other shocks on livelihoods and income sources.

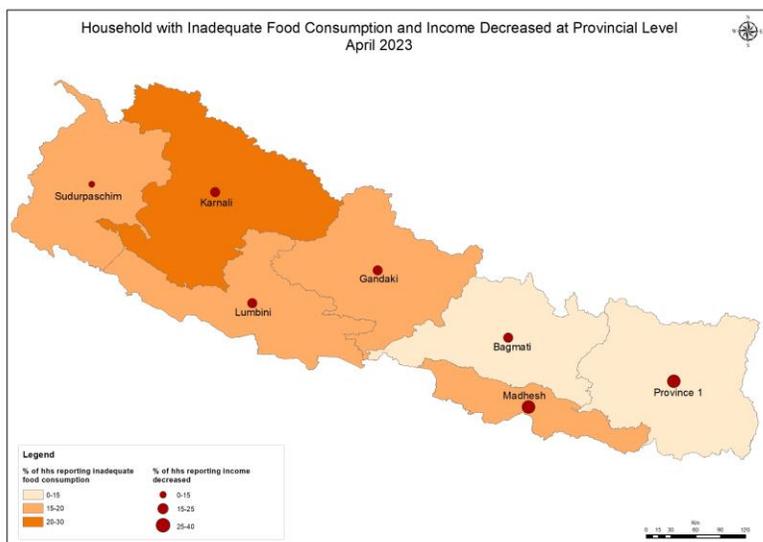
The findings show that more than 26 percent of households reported a decrease in income over the past six months, a notable improvement compared to the October 2022 (33 percent) and June 2022 (44 percent) findings. Six-month income reductions were most severe in Koshi (38.7percent), Madhesh (32 percent) and Bagmati (24.5 percent). Moreover, households reporting increase in income and no change were slightly higher than October 2022. These findings indicate that the global crisis, together with frequent shocks still have impact on livelihoods and economic activities which can further lead to the risk of increased levels of vulnerabilities of already poor and vulnerable households.

Figure 11: Impact of Current Shocks on Income by Province (April 2023)



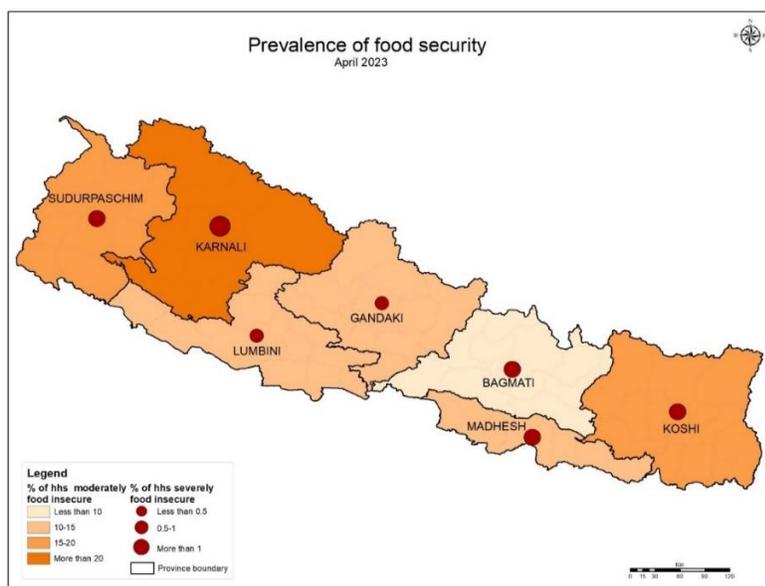
Source: April 2023 Household Food Security Monitoring

Map 1: Households with Inadequate Food Consumption and Income Decreased by Province (April 2023)



Source: April 2023 Household Food Security Monitoring

Map 1: Prevalence of Food Security by Province (April 2023)



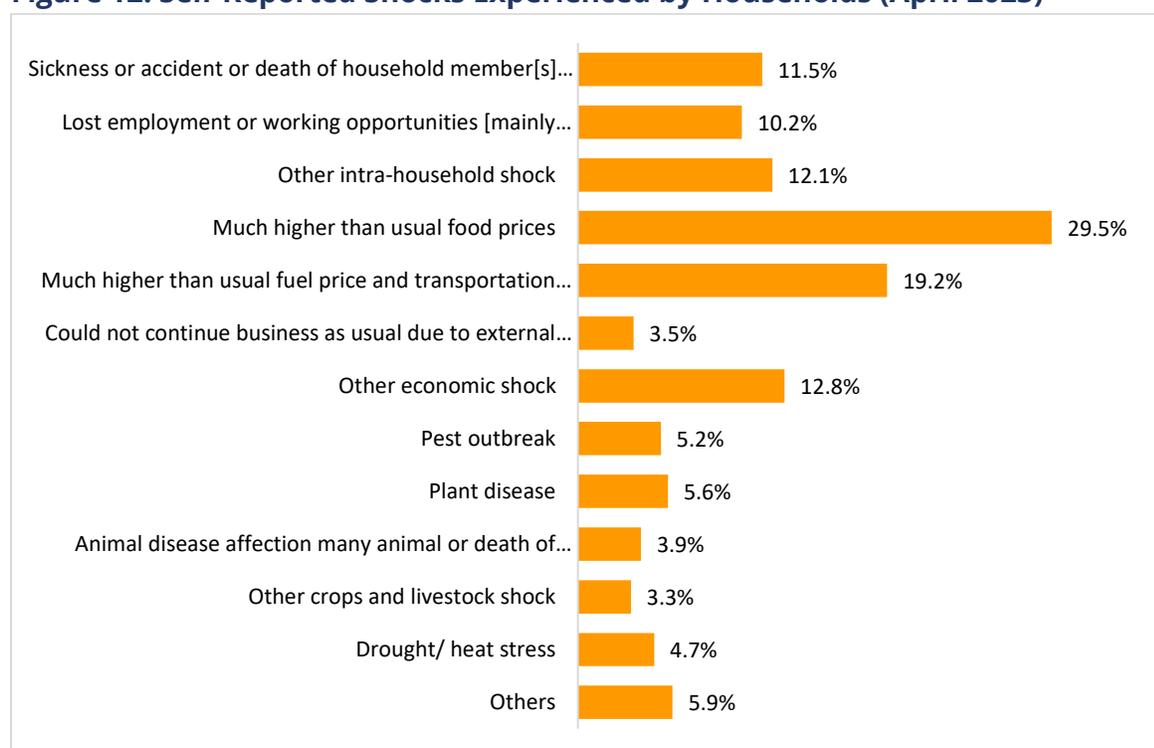
Source: April 2023 Household Food Security Monitoring

Major Shocks

Crisis and shocks often pause threats to the well-being of households, leading to food insecurity for the vulnerable households with low resilience capacities. The survey findings show that nearly 45 percent of households experienced at least one shock during the six months prior to the survey (Figure 12). Of which, the most commonly reported shocks were

the much higher than usual increase in food prices (29.5 percent, down from 48 percent in October 2022), much higher than usual fuel price and transportation cost reported by nearly 20 percent, followed other intrahousehold shock (12.8 percent) and other economic shocks (12.1 percent). These results did not differ much at the provincial level, although Madhesh was an outlier with 20 and 16 percent reporting that they had suffered from pest outbreak and drought/heat stress in the previous six months, respectively.

Figure 12: Self-Reported Shocks Experienced by Households (April 2023)



Source: April 2023 Household Food Security Monitoring

The question was asked to those households who encountered shocks about the direct effects of shocks to their household's wellbeing. Majority of households reported that basic consumption products were much more expensive and unaffordable with 75.4 percent having experienced the adverse impact of the shock. Likewise, over 34 percent of households reported a much higher price of agricultural inputs, followed by reduction in expenses for education and health (21.3 percent).

Drivers of Food Insecurity

A simple logistic regression analysis was conducted to identify determinants of food insecurity in Nepal. Variables used to determine food insecurity in the model are mostly found to be significant with expected signs (See Table 6 - Annex 5). Variables such as education level of household head, highest education level of female members in the household, household receiving remittance, land size in hectare, households experiencing

shock and relying on single livelihood, households with housing and roof structure, and livestock were used in the analysis of food insecurity determinates, with inadequate food consumption used as a proxy for food insecurity.

The result indicates that that households with lower farm size together with large unirrigated land, lower education level of both household head and female members in the households, those facing shocks, having poor roof and housing structure, unsafe drinking water source, no livestock and relying on single source of income are more likely to be more food insecure.

Characteristics of Food Insecure Households

Besides presenting the regression results above and analysing how the current crisis and shocks have impacted on households, the following section provides the types of households affected by the crisis and shocks.

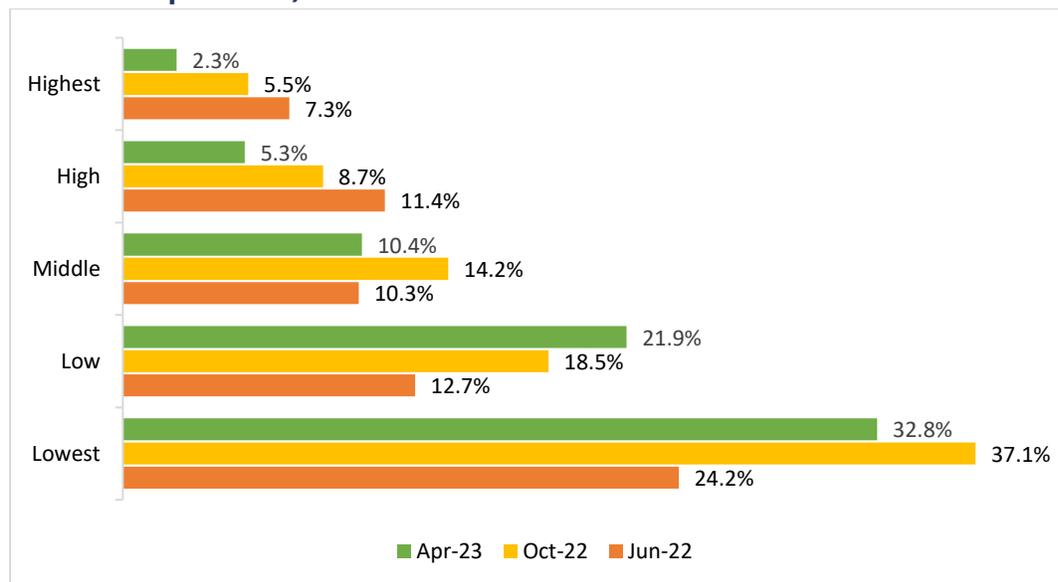
Food Consumption

Despite some improvement in the food security status at the household level in April 2023 compared to October 2022, further investigations of the food security situation among different groups and wealth profile provided more insights on the general food and nutrition security situation in Nepal.

The analysis of household food security situation according to wealth quintile,¹² indicates that a decline in food consumption is mainly due to a deterioration in the household economic conditions of the bottom 40 percent of the households. This suggests that households in the lower wealth quintiles are experiencing difficulties in access and affording an adequate basic food required for healthy and active life. Households in the top 40 percent of the wealth distribution also saw a decrease in the prevalence of inadequate food consumption compared to June and October 2022 (Figure 13).

¹² See Annex 4 for more information on the wealth index used in this report.

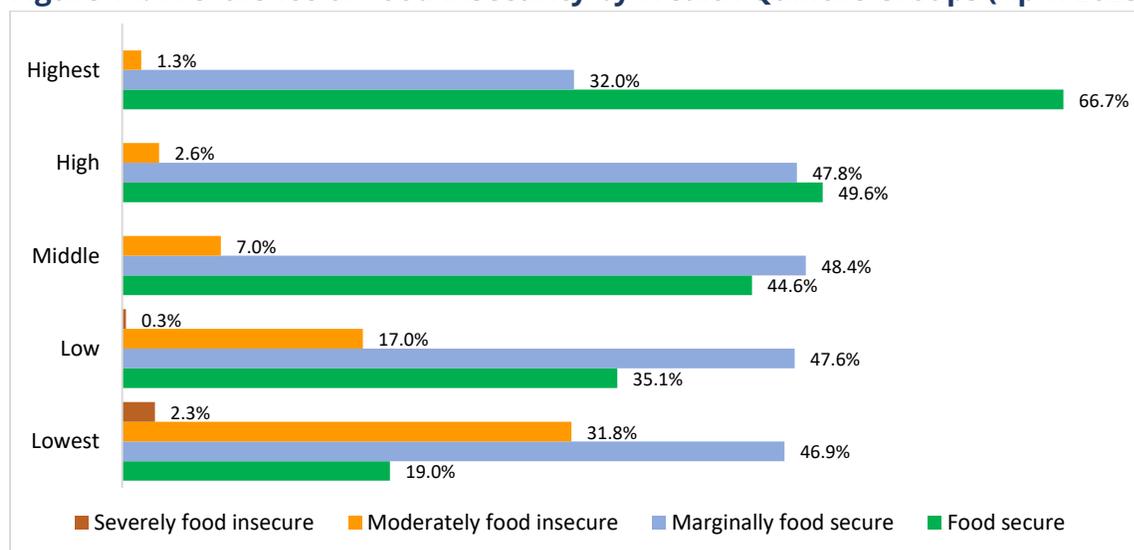
Figure 13: Inadequate Food Consumption by Wealth Quintile Groups (June and October 2022 and April 2023)



Source: April 2023 Household Food Security Monitoring

Prevalence of food insecurity situation based on the CARI approach (moderately and severely food insecure households) was much higher for the bottom 40 percent compared to the top 40 percent of households, with low proportions of households (less than 7 percent) classified to be moderately or severely food insecure for top 40 percent of households. This indicates that economic access seems to be a key driving factor leading to food insecurity. This finding in itself does not offer a direct explanatory narrative but indicates that poorer households have been less able to cope with the impacts of the global crisis and frequent shocks.

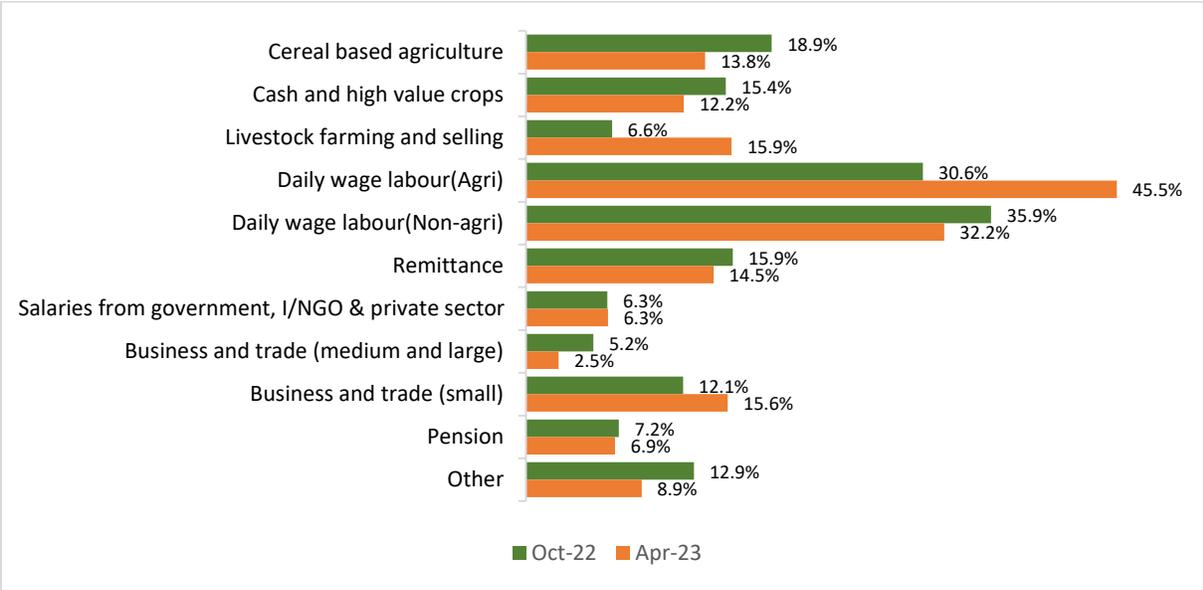
Figure 14: Prevalence of Food Insecurity by Wealth Quintile Groups (April 2023)



Source: April 2023 Household Food Security Monitoring

Food insecurity situation is found to be strongly correlated with certain types of livelihoods and income sources with higher prevalence of inadequate diets reported for irregular livelihoods such as daily wage labour (agricultural and non-agricultural). Households that depend on informal sectors such as daily wage labour (farm and off-farm) were much more likely to have inadequate diets at the time of the survey than other livelihoods (45.5 percent and 32.2 percent, respectively) as presented in Figure 15. These rates represent a significant increase compared to June and October 2022 but are in line with findings from October 2020, indicating that these employment categories, in particular daily wage labourers, are vulnerable to spikes in seasonal food insecurity.

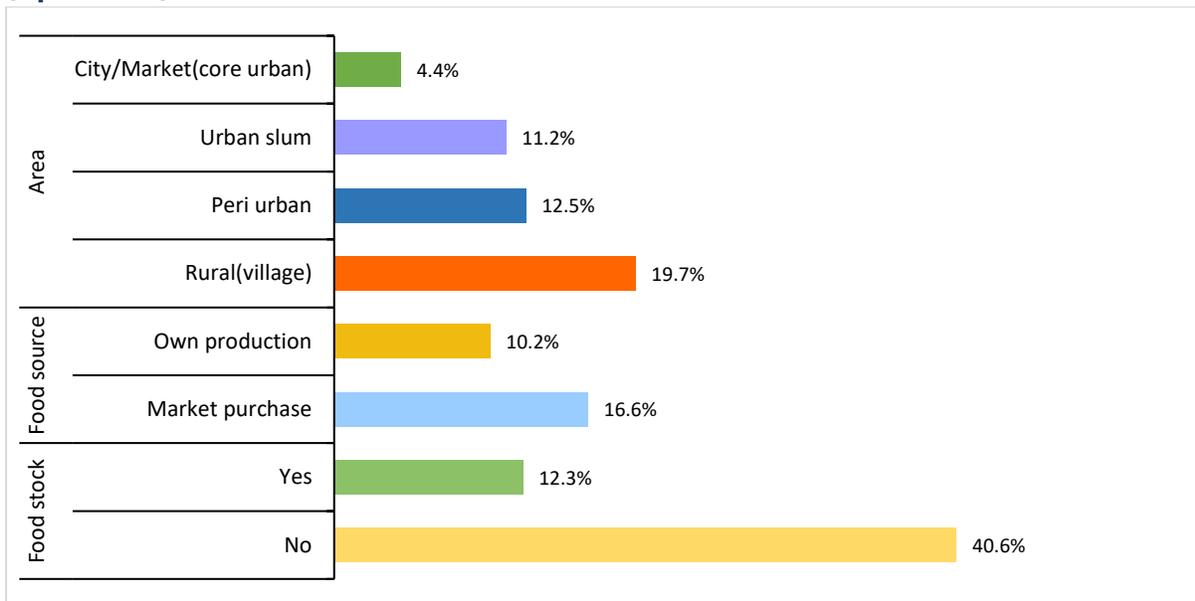
Figure 15: Inadequate Food Consumption by Livelihood Sources (October 2022 and April 2023)



Source: April 2023 Household Food Security Monitoring

Prevalence of food insecurity was higher for rural households, estimated at 20 percent compared to other areas. These findings are similar to October 2022 where higher prevalence of inadequate food consumption was reported for rural households (20 percent). However, the 20 percent is higher when compared to June 2022 where the prevalence for rural households was estimated at 16 percent. In urban slums, households reporting inadequate diet decreased from 16 percent in October 2022 to the current 11 percent.

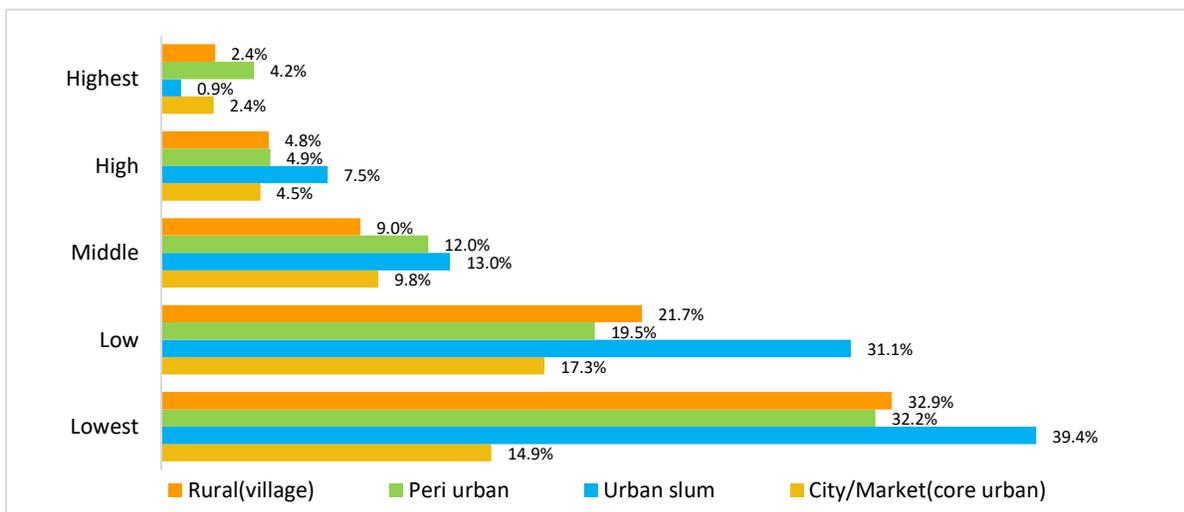
Figure 16: Inadequate Food Consumption by Type of Food Source, Food Stock, Area (April 2022)



Source: April 2023 Household Food Security Monitoring

The findings showed a correlation between food insecurity and the area of residence of the households, and it is apparent that within the lowest wealth quintiles, food consumption of slum and rural households is significantly worse than their urban counterparts (Figure 17).

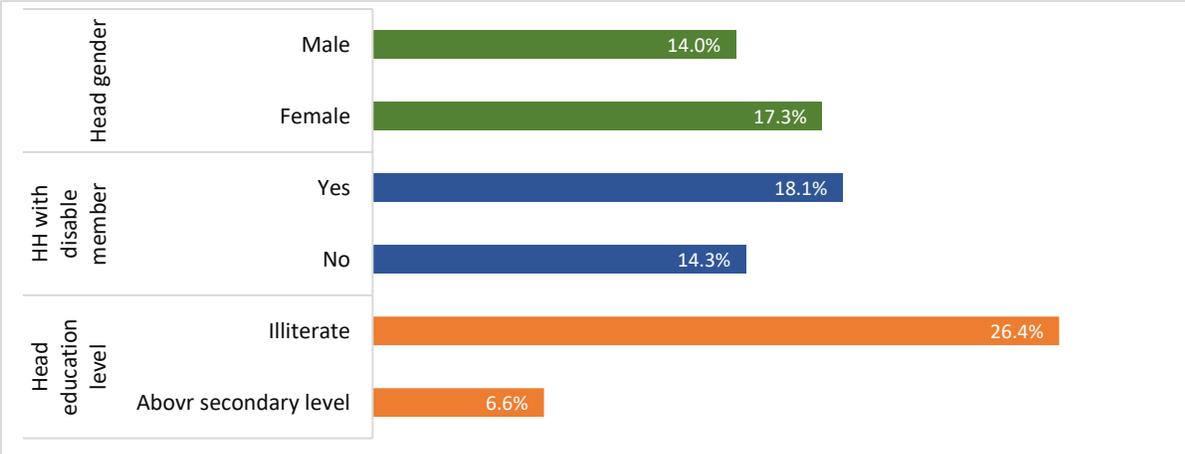
Figure 17: Inadequate Food Consumption by Wealth Quintile of Area of Residence (April 2023)



Source: April 2023 Household Food Security Monitoring

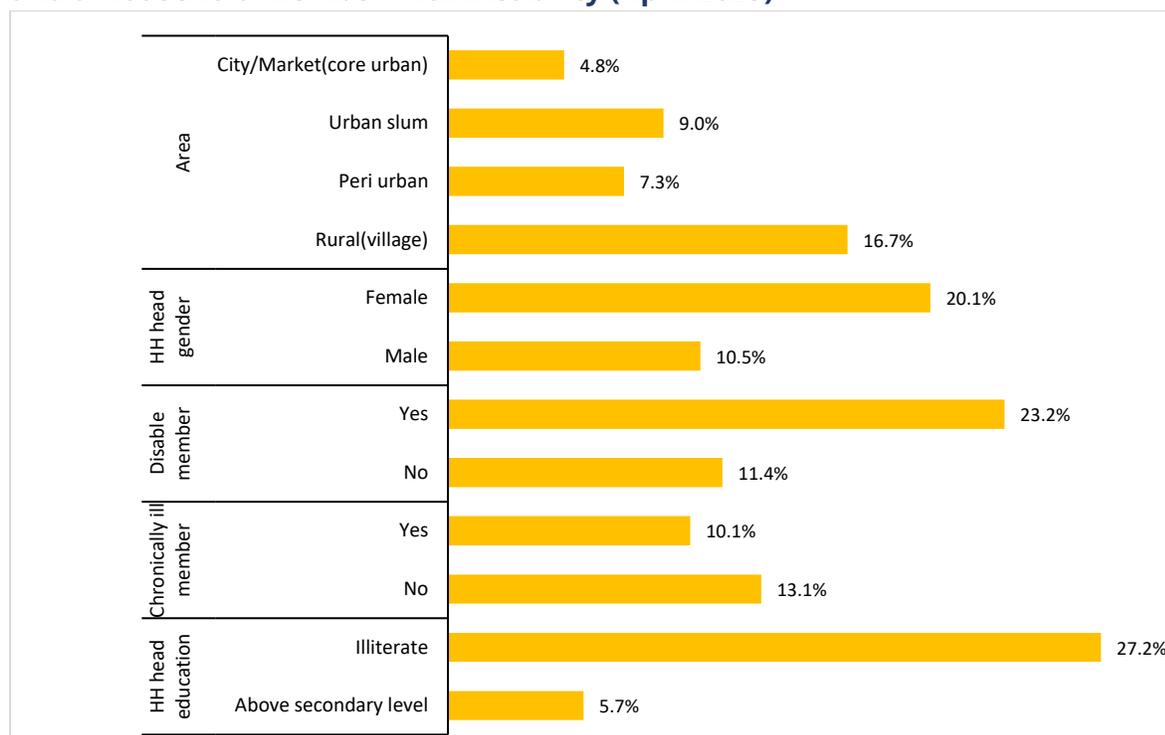
As in earlier surveys, other household factors were also found to strongly predict inadequate food consumption (Figure 18). For instance, inadequate food consumption was more prevalent among female headed households (17.3 percent similar to 20.1 percent in October 2022), while prevalence of inadequate food consumption was only 14 percent for male headed households similar to 10.5 percent in October 2022. Education level of household head was also found to have a strong correlation with inadequate food consumption, with nearly 27 percent of households with household heads whose highest level of education was lower than secondary level compared to only 6.6 percent of households with household heads with above secondary level of education. Likewise, prevalence of inadequate food consumption was higher in households with disabled member accounting for 18.1 percent compared to 14.3 percent of households without disabled members (see Figure 18). Prevalence of food insufficiency was higher for households with a disabled member and living in rural areas.

Figure 18: Inadequate Food Consumption by Gender, Education level of Household Head and Household member with Disability (April 2023)



Source: April 2023 Household Food Security Monitoring

Figure 19: Household Food Insufficiency by Gender, Education Level of Household Head and a Household Member with Disability (April 2023)



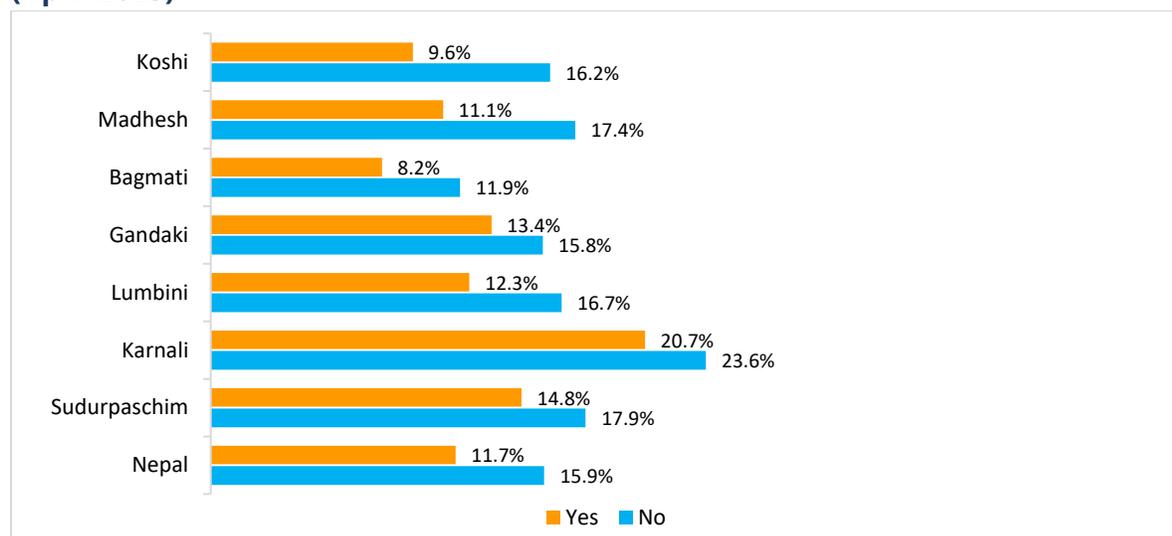
Source: April 2023 Household Food Security Monitoring

Lastly, a strong correlation between food consumption status in the week prior the survey and social security allowance¹³ enrolment was also assessed. Nearly 1 in 6 households (15.9 percent) enrolled were not consuming an adequate diet compared to 11.7 percent of ineligible households. This could be partially because social assistance was not received timely due to delays in its disbursement, together with inadequacy of the transfer amount to meet the basic needs for those households who relied only on the social protection, as highlighted in ILO report¹⁴.

¹³ Detail on social security allowance enrolment rate at provincial level and specific types of social security allowance are presented in the Table 2, Annex 2.

¹⁴ ILO Report on “Extending Social Protection for All in Nepal: An Analysis of Protection Gaps”, International Labour Organization 2023.

Figure 20: Inadequate Food Consumption by Social Security Allowance Enrolment (April 2023)



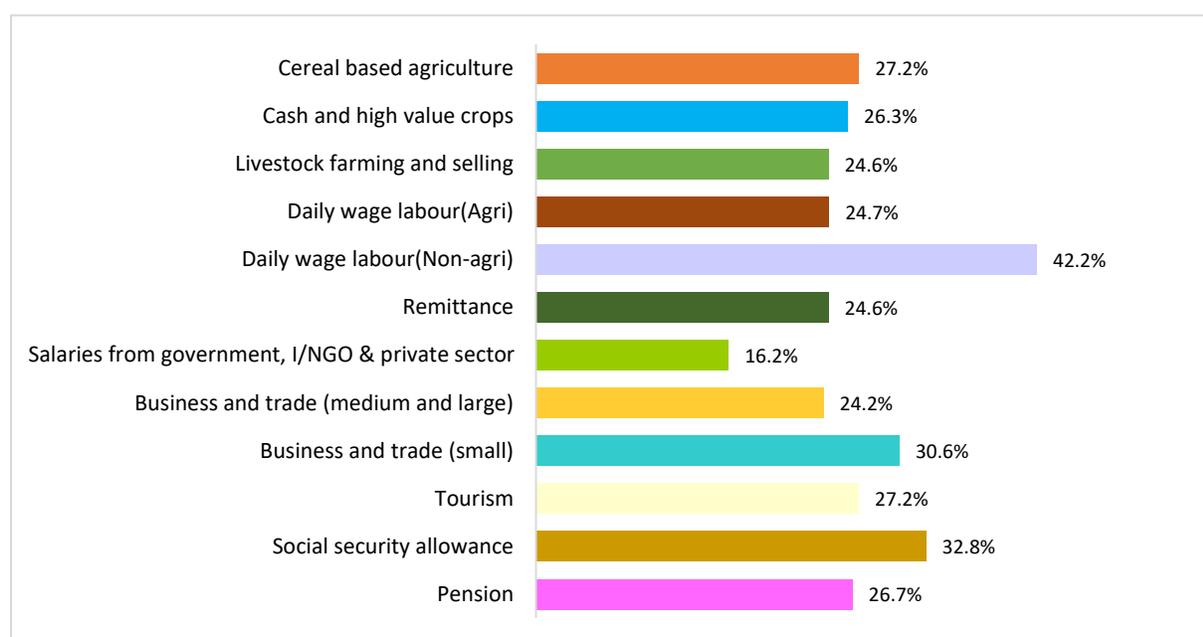
Source: April 2023 Household Food Security Monitoring

Income and Livelihoods

The survey also asked the question about the impact of the current crisis and frequent shocks on household income and livelihoods. The results showed that more than 26 percent of households reported a decrease in income due to crisis and shocks. However, the impact of crisis was not evenly distributed among the different livelihoods.

In April 2023, the most affected livelihood was unskilled daily wage labour (non-farm), where more than 42 percent of labour working in non-farm sector reported an income loss during the 6 months preceding the survey, followed by households relying on social security allowance (32.8 percent) and those involved in small business and trade (30.6 percent). A significant percentage of respondents whose livelihoods were cereal based agriculture (27 percent), cash and high value crops (26 percent) and tourism sector (27 percent) reported a decline in income due to crisis and shocks (see Figure 20).

Figure 21: Decrease in Income by Livelihood Type (April 2023)



Source: April 2023 Household Food Security Monitoring

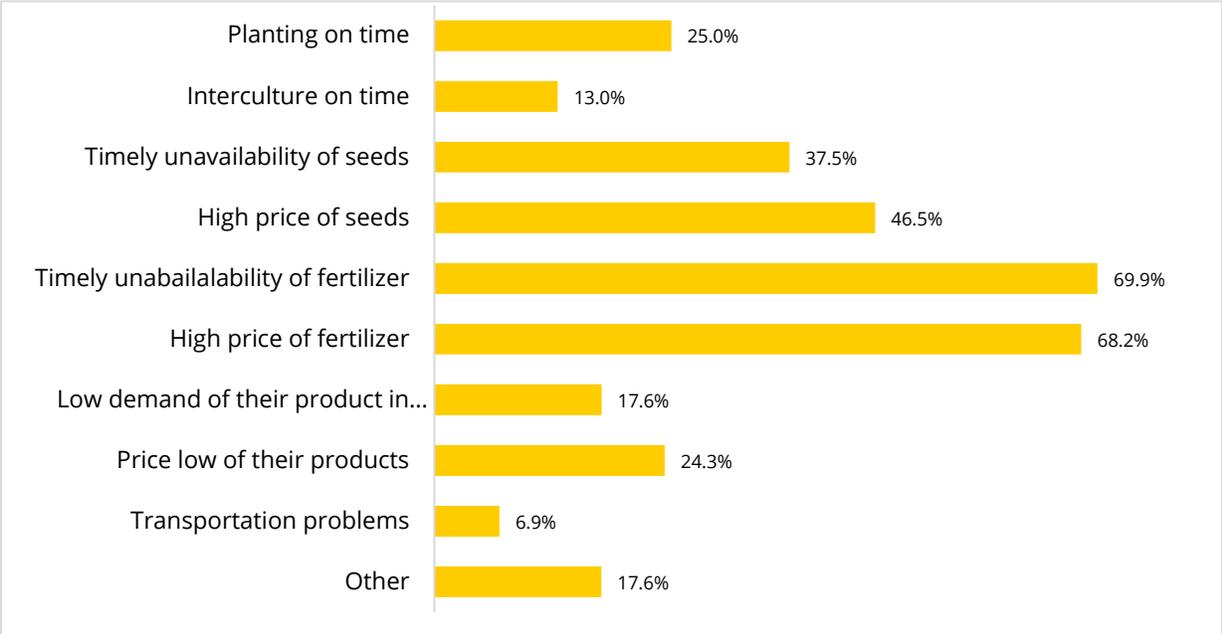
Agriculture

The survey also assessed to those households whose had some farmland and engaged in some agriculture activities. More than 57 percent of households reported that they were involved in at least some agriculture activities such as cereal and high value crop production, livestock rearing and a combination of more than one agriculture activities. Among provinces, Sudurpaschim province had the highest proportion of households engaging in agriculture sector (73.6 percent), followed by Madhesh (67.4 percent) and Karnali (66.9 percent), while Bagmati province had the least proportion of households engaging in agriculture sector. Out of total farm households, about 34 percent of them reported that they were involved only in traditional crop production, while over 31 percent of them were also into livestock rearing. Few farmers only engaged in both cash and high value crops (2.2 percent) and all agricultural activities such as crop, cash and livestock production (4 percent). However, more than 21 percent of them had either a kitchen garden only or did not cultivate during the last 12 months, probably due to unavailability of farm labour because of labour migration or because of drought and dry spells mainly in rainfed agriculture.

The findings also showed that about 31 percent of households reported some type of livestock rearing, of which about 45 percent of them had a milking animal, and 42 percent had a big animal.

Since farming is a challenging and risky business due to different shocks affecting on farm activities from plantation to harvesting, households who practiced agriculture were asked about some of the major problems they faced. Majority of the farming households reported that timely unavailability of fertilizers combined with the high price of fertilizers were the major problems encountered by farmers, reported by 70 and 68.2 percent of the households respectively (see Figure 22). Other problems reported by farmers were high price of seeds (46.5 percent), timely unavailability of seeds (37.5 percent) and planting on time (25 percent).

Figure 22: Major Problems Encountered in Agriculture Sector by Farmers



Source: April 2023 Household Food Security Monitoring

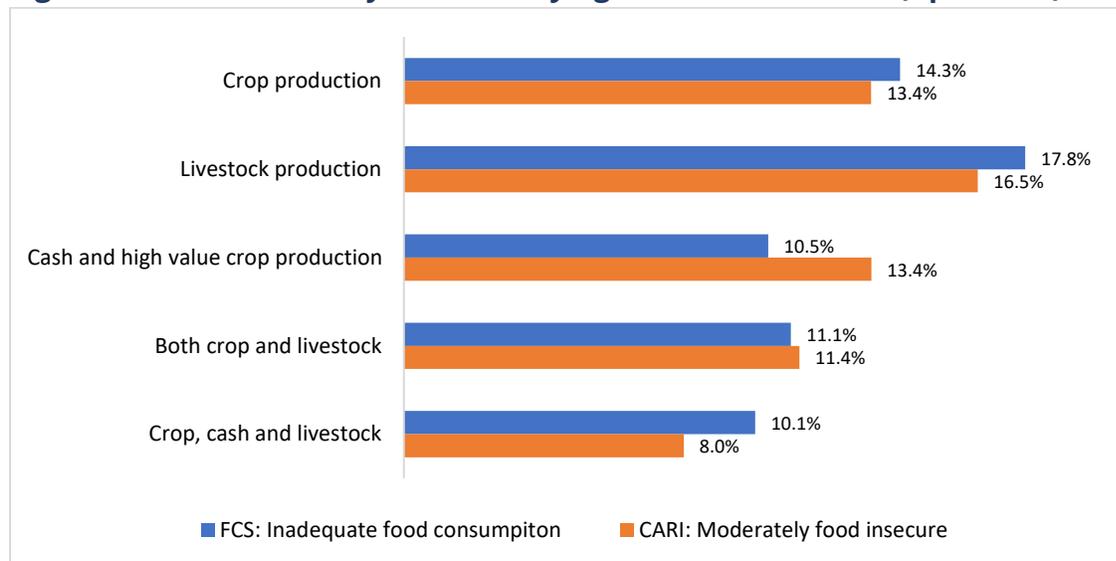
Agriculture and Food Security

Agriculture plays a crucial role in reducing food insecurity and improving livelihoods mainly in agrarian countries such as Nepal. Agriculture helps to improve food availability at household level as well as a source of income from the sale of crop and livestock products giving households economic ability to access food on the market. Food security situation is often found to be better for households with higher agriculture production contributed by larger farm size and better irrigation facilities. Moreover, livestock rearing had also strong association with food security outcomes.

Households relying only on traditional crop production activities were more likely to be food insecure. For example, nearly 18 percent of households engaged only in livestock had inadequate food consumption and approximately 17 percent households were moderately food insecure based on the CARI approach. However, about 10 percent of households who engaged in multiple agriculture activities such as crop, cash crop production and livestock

rearing had inadequate food consumption and only 8 percent of them were moderately food insecure (See Figure 23).

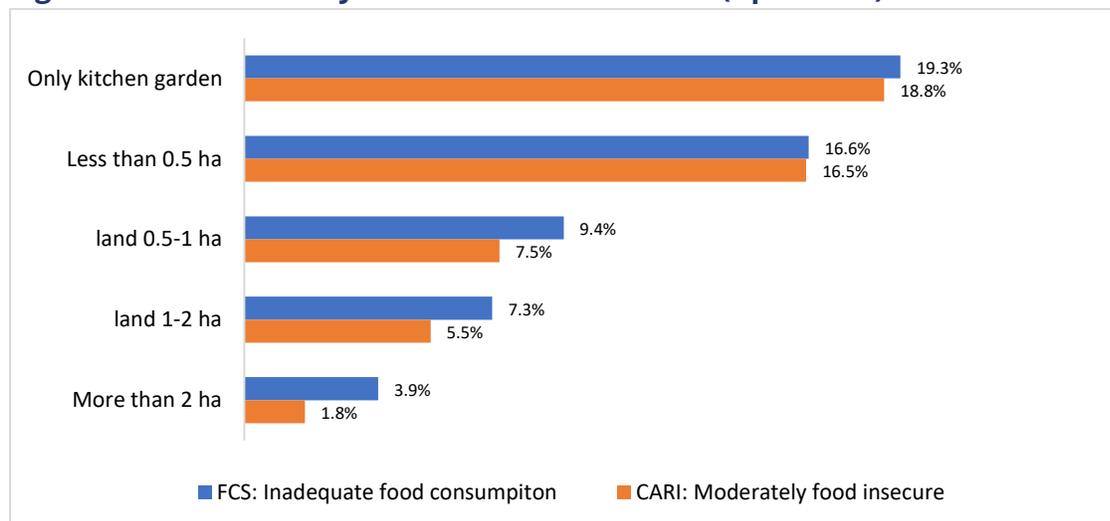
Figure 23: Food Insecurity Situation by Agricultural Activities (April 2023)



Source: April 2023 Household Food Security Monitoring

The findings showed that larger land size was strongly associated with better food security outcomes among the farming households. About 19.3 percent of households with only kitchen gardens had inadequate food consumption, while only 4 percent of households with more than two hectares of farmland had inadequate food consumption. Similarly, almost 19 percent of households with only kitchen gardens were moderately food insecure compared to 1.8 percent for those households with more than two hectares of farmland (see Figure 24). This clearly indicates that the size of farmland is a major asset and source of livelihoods for people living in rural areas.

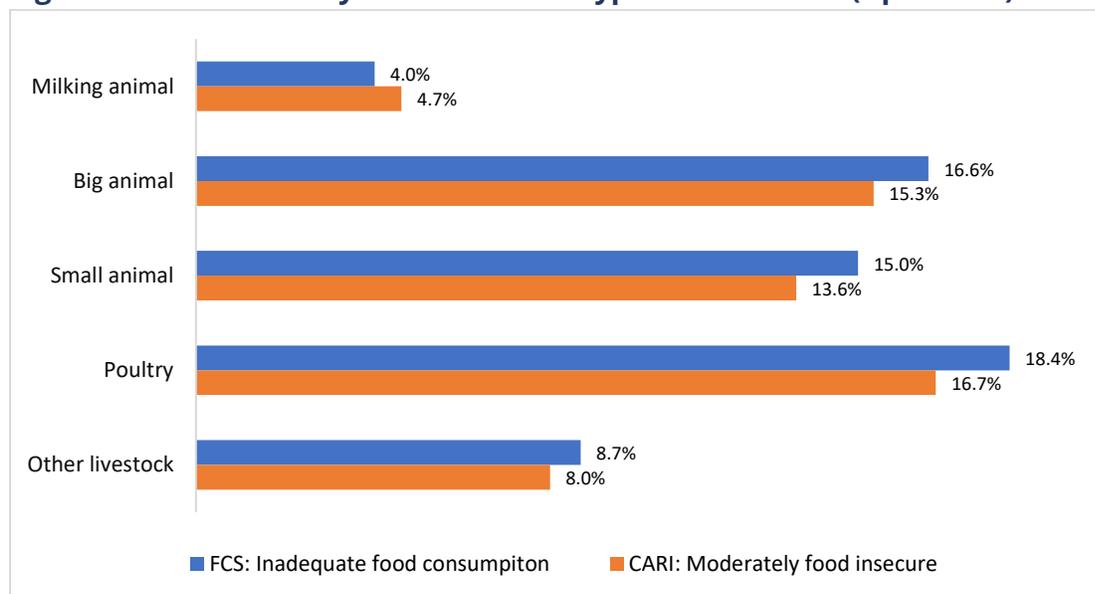
Figure 24: Food Security Situation with Land Size (April 2023)



Source: April 2023 Household Food Security Monitoring

Livestock rearing is also one of the key sources of livelihoods in rural areas, where farmers often rear livestock with other farm activities. The survey results indicated more households with small livestock such as poultry or non-productive big animal reported inadequate food consumption. About 19 percent of households rearing poultry had inadequate food consumption, followed by 16.6 percent households with inadequate food consumption for those rearing big non-productive animal. This is also in line with CARI approach where nearly 17 percent of households were moderately food insecure for those farm households rearing poultry only. In contrast to this, households with inadequate food consumption were only 4 percent for those households rearing milking animal such as cow or buffalo (see Figure 25).

Figure 25: Food Security Situation with Types of Livestock (April 2023)



Source: April 2023 Household Food Security Monitoring

Annexes

Annex 1: Methodology

The information and data presented in this report were gathered from a nationally representative household survey (combining phone and face-to-face interviews) conducted between April and the first week of May 2023. Phone-based interviews covered two national service providers (Nepal Telecom and Ncell) in all 7 provinces and the numbers were generated by using the random digit dialling method.

A total of 5,026 sampled households from 250 Primary Sampling Units representing all Provinces and ecological belts by probability proportional to size were interviewed using face to face interview, while a total of 6,266 households were interviewed through telephone, with an average success rate of 5.5 percent (the ratio of successfully completed surveys to total dialled numbers, with 114,318 total dialled numbers). The non-response phone numbers were replaced by the same location code. The survey method followed a standard operating guideline as described in Computer Assisted Telephone Interview (CATI) survey developed by WFP. The survey allowed participation through telephone interviews directed at respondents of at least 18 years of age and above.

A note on bias: Two main sources of bias exist in the design of this survey, both of which may result in under-estimating food insecurity. The first stems from using phones to reach people. Research shows that phone ownership is correlated with higher levels of food security¹⁵. In order to address the bias in telephone survey, WFP applied both face to face (f2f) and CATI tools where a total of 5,026 sampled households from 250 Primary Sampling Units (PSUs) representing from all ecological belts from all 7 Provinces based on probability proportional to size using two-stage cluster sampling were randomly selected and a survey conducted. However, in CATI another source of bias is from call failure. All calls may not necessarily result in a completed survey for several reasons. Some of these, such as the number not existing, or belonging to a business, do not result in bias but others, which could be related to food security or other outcomes- for example bad network connections which can occur in underserved areas of the country- may result in bias. Therefore, the bias using CATI can be addressed by applying hybrid method (i.e., f2f and CATI). Moreover, we used proxy wealth index to calculate sample weights instead of demographic weights in CATI to reduce bias. Both F2F and CATI data were merged into one survey to estimate the national level food security and vulnerability situation. However, the CARI (Consolidated Approach for Reporting Indicators of Food Security) approach used only f2f data where consumption modules were included in the survey to analyse the prevalence of food security.

¹⁵ Harman, P. 2020. "Sources of Bias in Mobile Phone Surveys in Developing Countries". Massey University.

Annex 2: Sampling Design

A nationally representative sample was constructed, with the survey domain of 7 provinces.

Table 1: Sample size by province in April 2023

Province	Number of interviewed households	Target sample
Province 1	1,840	1,810
Madhesh	1,789	1,776
Bagmati	2,604	2,617
Gandaki	1,355	1,181
Lumbini	1,769	1,745
Karnali	804	790
Sudurpaschim	1,131	1,081
Nepal	11,292	11,000

Annex 3: Household Characteristics

Table 2: Household socio-economic characteristics

Province	Ave. Age	Average HHs Size	Gender		Vulnerable households		Absentee HHs	Remittance recipient HHs
			Female	Male	Persons with disability	Chronically ill		
Koshi	42	4.91	19.1%	80.9%	5.2%	38.3%	27.7%	80.3%
Madhesh	41	6.12	16.7%	83.2%	9.9%	32.8%	32.9%	83.5%
Bagmati	41	4.77	18.8%	81.2%	6.0%	44.8%	23.5%	66.8%
Gandaki	42	5.07	21.3%	78.7%	6.2%	29.1%	36.5%	85.0%
Lumbini	40	5.17	24.9%	75.1%	8.0%	38.1%	29.9%	83.2%
Karnali	39	5.44	23.9%	76.1%	10.7%	30.6%	27.0%	79.1%
Sudurpaschim	38	6.09	15.0%	84.9%	5.4%	23.3%	28.7%	75.4%
Nepal	41	5.28	19.7%	80.2%	7.1%	36.2%	28.9%	79.0%

Table 3: Enrolment in social security allowance programme by province (April 2023)

Province	Yes	No	Senior citizen allowance	Single women allowance	Disability allowance	Endangered ethnic allowance	Child protection grant	Other
Koshi	29.1%	70.9%	80.0%	17.7%	3.4%	1.6%	0.0%	1.1%
Madhesh	30.8%	69.2%	61.5%	21.9%	3.9%	2.3%	25.9%	0.5%
Bagmati	27.2%	72.8%	80.5%	19.7%	2.6%	0.2%	0.2%	0.5%
Gandaki	32.8%	67.2%	81.8%	16.6%	3.6%	1.0%	0.0%	1.2%
Lumbini	30.3%	69.7%	72.6%	21.4%	3.2%	0.9%	4.8%	0.5%
Karnali	38.0%	62.0%	56.9%	23.2%	6.3%	0.0%	27.7%	0.0%
Sudurpaschim	30.6%	69.4%	66.6%	22.9%	3.4%	0.3%	10.5%	1.1%
Nepal	30.1%	69.9%	73.0%	20.2%	3.5%	1.0%	8.3%	0.7%

Annex 4: Food Security Indices

Food Consumption Score

The Food Consumption Score (FCS) is a proxy indicator for food security, and measures food diversity (the types of food consumed), food frequency (the number of days each food group is consumed over a reference period of 7 days), and the relative nutritional importance of different food groups by assigning weights to each food group^[1]. The higher the FCS, the better is the food consumption status of the household. FCS is calculated based on the past 7-day recall period and classifies households into three categories: poor consumption (FCS=1.0 to 28); borderline (FCS=28.1 to 42); and acceptable consumption (FCS=>42.0). Due to high consumption of oil and fat, raised threshold for food consumption groups was used.

Table 4: Thresholds for food consumption groups

Food consumption groups	Standard thresholds	Raised threshold
Poor	0 – 21	0 – 28
Borderline	21.5 – 35	28.5 – 42
Acceptable	> 35	> 42

Dietary Diversity Score

The Dietary Diversity Score (DDS) is a measure of the number of food groups (out of a total of eight) that are consumed by the households in the past seven days preceding the survey. The DDS will help measure the consumption of diversified foods with adequate macronutrients and micronutrients^[2]. Households that consume fewer than or equal to four food groups, out of 8, in the past 7-day reference period, are classified as low or poor dietary diversity.

Coping Strategy Index

The Coping Strategies Index (CSI) is a tool to measure the frequency and severity of the coping strategy that households employ when faced with a shortage of food or financial resources to buy food. The CSI is based on the many possible answers to one single question: “what do you do when you don’t have adequate food, and don’t have the money to buy food?” Reduced CSI is a sub-set of context specific CSI that uses a standard set of five individual coping behaviours which can be employed by households anywhere. The coping behaviours are as follows:

1. Eating less preferred food/ eating less expensive food
2. Reduced quantities consumed by adults/ mothers in favour of young children
3. Reduced portion of meals
4. Reduced number of meals
5. Food borrowed from friends and relatives

Livelihood Coping Strategies¹⁶

Livelihood Coping Strategies (LCS) are WFP's standard indicators for understanding the behaviour of households in meeting their immediate food security needs in the time of crisis or shock. LCS captures types of coping strategies households adopt during a crisis or shock and is measured using a 30-days recall period. The behaviours are classified based on the type of coping strategies adopted and the impact of a particular coping strategy on the longer-term productive ability. The specific coping strategies utilized in this survey were adapted to suit the country context. As such, the following three categories and corresponding coping actions were examined:

1. ***Stress livelihood strategies*** such as borrowing money or food from a formal/informal lender (e.g., banks and financial institutions, relatives, neighbours and local money lenders), sale of animals mainly non-productive, and sale of household assets or goods such as radio, furniture, refrigerator, television, jewellery etc.)
2. ***Crisis livelihood strategies*** such as harvesting immature crops and sale of productive assets such as agriculture tools, wheelbarrow, power tiller, sewing machine etc., and
3. ***Emergency livelihood strategies*** such as sale of productive animals such as milking cow or buffalo, sale of house or land, etc.

Annex 5: Household Wealth Index

Wealth is the value of physical, natural and financial assets owned by a household, and reduced by its liabilities. Wealth index is a composite index calculated from the key household ownership variables. It is used as a proxy indicator for household level wealth. Wealth index is often used in food security assessment, and it provides an idea of household's ability to access food, the severity of food insecurity and provides information about the economic situation of the food insecure. Wealth is commonly used in Demographic and Health Surveys (DHS) and Multiple Indicator Cluster Surveys (MICS) and ranks households into quintiles.

The method of constructing wealth index¹⁷ is first to select variables that helps understand the level of wealth of the households. Variables can be selected from the wider areas such as productive and non-productive assets, household amenities and others. Variables are often selected in local context which can help measure the level of wealth of households (see variables used to create wealth index in Annex 4: questionnaire). To create a wealth, Principal Component Analysis (PCA) was used and ranked into quintiles using sampling weights. The Wealth Index generated from this survey is presented in Table 5 below.

¹⁶ More details on livelihood coping strategies can be found in [WFP's CARI Guidelines](#).

¹⁷ For more details, see wealth index creation guidelines from [WFP](#) and [DHS](#).

Table 5: Wealth quintiles by province

Province	Lowest	Low	Middle	High	Highest
Koshi	21.2%	22.7%	18.3%	20.7%	17.1%
Madhesh	19.6%	23.5%	24.5%	18.6%	13.8%
Bagmati	9.5%	11.7%	16.1%	26.3%	36.4%
Gandaki	11.8%	23.1%	25.9%	24.0%	15.1%
Lumbini	17.1%	21.3%	23.1%	22.3%	16.2%
Karnali	53.7%	20.5%	12.1%	10.9%	2.7%
Sudurpaschim	40.5%	25.4%	15.0%	11.3%	7.8%
Nepal	20.0%	20.1%	19.8%	20.9%	19.1%

Annex 6: Consolidated Approach for Reporting Indicators of Food Security (CARI)

CARI is an approach used to aggregate different food security indicators into one index to report on population overall food security status. It is the final output of the CARI and presents the food security indicators into a summary table and distributes the percentage of population for each indicator based on a specific cut-off point. The CARI assesses availability and access to food through measuring the status of household consumption. The CARI measures the ability of a household to stabilize consumption over time by measuring the coping capacity through economic vulnerability and livelihood strategies.

As highlighted earlier, the two dimensions are assessed using a selection from four indicators, the combination of which produces CARI. Depending on which indicators are selected, a specific formula is used to determine the final food security outcome for each household which are: 1) Food Secure, 2) Marginally Food Secure, 3) Moderately Food Insecure, and 4) Severely Food Insecure. Description of the overall WFP food security classifications for CARI is presented below.

- Food Secure is the condition of being able to meet food needs without engaging in reduced and livelihood coping strategies for food security.
- Marginally Food Secure is a situation where the household has minimally inadequate food consumption, relies on reduced coping and applies stress coping strategies to secure food needs.
- Moderately Food Insecure is the condition that a household has food consumption gaps and unable to meet required food needs without applying crisis coping strategies.
- Severely Food Insecure is the situation of a household having food consumption gaps and unable to meet required food needs without applying crisis coping strategies.

Annex 7: Logistic Regression Analysis

The report applied the logistic regression technique which is commonly used to examine and describe the relationship between a binary response variable (e.g., ‘food secure’ or ‘food insecure’) and is often applied to analyse determinants of food security (Arene and Anyeji, 2010; Felker-Kantor and Wood, 2012; Joshi and Joshi, 2017). This model has the advantage of allowing the evaluation of multiple explanatory variables by the extension of the basic principles (Huffman, 2015). The logistic regression model is based on the cumulative logistic probability function that uses logistic cumulative density function as specified by Pyndick and Rubinfeld (1991):

$$P_i = F(Z_i) = 1 / (1 + e^{-(\alpha + \sum \beta_i X_i)}) \dots\dots\dots (1)$$

Where P_i is the probability that a household is being food insecure taken as dependent variable given X_i as

X_i is the vector of explanatory variables

α and β are the parameters to be estimated

e is the base of the natural logarithm

Logistic econometric model can be written in terms of the odds and log of odd for ease of interpretation of the coefficients. The odds ratio is the ratio of the probability that a household would be food secure (P_i) to the probability of a household not being food secure ($1 - P_i$). This can be interpreted as follows:

$$\frac{P_i}{1 - P_i} = e^{Z_i} \dots\dots\dots (2)$$

Taking with natural logarithm, equation (2) yields:

$$\ln\left(\frac{P_i}{1 - P_i}\right) = Z_i = \alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n \dots\dots\dots (3)$$

With taking into account of error term (ϵ), the logit equation becomes as follows:

$$Z_i = \alpha + \sum_{i=1}^n \beta_i X_i + \epsilon_i \dots\dots\dots (4)$$

The parameters of the logit model, α and β , can be estimated applying the maximum likelihood (ML) method.

Table 6: Logit estimates for the determinants of food security

Variables	HHs with inadequate food consumption	
	Coefficients	Marginal effects
HH size	0.003 (0.014)	0.0001 (0.001)
land (in hac)	-0.43*** (0.08)	-0.0.04*** (0.008)
Ratio of irrigated land	-0.47 (0.006)	-0.04 (0.006)
Remittance	-0.001** (0.00)	-0.001** (0.00)
HH disability	0.12 (0.10)	0.01 (0.01)
shock (1=yes)	0.35*** (0.06)	0.03** *(0.005)
Market access (in min)	0.001(0.001)	0.001(0.001)
Highest education of female member	-0.15*** (0.02)	-0.01* ** (0.001)
Head education	-0.304*** (0.02)	-0.03*** (0.001)
Head gender (1=male)	-0.07 (0.07)	-0.006 (0.006)
Livelihoods (1=single source, 0 otherwise)	0.26*** (0.07)	0.023*** (0.007)
Livestock (1=yes, 0 otherwise)	-0.44*** (0.07)	-0.04*** (0.005)
House type (1=concrete 0 otherwise)	-0.69*** (0.07)	-0.07*** (0.006)
Roof type (1=concrete, 0 otherwise)	-0.47*** (0.06)	-0.04*** (0.006)
Source of drinking water (1=safe, 0 otherwise)	-0.40*** (0.08)	-0.04*** (0.009)
Constant	100 (0.14)	

*** $p < 0.01$, ** $p < 0.05$, S.E. values are inside the bracket. For HHs with inadequate food consumption, values are in Wald-test and Pseudo-squared.

Annex 8: Acronyms

CARI	Consolidated Approach for Reporting Indicators of Food Security
CATI	Computer Assisted Telephone Interview
DDS	Dietary Diversity Score
DHS	Demographic and Health Survey
F2F	Face to face
FAO	Food and Agriculture Organization
FCS	Food Consumption Score
FIES	Food Insecurity Experience Scale
LCS	Livelihood Coping Strategies
MDD	Minimum Dietary Diversity
MICS	Multiple Indicator Cluster Survey
PCA	Principal Component Analysis
PSU	Primary Sampling Unit
rCSI	Reduced Coping Strategies
SDGs	Sustainable Development Goals
WFP	World Food Programme

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World Food Programme
Patandhoka Road, Chakupat-10,
Lalitpur 44600, Nepal