The Impact of COVID-19 on Households in Nepal

Fourth Round of mVAM Household Livelihoods, Food Security and Vulnerability Survey 2021

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Contents

List of Figures

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I. Highlights

In partnership with the Ministry of Agriculture and Livestock Development[1], WFP conducted the fourth round of the mVAM Household Survey in June 2021 with an aim to assess the impact of the second wave of COVID-19 crisis on livelihoods and household food security.

The result shows a marginal improvement in food security situation compared to 2020, however food insecurity remains slightly above the pre-COVID-19 levels. In June 2021, 15.4 percent of households had inadequate food consumption and 1 percent of households had poor dietary diversity. In comparison, based on the mVAM household surveys conducted in April and December 2020, 23.2 and 16.8 percent of households had inadequate diet, respectively, and in 2016 -before the COVID-19 crisis- it was 14.9 percent. [2] Similarly, 7.2 and 1.7 percent of households had poor dietary diversity in the April and December 2020 surveys, respectively. The nutrition situation of children between 6-23 months of age, measured by the minimum dietary diversity, has also improved in 2021, with the proportion of children not meeting minimum recommended dietary diversity dropping to 38.5 percent from 45.9 and 42.7 in April and December 2020 respectively.

On the other hand, nearly three times as many households reported to have insufficient food to meet their household's needs in June 2021 (7 percent), compared to December (2.5 percent). Additionally, the findings distinctly point out regional disparities and large differences in food insecurity across different provinces. Food insecurity remained high in Sudurpaschim and Karnali provinces, with 21.7 and 20.3 percent of households consuming inadequate diet, respectively, while 11.6 percent of households had inadequate food consumption in Bagmati Province. Food scarcity was also most prominent in Karnali, as reported by 12.8 percent of households; followed by Sudurpaschim (10.7 percent). Province 1 and Bagmati had the lowest prevalence- with 4.6 and 5 percent of households that had insufficient food to meet their household's needs. Continued dominant reliance on market purchase for household-level food sourcing was observed, with nearly 60 percent of household purchasing food for consumption, while 40 percent consumed food from their own production.

Despite the observed improvement in food security status, the 2021 survey demonstrates the unrelenting adverse effect of the COVID-19 crisis and the subsequent widespread disruptions on livelihoods of Nepalese households. In June 2021, 13.5 percent of households reported job loss and 44.6 percent a reduction in income attributed to the second wave of the COVID-19 in Nepal. This is more than a two-fold increase compared to December 2021, when 5 percent of households reported a job loss and 21 percent an income reduction. Job loss was most prevalent in Sudurpaschim Province (20.9 percent), followed by Lumbini (16.7 percent) and Karnali (16.4 percent). Income reduction was the highest in Province 2 (58.2 percent) and

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[1] The survey was conducted in cooperation with the Ministry of Agriculture and Livestock Development, with approval from the Food Security Cluster for assessment of COVID-19 impact on food security, livelihoods and vulnerability. The methodology and the survey tool was discussed and reviewed by the Ministry, FAO and Food Security Cluster members.

[2] The Annual Household Survey V 2016/2017, Central Bureau of Statistics

Gandaki (56.2 percent), followed by Lumbini (48.9 percent) and Karnali provinces (46.9 percent). Additionally, 10.9 percent of households adopted a negative coping behaviour to address food shortages, with coping strategies chiefly aimed at income generation. This is an increase compared to December 2020, when 7.4 percent of households adopted negative coping strategies.

Loss of income source due to COVID-19 crisis was found to be more prevalent for certain types of livelihoods such as tourism and daily wage labourers in farm and off-farm sectors. Likewise, reduction in income was more common for tourism sector, daily wage labourers in farm sector, large and medium businesses and trade, and small business and trade. The most severe income reduction was experienced by tourism sector, medium and large business, and trade and daily wage labourers in the farm sector, followed by small business and households receiving remittances. Likewise, relatively higher proportion of job loss and income reduction was found among households with a disabled and chronically ill household member.

Comparatively, food insecurity was more prevalent among certain types of income sources, primarily those relying on daily wage labour in farm and off-farm sectors and cereal based agriculture, together with cash and high value crops, and migrant workers. In line with findings from previous rounds, the same socio-economic characteristics were found to be associated with food insecurity status in June 2021 as in 2020. Households with low education levels, vulnerable households with a member with disability, female-headed households, and households living in rural areas were relatively more food insecure. Similarly, higher prevalence of inadequate food consumption was found among household in the lowest wealth quintile, compared to higher wealth quintile, as measured by household assets. The continued impact on job loss and reduction in income again led to worsening of food security: inadequate food consumption and food insufficiency were more common among households that reported job loss and income reduction, compared to households that did not experience job loss and income reduction.

The COVID-19 pandemic has also raised concerns among the population. Increase in food prices was the major concerns during the second wave of COVID-19 crisis as reported by 19.4 percent of respondents, followed by disruption of education institutions (18.5 percent), reduction in income (18 percent) and getting sick (15.1 percent). The survey shows that COVID-19 caused psychological stress for nearly 30 percent of respondents. On the other hand, safety risk for women and girls when accessing hospital/health centres, markets and workplace was reported by 3 percent of respondents.

Assistance to address the adverse effects of the COVID-19 crisis was received by nearly 3 percent of respondents, either from government or non-government organizations. The most common form of assistance was non-food items.

Regarding the primary health crisis, the survey found that more than 18 percent of respondents reported to have at least one family member sick since the start of the second wave of COVID-19 pandemic, of which 20.5 percent had a COVID-19 test. Of these, 33.7 percent were found positive. The survey results show that 30.4 percent of households reported to get COVID-19 vaccine. Out of them, 2.1 percent of respondents were vaccinated for all eligible family members, while 28.3 percent of respondents reported that some family

members were vaccinated. However more than 69 percent of respondents did not receive COVID vaccine at all.

While the survey findings signal an improvement in food security situation, a large proportion of population remains food insecure, household-level food scarcity has risen, and food security in areas that are chronically most vulnerable lingered at the same level or deteriorated, exposing profound regional disparities. The survey findings also give a palpable evidence of the augmented severity and reach with which the COVID-19 crisis has unrelentingly pressurized Nepalese livelihoods. More households have now been exposed to income cuts and job loss, and reductions have gained in severity. With dominant reliance of market purchase for food sourcing, increasing negative coping predominantly aimed at income generation, this raises concerns about households' ability to access food, and their overall capacity to withstand further shocks and precarious conditions.

Likewise, same types of households have consistently experienced more food insecurity since the beginning of the COVID-19 crisis. As such, the above-mentioned socio-economic characteristic and livelihood types may be considered as predictors of food insecurity and livelihood stress, with the expected further worsening if presented with shocks. The volatile economy and slow growth rate will likely continue to pressure livelihoods and income generation beyond the most vulnerable groups. Ultimately, this may lead to deepening of pre-existing vulnerabilities, as well as further broadening of exposure to other parts of the population that would be normally less vulnerable. Measures aimed at economic recovery, income generation and smooth access to food will be critical for mitigation of the adverse effects of COVID-19 on overall vulnerability of Nepalese households, deepening of vulnerabilities and creating newly vulnerable groups.

II. COVID-19 Impact on Households

Nepal has been ravaged by the second wave of COVID-19 in the second quarter of 2021 compared to the first wave of COVID-19 crisis in 2020, further exacerbating the pressure on food security and livelihoods in the volatile and vulnerable situation. The unprecedented challenges together with higher rates of human casualties caused by the second wave of COVID-19 have led to a greater risk to the vulnerable and poor people. Despite the higher severity of the second wave of COVID-19 and precautionary measures to curb the crisis, access to food and slow economic revival remain a concern as well as the overall impact of the crisis on households' food security and vulnerability.

Considering the prolonged COVID-19 crisis and the subsequent concerns about further worsening of household vulnerability, WFP conducted a nation-wide phone-based survey, with an aim to examine the multifaceted impacts of the continued COVD-19 crisis on food security, livelihoods, and vulnerability. Likewise, to provide insights relevant for programming and targeting, the survey presents an identification of household profiles that were relatively more affected by the ongoing crisis.

This is the fourth round of this survey since the start of COVID-19 pandemic in Nepal in March 2020, with three rounds conducted in 2020 (April, August and December). Building on the

experiences from the 2020 surveys, WFP increased the survey sample size to enhance precision of the estimates and more accurately identify the most affected household types. As such, 6,005 randomly selected households were interviewed in June 2021, covering all 7 provinces and producing a nationally representative sample. The questionnaire included standard WFP modules where possible, covering: i) demographics; ii) livelihood and income; iii) access to food and market; iv) food consumption; v) breastfeeding practices and diet diversity, vi) coping behaviors, and vii) health status and COVID-19 cases (further detail on methodology is presented in the following sections and in the Annex).

Impact on household food security

To measure the extent of the adverse effect the second wave of COVID-19 crisis over time, two dimensions were explored: (1) households' food consumption patterns and changes in food consumption habits, and (2) households' access to food, including the measurement of diet quality of children between 6 and 23 months of age, through assessing minimum dietary diversity.

Food consumption patterns

The Food Consumption Score[3] (FCS), a tool commonly used as a proxy indicator to assess the food security situation, is a composite score calculated on the basis of dietary diversity, food frequency, and the relative nutritional weight of different food groups which are categorized in 8 groups based on the food types and nutritional values. The FCS broadly categorizes households into three groups: poor, borderline, and acceptable food consumption. Poor food consumption corresponds to less than 1500 kilocalories (kcal) eaten per person per day. Generally, households with poor food consumption consume mainly staples, oil, and vegetables. This diet normally does not meet the recommended energy requirement, lacks essential micronutrients and is associated with chronic food insecurity and malnutrition. Borderline food consumption corresponds with energy intake of 1500-1800 kcal per person per day. In comparison, an average recommended energy intake is around 2100 kcal per person per day. Poor and borderline food consumption groups represent inadequate diets in terms of macro- and micro-nutrient requirements and are hence referred to as having inadequate food consumption.

The findings show that 15.4 percent of households had inadequate food consumption – with 1.5 percent of households having poor diets and 14 percent borderline diets. The food security situation since the first COVID-19 pandemic lockdown in 2020 has improved, as the proportion of households with inadequate food consumption in June 2021 was lower than in 2020 (see Figure 1). Likewise, the proportion of households with poor food consumption shows a gradual decline from the first round of the survey in April 2020, when 9 percent of households had poor food consumption to 1.5 percent in June 2021. Despite this improvement, the number of households with borderline food consumption remained relatively same as observed in April and December 2020. Moreover, the overall proportion of households with inadequate food

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[3] FCS uses information on food diversity, 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 to measure food security. It is a standard WFP indicator of household food insecurity.

consumption was slightly higher compared to four years ago- based on the findings from the Annual Household Survey V (2016/17)[4], 14.9 percent of households consumed an inadequate diet in 2016, which is 0.5 percent less households than in June 2021.

Figure 1: Food consumption groups in April and December 2020 and June 2021
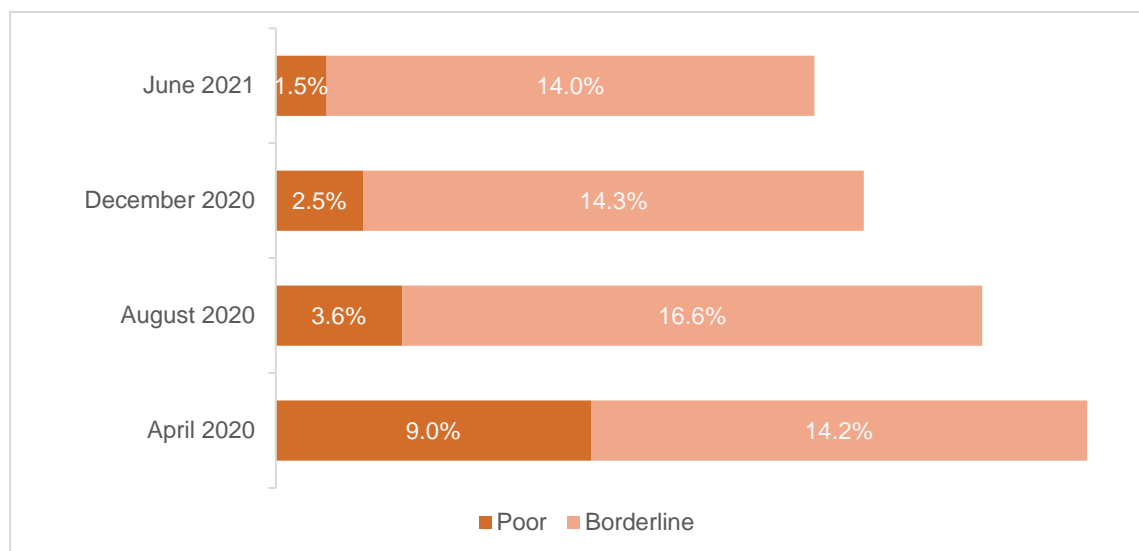
At provincial level, the food insecurity remained high in Sudurpaschim and Karnali provinces- the most chronically vulnerable provinces in Nepal. In June 2021, 21.7 and 20.3 percent of households in Sudurpaschim and Karnali had inadequate food consumption, which is 6.3 and 4.9 percent above the national average, respectively. In comparison to December 2020, the food security status deteriorated slightly in Sudurpashim where proportion of households with inadequate food consumption risen by 0.5 percent, and improved slightly in Karnali, with 21.2 and 24.1 percent of households consuming inadequate diet in Sudurpaschim and Karnali Provinces respectively.

The food security situation in Province 2 deteriorated in June 2021, compared to December 2020, with 0.97 percent more households with inadequate food consumption. However, food security situation in other Provinces improved in June 2021 with 1.5, 3.6 and 1.7 percent less households with inadequate food consumption in Province 1, Bagmati and Gandaki respectively.

The prevalence of food insecurity, as measured by poor food consumption, was found to be high in Karnali Province, accounting for 3.9 percent of households, followed by Sudurpaschim (2.5 percent), Lumbini (2.1 percent) and Gandaki (2.0 percent). Borderline food consumption was relatively more common in Sudurpaschim (19.2 percent), Province 2 (16.9 percent) and Karnali (16.4 percent), followed by Lumbini province (13.6 percent) and Province 1 (13.2 percent).

Compared to December 2020, poor food consumption levels increased in Lumbini province from 1.6 percent in December to 2.1 percent in June 2021; while other provinces recorded an

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[4] The Annual Household Survey V 2016/2017, Central Bureau of Statistics

improvement or remained same. Similarly, proportion of households consuming borderline diets increased in Sudurpaschim from 18.8 percent in December 2020 to 19.2 percent in June 2021, while it declined in the remaining provinces.

Figure 2: Food consumption group by province

Province	Poor	Borderline	Acceptable
Province 1	1%	13%	86%
Province 2	1%	17%	82%
Bagmati	1%	11%	88%
Gandaki	2%	12%	86%
Lumbini	2%	14%	84%
Karnali	4%	16%	80%
Sudurpaschim	3%	19%	78%
Nepal	1%	14%	85%

■ Poor ■ Borderline ■ Acceptable
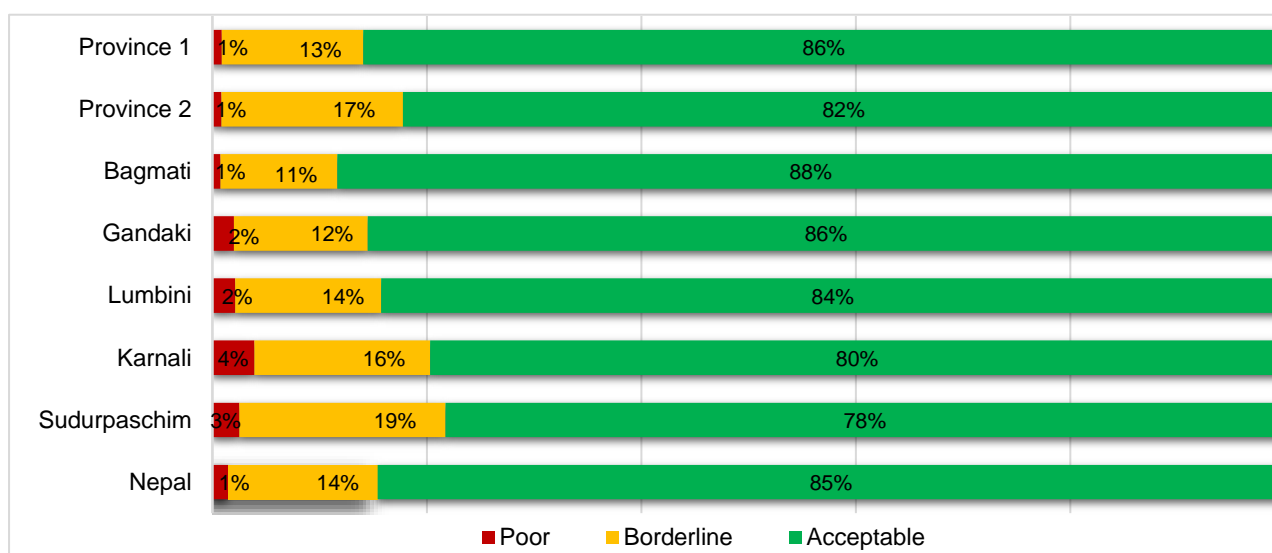
As FCS is a comprehensive measure of the overall diet quality, a simpler indicator (Dietary Diversity Score - DDS[5]), measuring the frequency of consumption of specific food groups provides useful insights into household dietary diversity. Dietary diversity score is also a better proxy for micronutrient intake compared to FCS.

Overall, the dietary diversity situation has improved in June 2021 compared to December and April 2020. The results presented in Figure 3 show that out of total 8 food groups, the surveyed households consumed on average 6.5 food groups during a 7-day recall period. Households with poor food consumption ate only 3.6. food groups on average, while households with borderline food consumption ate 5.2 food groups. Households that consumed adequate diets consumed 6.7 food groups on average, while it was 5.1 for those households consumed inadequate diets.

Overall, only 1.0 percent of surveyed households had poor dietary diversity – 0.7 percent fewer households than in December 2020 and 6.2 percent lower than in April 2020. Similar to Food Consumption Score, poor dietary diversity was found to be relatively higher in Sudurpaschim province, with 3.5 percent of households consuming a diet that does not meet basic diversity, followed by Karnali Province (2.8 percent).

Figure 3: Average days of consumption of food groups by province

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[5] See for details: https://docs.wfp.org/api/documents/WFP-0000007074/download/

	Cereals	Pulses	Milk	Meat	Vegetable	Fruits	Oil	Sugar
Province 1	7.0	5.5	3.5	1.2	6.5	2.1	6.9	3.7
Province 2	7.0	5.8	2.9	1.2	6.4	2.5	7.0	2.6
Bagmati	7.0	5.8	3.2	1.4	6.5	2.8	6.9	2.8
Gandaki	7.0	5.8	2.6	1.3	6.6	1.7	6.9	5.1
Lumbini	7.0	4.7	4.1	1.1	5.7	2.3	6.8	4.1
Karnali	7.0	4.9	3.3	0.8	6.0	1.6	6.8	3.2
Sudurpaschim	7.0	4.7	3.2	1.1	6.1	1.8	6.7	2.9
Nepal	7.0	5.4	3.3	1.2	6.3	2.3	6.9	3.4

■ Cereals ■ Pulses ■ Milk ■ Meat ■ Vegetable ■ Fruits ■ Oil ■ Sugar

The survey results show that the proportion of households consuming poor dietary diversity declined in June 2021 compared 2020 and 2016- with the proportion of households with poor dietary diversity declined from 5.3 percent in 2016[6] to 1.5 percent in June 2021. In terms of the overall diet diversity, household's average food consumption slightly declined to consuming 6.5 food groups in 2021 from 6.9 food groups in 2016.

Household-level food availability is often considered as a useful proxy indicator to assess household food security status. This indicator is particularly pertinent to measure food security situation during the COVID-19 pandemic and the subsequent widespread disruptions that adversely affected access to commodity markets – physical and economic. The survey therefore examined food sufficiency at household level, through asking whether households had adequate quantity of food to meet their basic needs during the recall period - in one week prior the survey. Given the above-mentioned implications of the COVID-19 crisis, this indicator offers valuable insights on the extent of the current precarious conditions on household vulnerability, particularly when combined with the reported reasons for insufficiency and impact on livelihoods.

More than 7 percent of households reported that they did not have sufficient quantity of food to meet their needs in the last 7 days. At provincial level, the highest proportion of households experiencing food insufficiency in the week prior to the interview was found in Karnali (12.8 percent), followed by Sudurpaschim (10.7 percent), Province 2 (9.5 percent) and Lumbini (7.3 percent).

Compared to December 2020, proportion of households reporting food scarcity more than doubled on average, rising from 2.7 percent in December 2020 to 7.1 percent in June 2021.

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[6] The Annual Household Survey V 2016/2017, Central Bureau of Statistics

The highest increase was recorded in Karnali, Sudurpashim and Province 2, as shown in Figure 4.

Figure 4: Reported food insufficiency by province by province, December 2020 and June 2021
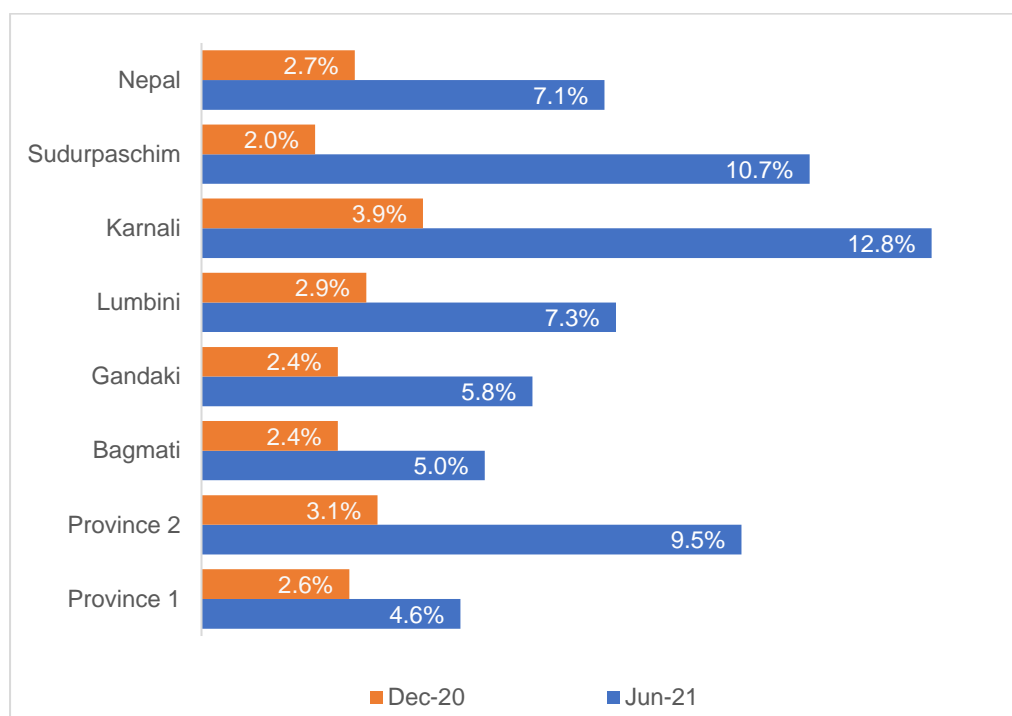
In terms of the reasons for experiencing food scarcity among those who reported food insufficiency, having no money to buy food was the most commonly reported reason (by nearly 49 percent of households), followed by inability to access markets or grocery stores (19.4 percent) and increase in prices of food commodities (11.7 percent), as shown in Figure 6. The most notable food shortages surfaced in Bagmati province with no money to buy goods as the main cause reported by 57.6 percent, followed by Karnali province with hindered access to markets (49.3 percent), and Province 2 with a food price increases noted by 22.8 percent of respondents.

Figure 5: Reported reasons for food insufficiency by province (among the 7.1 percent of households that reported food insufficiency) by province

Province	Shortage of food in the market \ grocery store	Increase in the prices of food	No money to buy food	No food in the house	Unable access to market/ grocery shop	Markets/ grocery shops are closed
Province 1	10.6%	8.5%	53.2%	8.5%	14.9%	4.3%
Province 2	22.8%	18.5%	52.2%	4.3%		2
Bagmati	12.1%	13.6%	57.6%	1.5%	10.6%	3.0%
Gandaki	11.4%	8.6%	57.1%	5.7%	11.4%	5.7%
Lumbini	5.8%	8.7%	44.9%	7.2%	26.1%	5.8%
Karnali		8.7%	34.8%	2.9%	49.3%	4.3%
Sudurpaschim	4.7%	6.3%	39.1%	3.1%	39.1%	7.8%
Nepal	11.1%	11.5%	48.9%	4.6%	19.4%	3.9%

These findings follow the trend observed in the December 2020 survey, as consistency in distribution of reporting the causes of household-level food scarcity is prominent for nearly all categories. One area- hindered access to markets- however shows an upward shift, rising from 12.9 percent in December 2020 to 19.4 percent in June 2021.The highest reported increase was noted in Karnali and Sudurpashim provinces, as shown in Figure 7. In addition to the COVID-19 related restrictions, this increase could also be a result of the monsoon-induced road obstructions that limit movement and physical access to markets.

Figure 6: Reported market access constraints December 2020 and June 2021
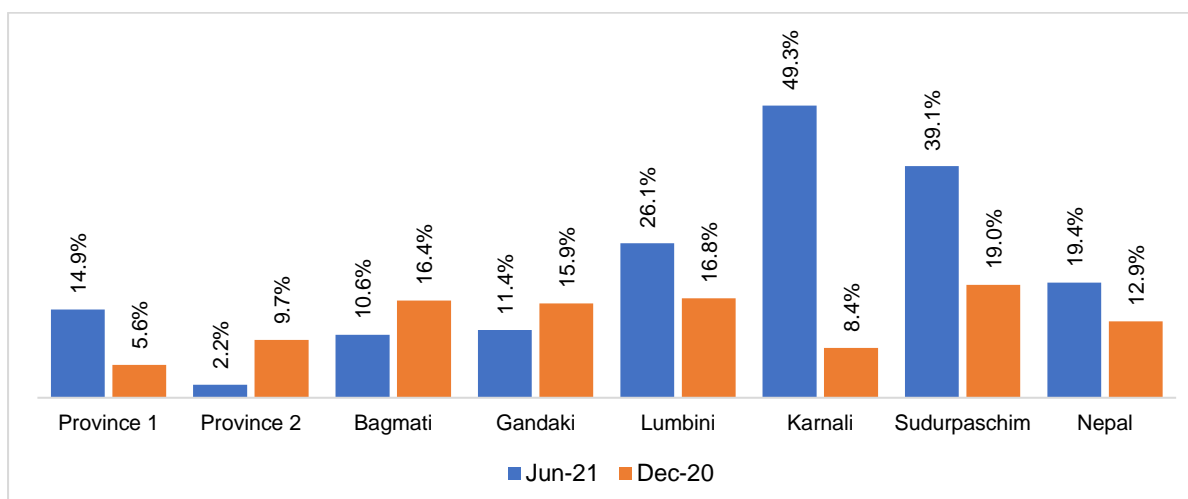
Overall, the observed decline in proportion of households consuming inadequate diet in June 2021 compared to December and April 2020, signals an improvement in the food security situation across Nepal. Nevertheless, the food security situation has not improved substantially, household-level food scarcity has risen, and food security in areas that are chronically most vulnerable lingered at same level or deteriorated.

The survey exposed the relentless adverse effects the COVID-19 crisis had on lives and livelihoods of Nepalese households, worsening the food security situation, and leaving a large part of population food insecure and vulnerable. The actual prevalence of food insecurity could be even higher than presented in this survey, due to the under-representation of the most vulnerable people who do not have access to phone. Additionally, more households are at risk of further deterioration of their food security status, primarily due to the unceasing effect of the COVID-19 crisis and the associated widespread disruptions, amplified by global commodity price fluctuations, and the monsoon-induced disasters. Given the worsening of the already precarious situation these households have been facing, this raises concerns about their food security status, potential acute food insecurity, and overall ability to cope with future shocks.

Household Coping Strategies

Reduced Coping Strategy Index (rCSI)[7] and livelihood coping strategies are often used to assess households' response to food insecurity and shocks, capturing changes in diet and behaviour that households adopted due to reduced access to food. This survey explored both coping approaches during two recall periods - first in the week prior to the interview for the rCSI, and 30 days for the livelihood coping, to gather more accurate insights about food and livelihood pressure households have been experiencing.

Overall, the findings show a nominal proportion of households (1.6 percent) adopting at least one coping strategy to address food shortages during one week before the interview. This could be due to better preparedness to tackle with the second wave of COVID-19 and the experiences from the first nation-wide lockdown in 2020.

A higher proportion of households -10.9 percent- reported to adopt at least one coping strategy in the last 30 days since the interview. This is relatively higher than in December 2020 where 7.9 percent of households adopted at least one coping strategy. Stress coping strategies such as borrowing money, selling households' unproductive assets and other household assets was adopted by 10.1 percent of households, followed by emergency coping strategies such as selling last female animal, or selling land and house, and crisis coping strategies, including harvesting immature crops and selling productive assets (each 0.4 percent) (see Figure 7).

At provincial level, the highest increase in livelihood coping was recorded in Gandaki province, followed by Sudurpaschim and Province 2 as shown in Figure 8.

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[7] rCSI measures the frequency and severity of the behaviour households engage in when faced with shortage of food.
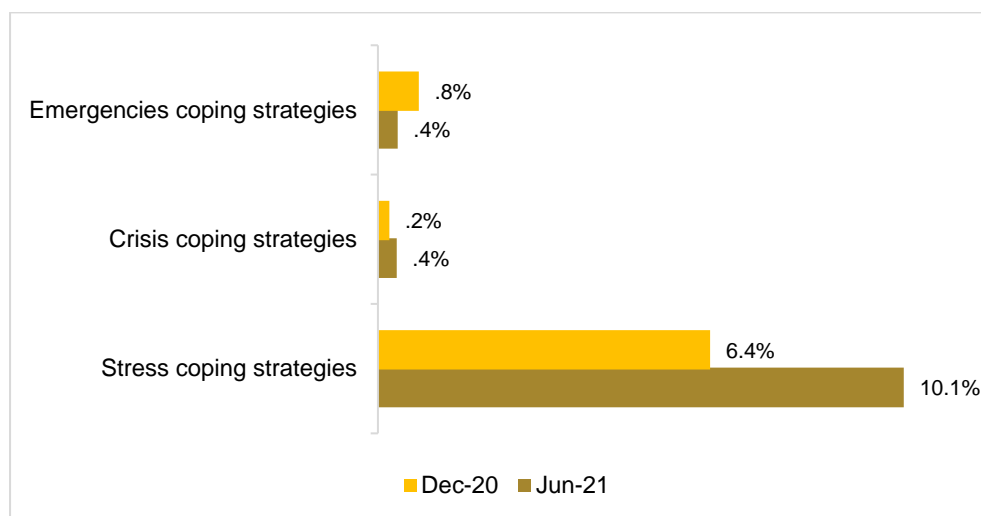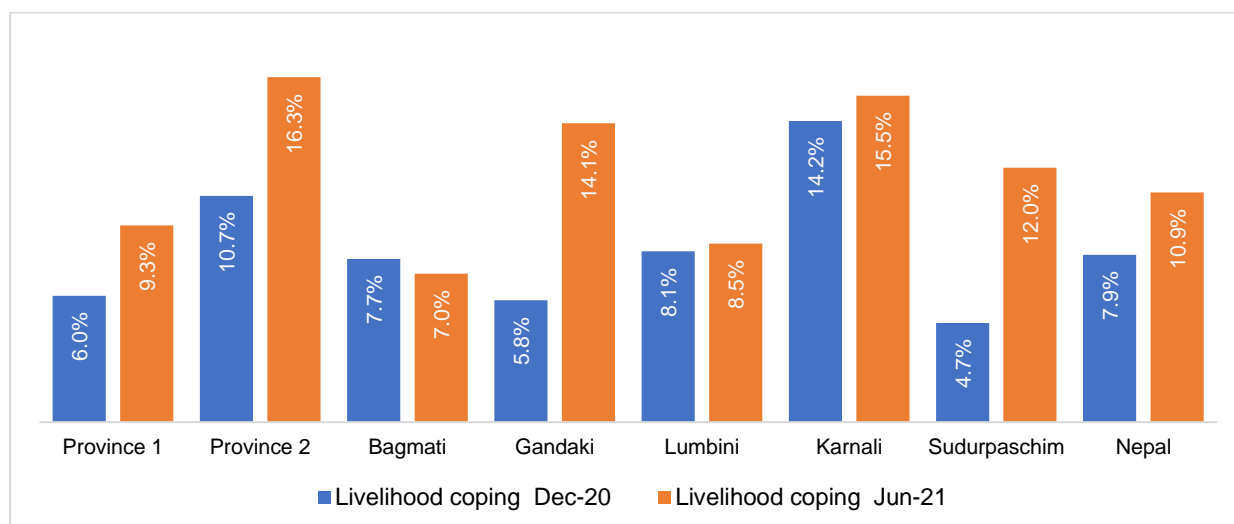
Diet Quality of Children between 6 to 23 months of age

Minimum dietary diversity (MDD), a proxy indicator to measure the dietary quality of children between 6 to 23 months of age for adequate micronutrient density of foods, measures the consumption of diversified foods. Without adequate diversity and meal frequency, children are likely to be vulnerable to malnutrition. Globally more than two thirds of malnutrition related child deaths are associated with inappropriate feeding practices during the first two years of

life[8]. The households surveyed were asked questions about the consumption of 7 food groups within the 24-hour recall period to those households with children between 6-23 months of age. A total of 620 children were reported to be aged between 6-23 months.

Overall, the findings from the survey show that 38.5 percent of children between 6 and 23 months of age did not meet the minimum recommended dietary diversity, slightly better than the results of Nepal Multiple Indicator Cluster Survey (2019[9]). Prevalence of children who did not meet minimum dietary diversity declined in comparison to the 2020 mVAM household surveys, where it was 45.9 and 42.7 percent in April and December 2020, respectively. At provincial level, Karnali Province had the highest prevalence of children whose diet did not meet the minimum diversity standard by 45 percent, followed by Sudurpaschim (43.4 percent) and Province 2 (42 percent).

The survey also asked questions about the change in breastfeeding practices and the results found that nearly 88 percent of respondents reported no change in breastfeeding practices, while 6.5 percent reported breastfeeding less often than usual, 3.2 percent stopped breastfeeding and 2.5 percent reported more often.

Access to Food

Access to food, as a major component in food security analysis, provides valuable information on household's ability to acquire food, and in turn on food security status. The households surveyed in this assessment were asked several questions related to food access – centred around sources of food consumption and household food stocks. Livelihoods and income, another essential element for gauging household's ability to obtain food was also examined and the results are presented in the following section.

More than 85 percent of respondents reported that they had food stock, while 14.9 percent did not have food stock at all (see Figure 9). Out of the households reporting food stock, nearly 36 percent had food stock for more than 1 month, about 25 percent for one month, 17.5 percent reported having food stock for 2-3 weeks and 16.1 percent reported food stock for one week, as shown in Figure 9.

At provincial level, the highest portion of households reporting no food stocks were in Lumbini (24.9 percent), followed by Karnali (16.4 percent) and Gandaki (13.4 percent). With the exception of Karnali province, food stocks were more common in provinces where the major source of household food consumption is own production, such as Sudurpashim and Province 2. On the other hand, provinces where majority of population relies on market purchase for their household food consumption had comparatively lower food stocks.

In comparison, proportion of households without food stocks declined substantially in June 2021 to 14.9 percent from 37.3 percent in December 2020. This could be a result of household preparedness measures, such as stockpiling, triggered by the second wave of COVID-19 crisis and the anticipated adverse effect on availability of goods and prices of commodities, as well as the preparedness for the monsoon season.
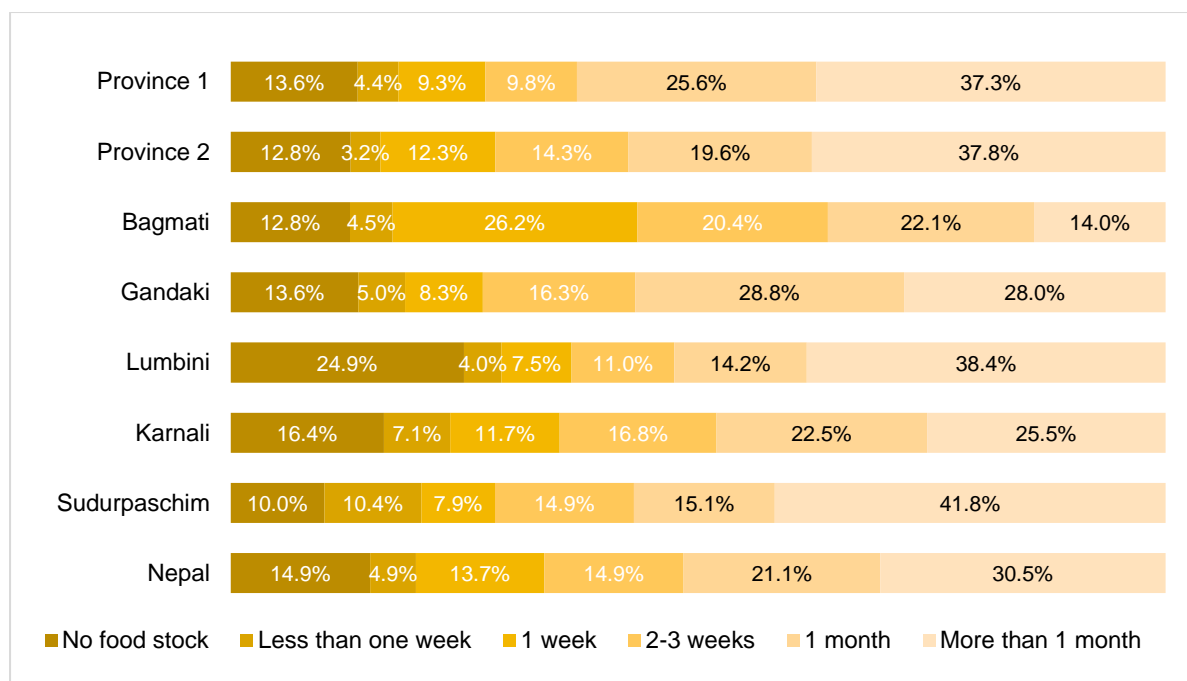
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[8] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5639776/pdf/12939_2017_Article_680.pdf
[9] https://www.unicef.org/nepal/media/9076/file/NMICS_2019_-_Key_findings.pdf

As the source of food for household consumption is an important aspect for assessment of food security situation, the question was asked about the major source of household food consumption. Overall, 59.3 percent of respondents reported acquiring food through market purchase, while only 40.5 percent reported consuming food from their own production (see Figure 10). Proportion of households sourcing food through gifts or assistance was nominal. At provincial level, relying on market purchase was more prevalent in provinces that are relatively more urbanized. For example, more than 80 percent of households reported to source food through market purchase in Bagmati, followed by Gandaki (62.7 percent) and Province 1 (61 percent). In contrast, sourcing food through own production seemed to be more prevalent in provinces where agriculture is relatively a more dominant livelihood - in Sudurpaschim and Province 2, with 61.2 and 56.1 percent of respondents relying on own production as source of food consumption respectively. Karnali Province had also relatively higher proportion of households relying on own production for household food consumption, accounting for 52.9 percent of population, followed by Lumbini province (44.5 percent).

Figure 10: Food source by province
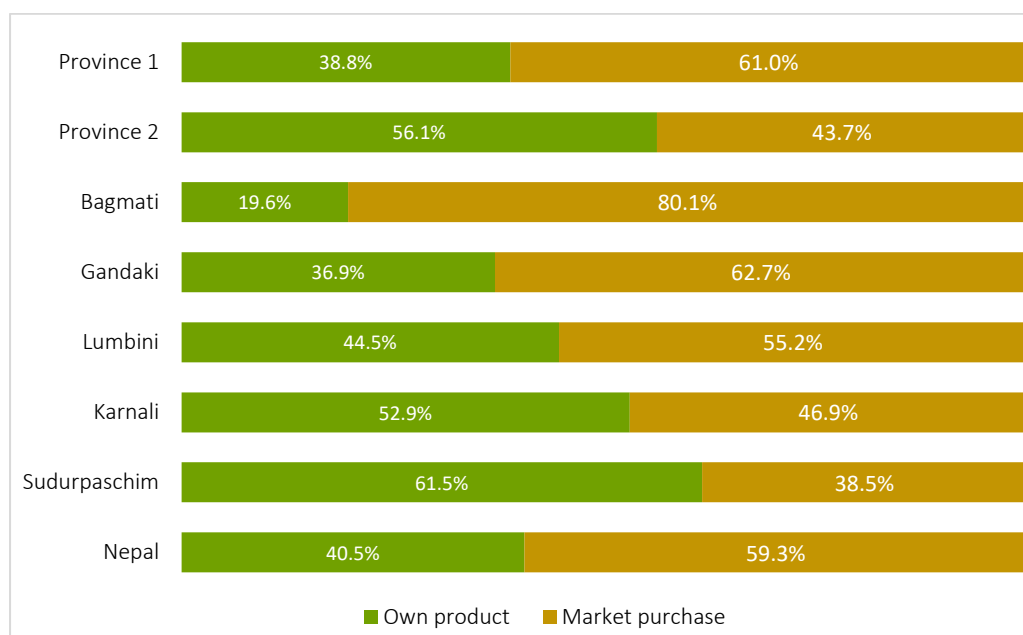
The prominent reliance on market purchase for household-level food souring exposes Nepalese households to greater risk of shocks that disturb economy, livelihoods, and markets. The findings in this survey confirm that over 10 percent of households adopted negative coping strategy in June 2021, predominantly to generate income. Access to food through better functioning and resilient food system and supply chain is critical for safeguarding food security status, particularly during the COVID-19 crisis that has had an unremitting impact on economy and in turn livelihoods as presented in the following section.

III. COVID-19 Impact on Livelihoods and Income

As a multi-dimensional crisis, the COVID-19 pandemic has had a far-reaching impact on human life, beyond the primary health crisis. The measures aimed at curbing the infection rate have led to subsequent widespread disruption to normal socio-economic activity, including livelihoods and income generation at household level. Given that livelihoods and income sources are central to assessing households' access to food as well as their vulnerability to shocks, the survey examines the effects of COVID-19 in this area. Despite the potential respondent bias (self-reporting and attribution of COVID-19 as a causal effect), the question about the impact of COVID-19 pandemic on household income and job opportunities could provide valuable insights to understand its effect and severity, particularly when combined with the current food security status described earlier.

On average, 44.6 percent of households reported a reduction in income in the last three months as presented in Figure 11. Out of these, nearly 12 percent reported severe loss in income due to COVID-19 crisis, while 28.6 percent reported moderate reduction and nearly 5 percent noted the income loss was small.
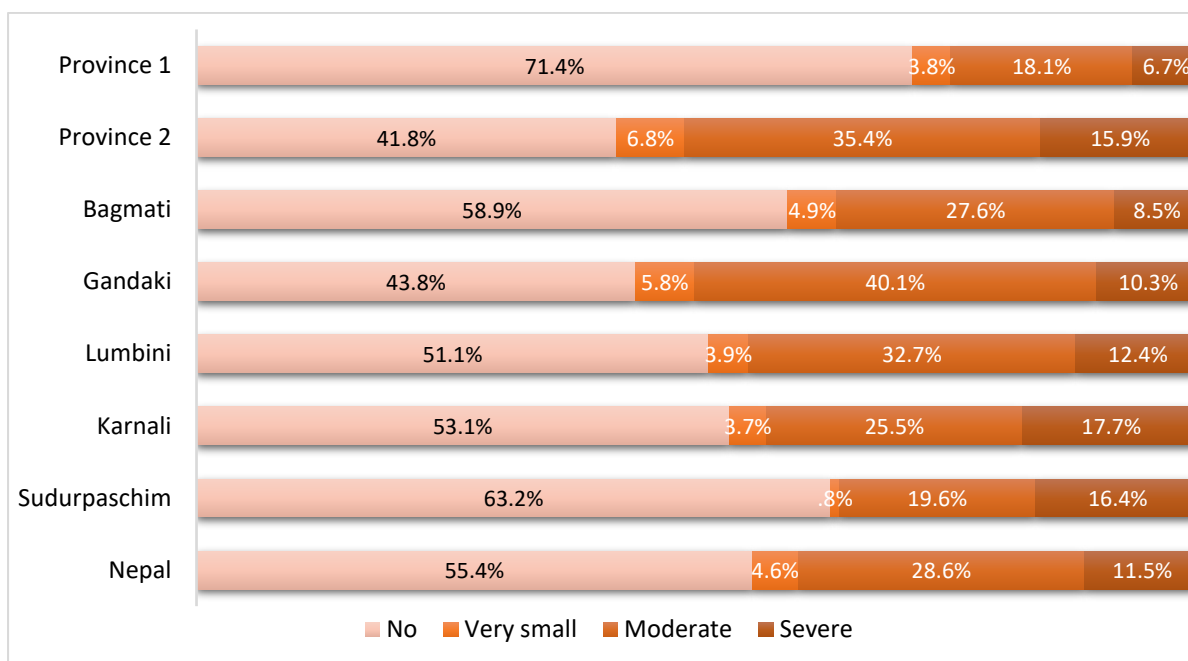
Figure 11: Impact of COVID-19 on income reduction at national level
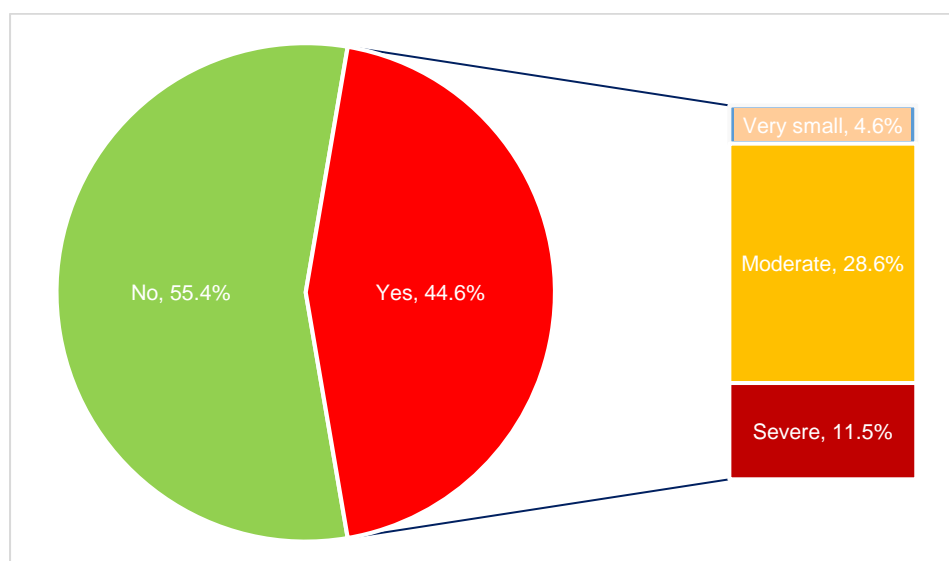
At provincial level, Province 2 had the highest proportion of households reporting reduction in income due to COVID-19 crisis (58.2 percent), followed by Gandaki (56.2 percent), Lumbini (48.9 percent) and Karnali (46.9 percent). On the other hand, Province 1 is the least affected province, with 28.6 percent of households reporting a reduction in income, followed by Sudurpaschim (36.8 percent) (see Figure 12).

The proportion of households reporting income reduction increased substantially- with more than a two-fold increase in June 2021, compared to December 2020. Similarly, severity of income reduction shows a worsening trend, as the proportion of households reporting severe (11.5 percent) and moderate (28.6 percent) income loss spiked in June 2021 compared to December (severe 5.3 percent; moderate 11.8 percent) and August (severe 11.1 percent; moderate 16.5 percent) 2020, respectively. This indicates that the second wave of COVID-19, together with first wave COVID-19 pandemic has negatively affected the livelihoods of households. This is in line with the observed increase in number of households resorting to stress livelihood coping strategies such as borrowing money or selling unproductive assets in June 2021 compared to December 2020.

Figure 12: Impact of the COVID-19 crisis on income reduction by province

Province 1	71.4%	3.8%	18.1%	6.7%
Province 2	41.8%	6.8%	35.4%	15.9%
Bagmati	58.9%	4.9%	27.6%	8.5%
Gandaki	43.8%	5.8%	40.1%	10.3%
Lumbini	51.1%	3.9%	32.7%	12.4%
Karnali	53.1%	3.7%	25.5%	17.7%
Sudurpaschim	63.2%	.8%	19.6%	16.4%
Nepal	55.4%	4.6%	28.6%	11.5%

■ No ■ Very small ■ Moderate ■ Severe

Overall, 14.5 percent of respondents reported losing at least one source of income in the last three months- 9 and 4 percent higher than December and April 2020, respectively. At provincial level, job loss was found to be high in Sudurpaschim province, with 20.9 percent of interviewed households reporting job loss, 16.7 percent in Lumbini, and 16.4 percent in Karnali, while loss of livelihood source was the lowest in Province 1 (7.4 percent), followed by Gandaki province (8.3 percent) (See Figure 13).

Figure 13: Impact of the COVID-19 crisis on loss of income source by province in April, August & December 2020, and June 2021

Province 1	7.4%		
		18.6%	
	4.4%		
	7.4%		
Province 2	6.0%		
		14.1%	
	6.8%		
	13.7%		
Bagmati	7.6%		
	10.6%		
	5.4%		
	14.2%		
Gandaki	5.4%		
	6.7%		
	4.2%		
	8.3%		
Lumbini		18.6%	
	7.6%		
	5.1%		
	16.7%		
Karnali	16.7%		
	7.7%		
	3.1%		
	16.4%		
Sudurpaschim	13.4%		
		19.3%	
	3.0%		
	20.9%		
Nepal	9.9%		
	11.0%		
	5.0%		
	13.5%		

■ Apr-20   ■ Aug-20   ■ Dec-20   ■ Jun-21
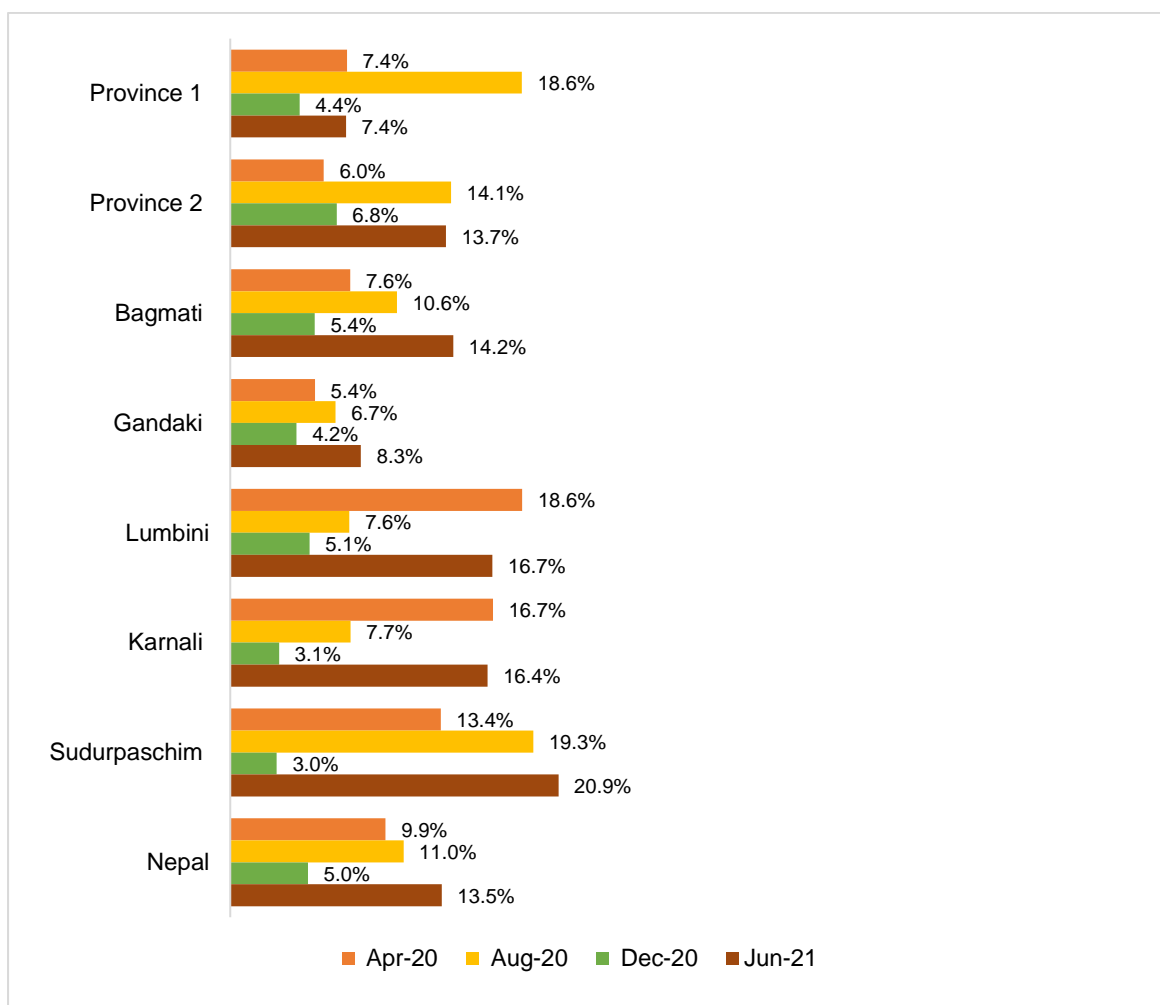
At national level, job loss showed a similar trend- an increase in the proportion of households reporting job loss in June 2021 compared to the 2020 findings. Likewise, job loss is aligned with the income reduction trend outlined above at provincial level- with the highest prevalence of job loss in Province 1 and Sudurpaschim as presented in Figure 13.

The survey findings give a palpable evidence of the augmented severity and reach with which the COVID-19 crisis has unrelentingly pressurized Nepalese livelihoods. More households have now been exposed to income cuts and job loss, and reductions have gained in severity. With prominent reliance of market purchase for food sourcing and increasing negative coping chiefly aimed at income generation, this raises concerns about households' ability to access food, and their overall capacity to withstand further shocks and precarious conditions. Ultimately, this could lead to deepening of pre-existing vulnerabilities, as well as further broadening of exposure to other parts of the population that would be normally less vulnerable. Measures aimed at economic recovery, income generation and smooth access to food will be critical for mitigation of the adverse effects of COVID-19 on overall vulnerability of Nepalese households -deepening of vulnerabilities and creating newly vulnerable groups.

Households with Inadequate Food Consumption and Income Loss at Province Level
June 2021

HHs Inadequate Food
Consumption (%)
- < 13%
- 14 - 15%
- 16 - 17%
- 18 - 20%
- > 20%

HHs Income Loss (%)
- < 29%
- 30 - 40%
- 41 - 45%
- 46 - 55%
- > 55%

Data Source: WFP Nepal Market Survey June 2021, Department of Survey, GoN.
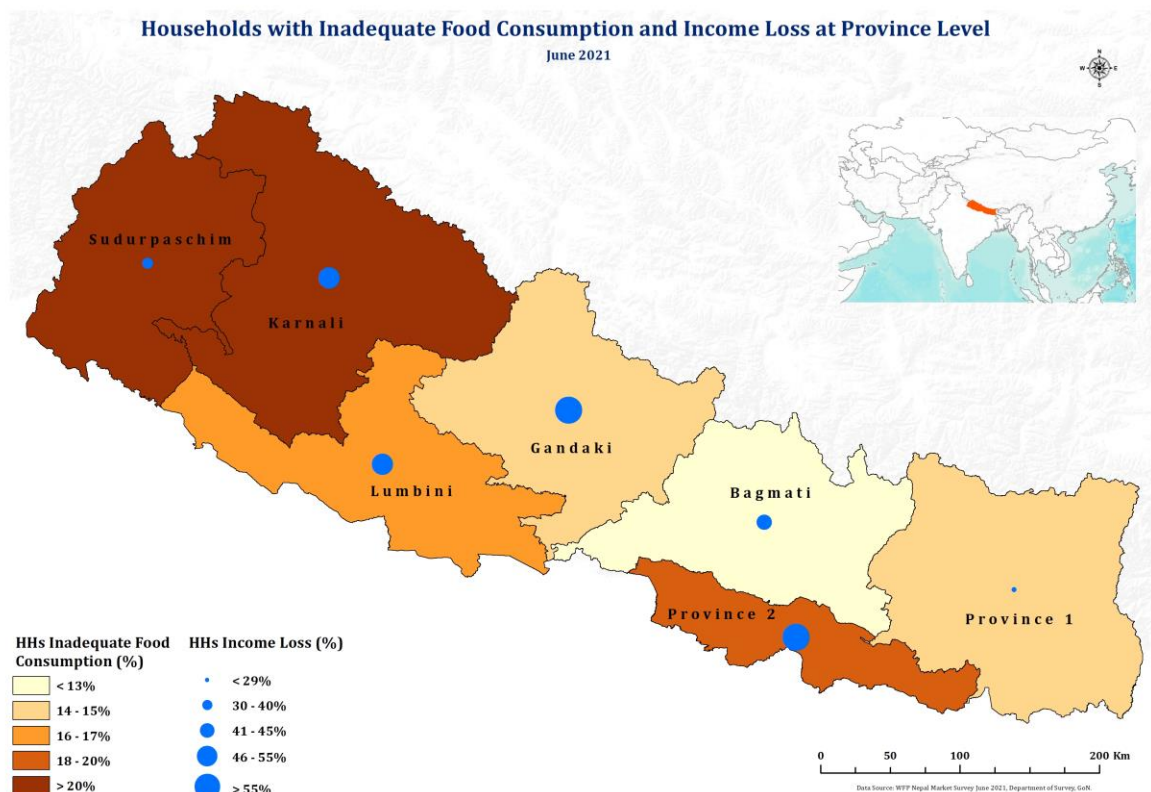
IV. Household Profiles of the Populations Most Affected by COVID-19

As discussed in the previous section, the COVID-19 crisis has many impacts on human lives and livelihoods due to prolonged crisis since March 2020. It is important to understand the varying type and scale of impact of the second wave of COVID-19 crisis on different types of households. Following the first to the third rounds of the survey in 2020, the impact of the COVID-19 crisis on specific livelihoods and household types was examined in this round as well, with a view to assess which types of households have been relatively more influenced by the COVID-19 situation over the period.
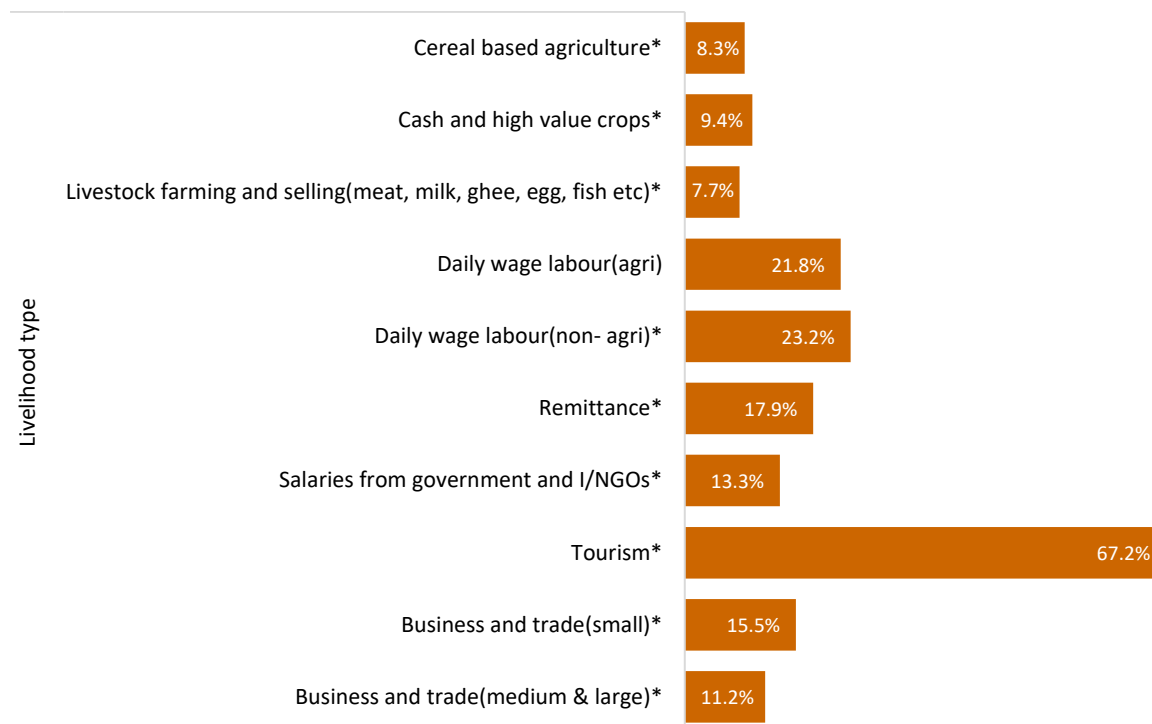
Livelihoods and Income

Since the first round of mVAM household survey conducted in April 2020, results are consistently showing greater impact of the COVID-19 crisis on certain types of livelihoods and households.

The loss of livelihood was most prevalent among those engaged in tourism sector (67.2 percent), daily wage labourers in off-farm sector (23.2 percent), daily wage labourers in farms (21.8 percent), followed by households relying on remittances (21.8 percent) and small business and trade (15.5 percent) as shown in Figure 14.

Households including a member living with disabilities were more likely to experience job loss (26.6 percent), compared to households without a disabled person (12.7 percent). Likewise, relatively higher proportion of households with chronically ill member reported job loss (17.8 percent) compared to households without a chronically ill household member (12.1 percent) as presented in Figure 15.

Figure 14: Loss of income source by livelihood type

Cereal based agriculture* — 8.3%
Cash and high value crops* — 9.4%
Livestock farming and selling(meat, milk, ghee, egg, fish etc)* — 7.7%
Daily wage labour(agri) — 21.8%
Daily wage labour(non- agri)* — 23.2%
Remittance* — 17.9%
Salaries from government and I/NGOs* — 13.3%
Tourism* — 67.2%
Business and trade(small)* — 15.5%
Business and trade(medium & large)* — 11.2%

* Livelihood types that showed a statistically significant association with job loss

Figure 15: Loss of income source by household categories

Chronic illness — Yes — 17.8%
Chronic illness — No — 12.1%
Disables — Yes — 26.6%
Disables — No — 12.7%
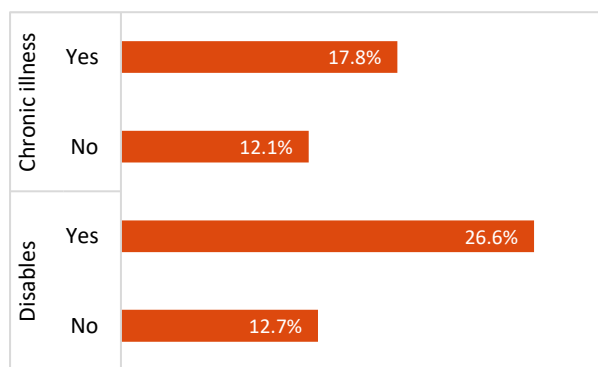
The COVID-19 crisis has had a greater adverse effect on certain sectors and livelihoods. The survey found a relatively higher prevalence of income reduction and job loss for tourism, trade and business sectors, and labour market. For instance, the largest reduction in income was observed among those engaged in tourism sector, with 91.5 percent reporting a reduction in income, followed by medium and large businesses (61.8 percent), daily wage labours in off-farm sector (60.4 percent) and small business and trade (58.2 percent).

Overall, the reduction in income was found to be more severe for households with relatively more volatile livelihood activities as well as sectors highly affected by the COVID-19-related disruptions. Out of those who reported reduction in income, adverse impact was notable for daily wage labourers in agriculture, with 44.4 percent reporting severe income loss, followed by daily wage labourers in off-farm sectors (42.2 percent), remittance recipients (35.2 percent) and cash and high value crops (27.6 percent) as shown in Figure 16.

Similar to job loss, households with a vulnerable member were more likely to experience reduction in income compared to household without a vulnerable family member. Income reduction was also more prevalent among households with disabled (58.2 percent) and chronically ill member (52.9 percent) than for households without a disabled (43.8 percent) and chronically ill member (42 percent), respectively, as presented in Figure 17.

The reduction and loss of income was widespread, affecting all wealth groups. Figure 16 shows a relatively even distribution of reported job loss and reduction in income, signalling the presumed wide-ranging pressure the crisis has generated. Households in second and middle quintile reportedly presented higher prevalence of income and job cuts, compared to other wealth groups.
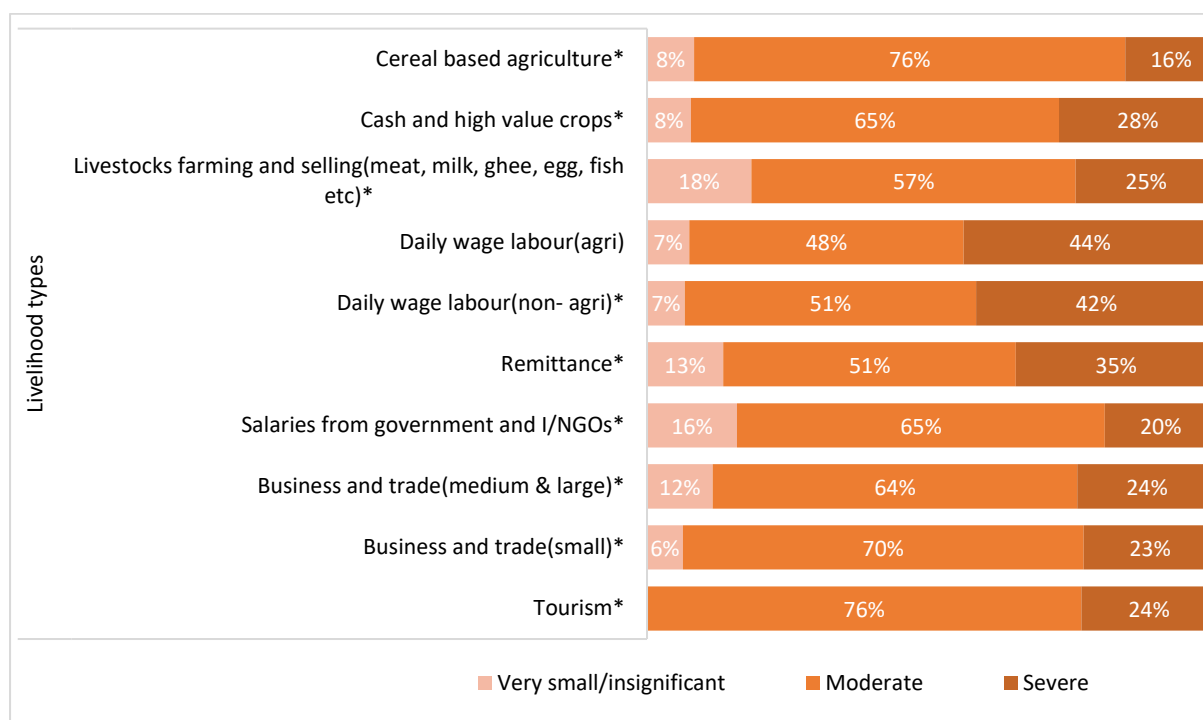
Figure 16: Reduction in income by livelihood type
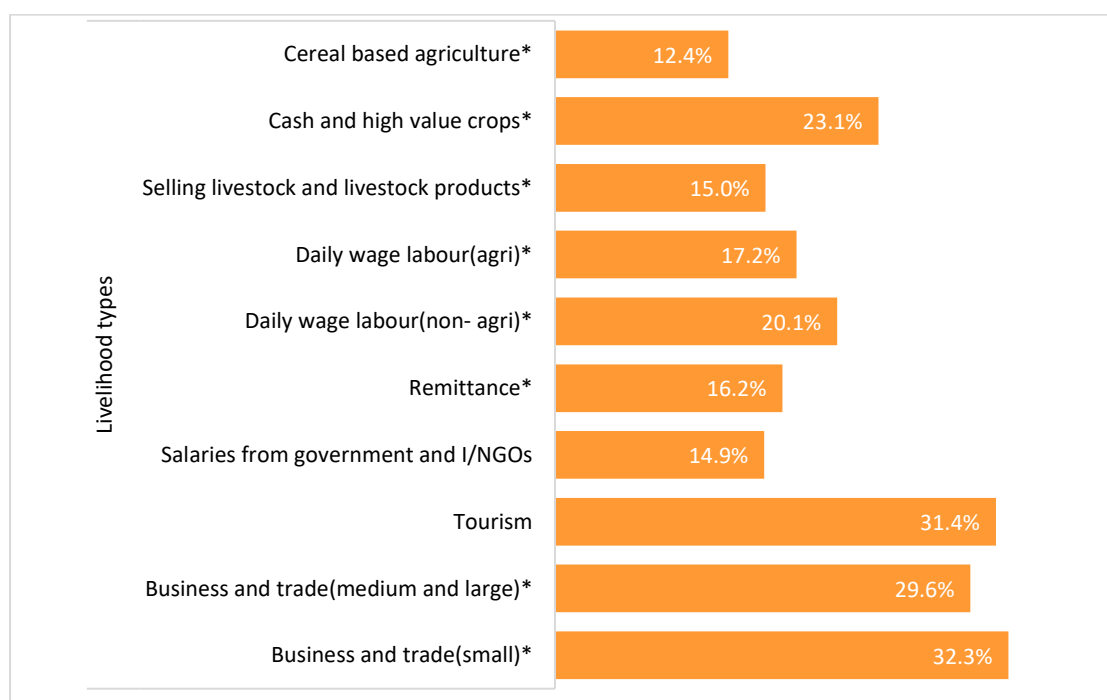
* Livelihood types that showed a statistically significant association with income reduction

Figure 17: Severity of income loss by livelihood type (among those who reported income loss)

Livelihood types	Very small/insignificant	Moderate	Severe
Cereal based agriculture*	8%	76%	16%
Cash and high value crops*	8%	65%	28%
Livestocks farming and selling(meat, milk, ghee, egg, fish etc)*	18%	57%	25%
Daily wage labour(agri)	7%	48%	44%
Daily wage labour(non- agri)*	7%	51%	42%
Remittance*	13%	51%	35%
Salaries from government and I/NGOs*	16%	65%	20%
Business and trade(medium & large)*	12%	64%	24%
Business and trade(small)*	6%	70%	23%
Tourism*		76%	24%

* Livelihood types that showed a statistically significant association with income reduction

Figure 18: Reduction in income by household type (among those that reported a reduction in income)

Chronic illness	Yes	52.9%
	No	42.0%
Disables	Yes	58.2%
	No	43.8%
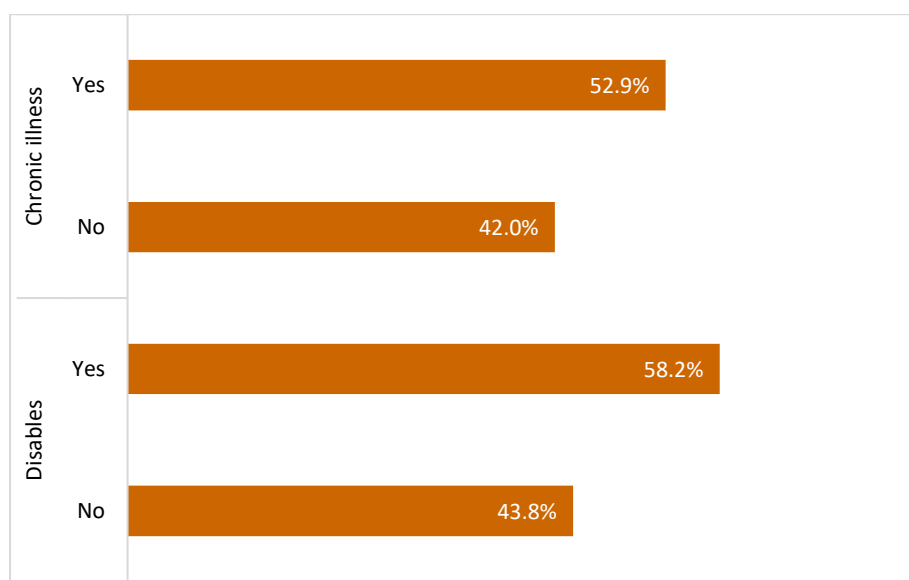
The overall findings from the surveys conducted to assess the impact of COVID-19 crisis distinctly point out that despite some improvement in food security situation, there is a continued pressure on income and jobs, exposing more Nepalese households to livelihood stress. The results of the four rounds of the household survey substantiate concerns about

greater adverse effect of the COVID-19-related disruptions on certain livelihoods, such as: tourism, daily wage labour both in farm and off-farm sectors, business and trade. Since the start of the first nationwide lockdown on 24 March 2020, and the subsequent widespread disruptions to normal economic activity, these households have faced unrelenting pressure on their income, a major source of food for most in Nepal. The second wave of COVID-19 in 2021 has further exacerbated the already precarious situation and led to far-reaching reductions in income at household level, affecting households across all wealth-quintiles. This can lead to a detrimental impact on these households' ability to access food, and on their underlying vulnerability to shocks. Likewise, households that remain resilient and in higher wealth groups can be pushed into lower quintiles and in turn into vulnerable position.

Food Security Status

Despite the observed improvement in food security in June 2021, a large proportion of households remained food insecure over an extended period of time, raising concerns about their capacity to cope and recover. As highlighted in the previous rounds of the survey, those with pre-existing vulnerability have been more severely affected in terms of their food security status. Identifying these households is therefore critical for an adequate and well targeted response, to ultimately minimize the risk of further deterioration of their food security status.

Assessment of food security status by wealth quintile[10] highlights economic access as a major factor contributing to food insecurity during the COVID-19 pandemic, with food insecurity prevalence increasing with lower wealth economic status of households and decreasing with higher economic status. For example, more than 33 percent of households who were in the bottom wealth quintile had inadequate food consumption, while it was only 2.4 percent for the wealthiest households, as shown in Figure 19. At provincial level, Province 2 had the highest proportion of households with inadequate food consumption in the lowest wealth quintile (43 percent), followed by Bagmati (38.7 percent) and Karnali (33.5 percent) as presented in Figure 20.

Figure 19: Inadequate food consumption by wealth quintile groups

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[10] Wealth index is calculated using an alternative method to use data on asset ownership and housing characteristics and combine this into a proxy indicator like wealth index, which is created using a Principal Component Analysis api/documents/WFP-0000022418/download/
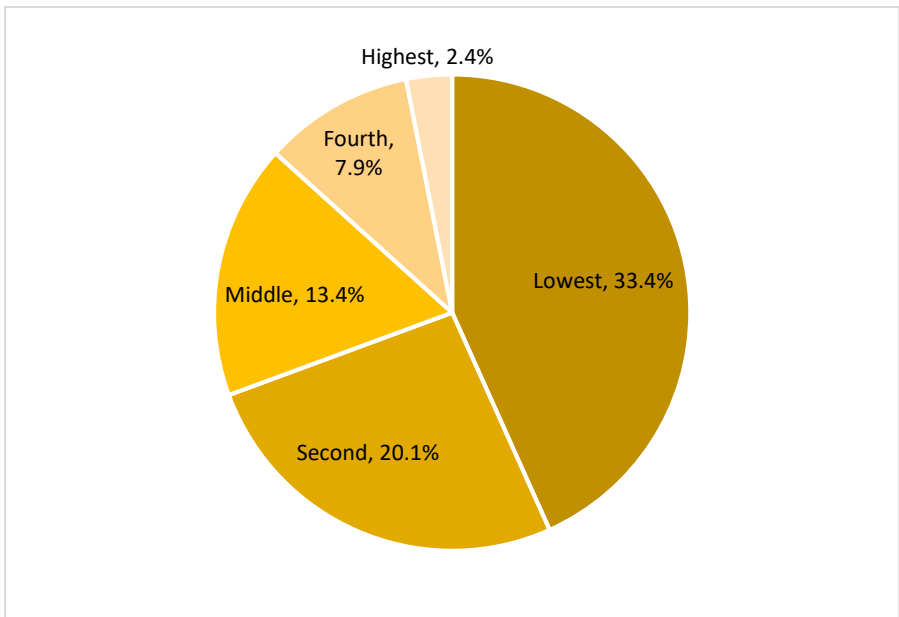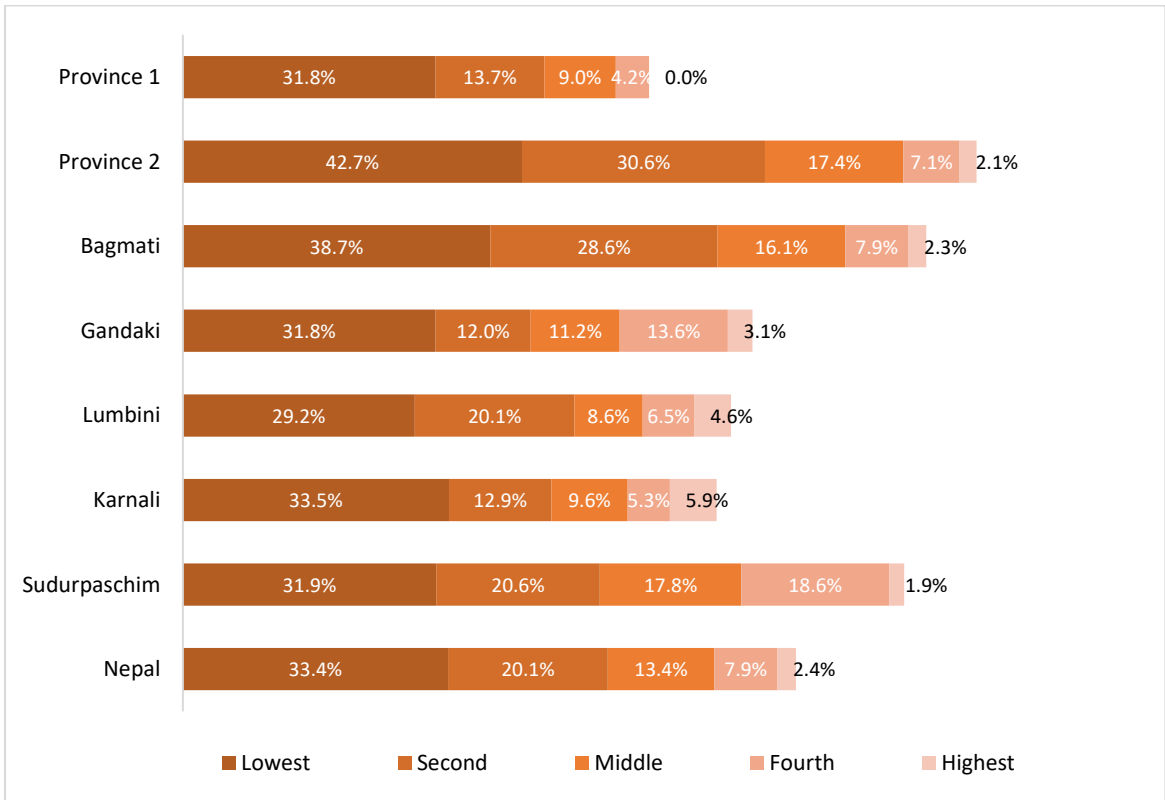
*Figure 20: Inadequate food consumption by wealth quintile groups*

The survey results show that food insecurity was more prevalent for certain types of income sources and level of livelihood diversification. Likewise, household's socio-economic characteristics and experience of income reduction of job loss were found to decisive for determining the food security status.

Education level of the household-head showed a strong association with household food security status. Nearly 23 percent of households with illiterate household head had inadequate food consumption, while it was only 10 percent for those with secondary and higher education level as shown in Figure 17. Dietary diversity shows a similar pattern - poor dietary diversity was prevalent among households with an illiterate household head (1.4 percent) compared to households with at least secondary education level (0.7 percent). Similarly, more households with illiterate household head reported insufficient food to meet their households needs (13.7 percent) than households with high education levels (4.7 percent) as presented in Figure 21.

Female-headed households were found to be slightly more food insecure than male-headed households. The result shows that 15.9 percent of female-headed households had inadequate food consumption compared to 15.3 percent of male-headed households. A more notable difference appeared for food insufficiency where 10.5 percent of female-headed households reported lack of food to meet the household's need. In comparison, this was 6.8 percent for male-headed households, as shown in Figure 21.

Figure 21:: Household food insufficiency by gender, area, education level of the household head and vulnerability
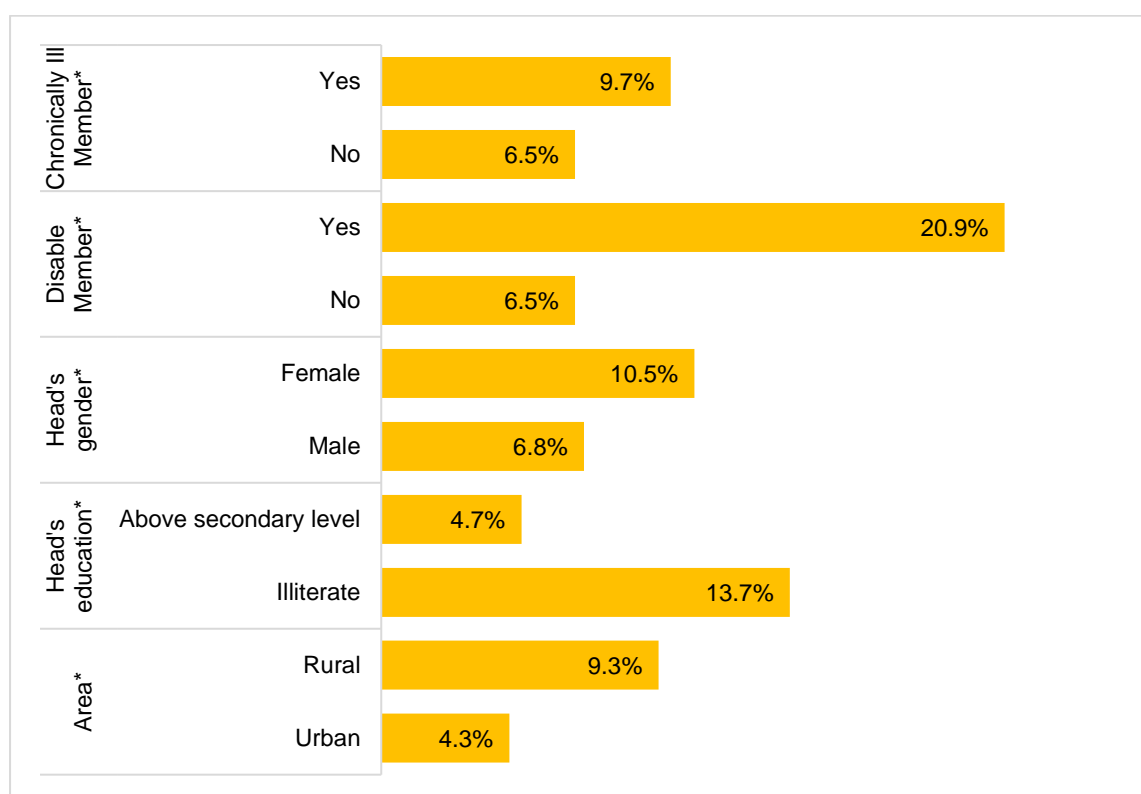

*These household characteristics showed a statistically significant association with household food insufficiency

In terms of dietary diversity, there was a nominal difference - poor dietary diversity was found among 1.2 percent of in female-headed household and 1 percent of male-headed household.

The prevalence of food insecurity is found to be higher among vulnerable households. For example, the proportion of food insecurity, as measured by inadequate food consumption, in the households with a disabled member was 17.4 percent, compared to households without a disabled member (15.3 percent). However, households with a chronically ill member had relatively lower proportion of inadequate food consumption (12.7 percent), compared to without chronically ill member (16.3 percent). Reported food insufficiency shows similar trend, with more households with disabled and chronically ill member facing food scarcity than those without a member with pre-existing vulnerability, as presented in Figure 22.

Figure 22: Inadequate food consumption and poor dietary diversity, by gender and education level of the household head
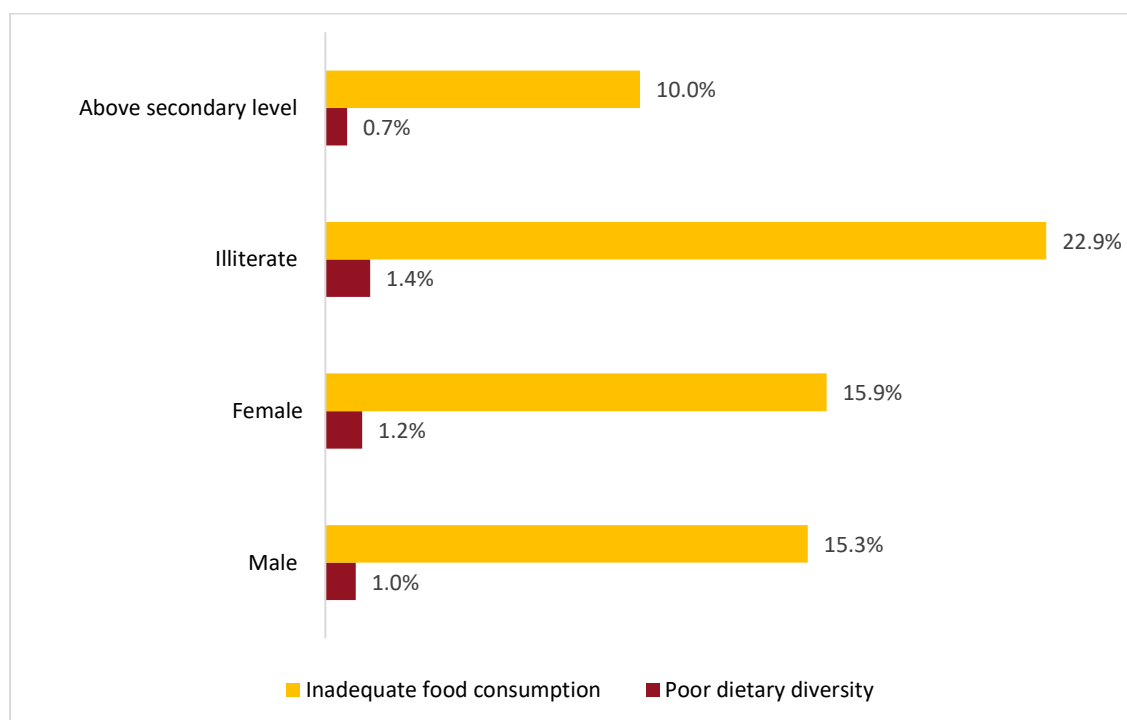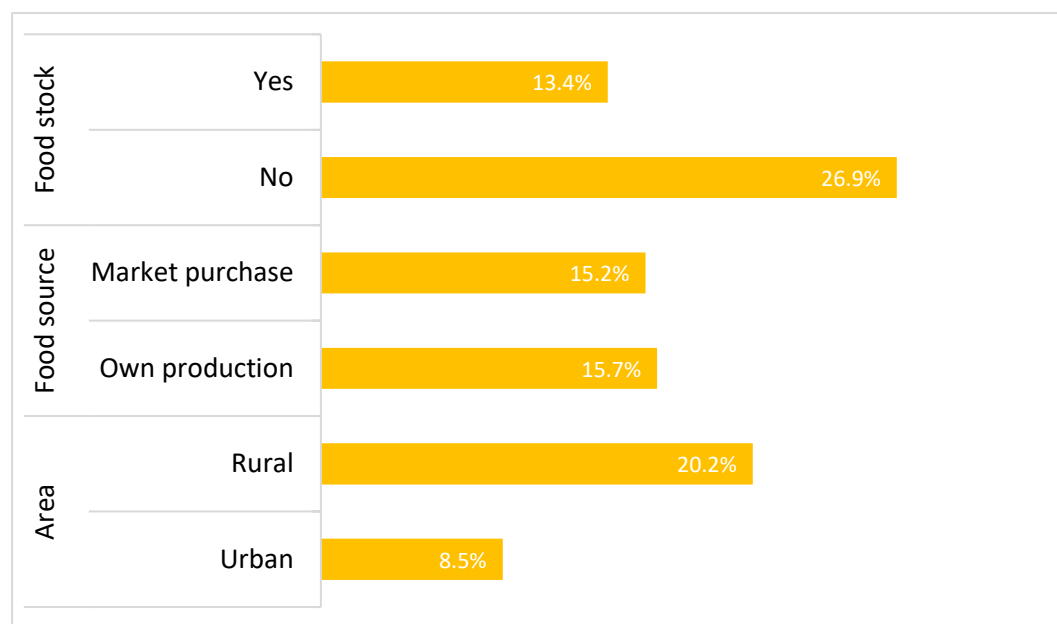

Likewise, higher prevalence of food insecurity was found in rural areas (20.2 percent) compared to households residing in urban areas (8.5 percent), both in terms of inadequate food consumption and lack of food to meet household needs as presented in Figure (21 and 23).

In line with the findings from the previous rounds, type of food source had no impact on household food security status. The prevalence of food insecurity, as measured by inadequate food consumption, was comparable for households that source food through own production (15.7 percent) and households that rely on market purchase (15.2 percent).

However, a significant difference was found for households who reported to have food stock (13.4 percent), compared to households without any food stocks (26.9 percent). The difference

was higher in April, but it was small difference in December 2020. The higher difference of the prevalence of food insecurity in relation to household food stock seems to be common during the relatively more stringent COVID-19 lockdown and lower during the ease of lockdown. This is likely a result of a better capacity of wealthier households to stockpile food prior to ` `lockdown compared to poorer people who might not be able to obtain food in larger volumes.

Figure 23: Households with inadequate food consumption by type of food source, food stock and area

Similar to socio-economic characteristics, there is a strong association between livelihood type and food security status, with higher prevalence of food insecurity among households that rely on less sustainable and volatile livelihoods. For example, the proportion of households consuming inadequate diet was more than two times higher (21.8 percent) for households with volatile livelihoods than for households with sustainable livelihoods (9.7 percent) for such as salaries from government and non-government sectors, trade and business (see Figure 24).

In terms of specific sectors, the findings of the survey conducted in June 2021 show that the second wave of the COVID-19 crisis has had the most profound impact on daily wage labourers, both in farm and non-farm sectors. Households with these volatile income sources show a strong association with higher prevalence of inadequate food consumption- the highest proportion of households with inadequate food consumption was found among daily wage labourers (in non-farm 35.2 percent and farm 34.7 percent), followed by cereal-based agriculture (16.8 percent), households relying on tourism sector (15.8 percent) and cash and high value crops (15.7 percent).

Figure 24: Inadequate food consumption by livelihood type
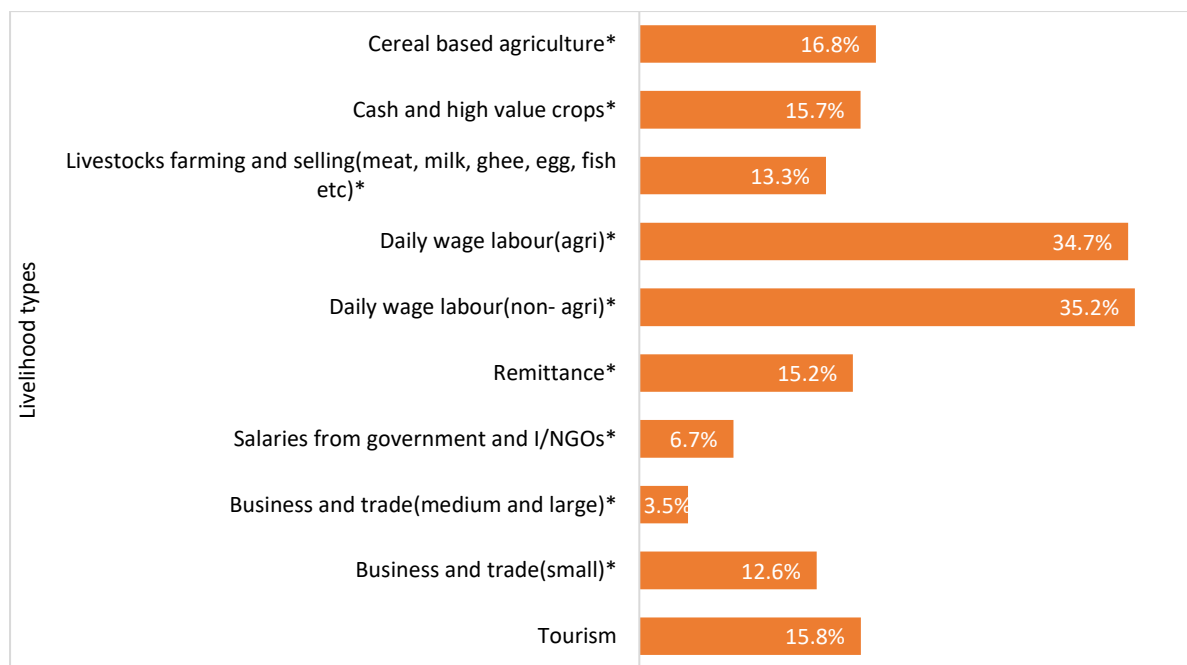
*These livelihood types showed a statistically significant association with food consumption

Consistently with findings from the previous rounds of the survey, income and job loss adversely affected households' food security status. Households that experienced job loss and reduction in income were found to be more food insecure, compared to households that did not, as presented in Figure 20. Food insecurity among those that reported job loss was substantially higher (24 percent) than among those who did not (14.2 percent). Similarly, food insecurity was more common among households that reported a reduction in income caused by the COVID-19 crisis. More than 19 percent of households who experienced some reduction in income had inadequate food consumption, while 12.5 percent of households that did not experience reduction in income consumed inadequate diet.

Likewise, the results from the survey show that more than 13 percent of households that experienced job loss due to the second wave of COVID-19 crisis reported insufficient food stock at home to meet the need, compared to 2 percent of households that did not report job loss (see Figure 26). The same trend was found for reduction in in income, with 22.5 percent of households whose income decreased reported lack of food to meet their household's need, compared to 4.7 percent of households who did report reduction in income. These findings highlight the profound effect the COVID-19 crisis on household ability to obtain sufficient food stock to meet their households needs; particularly through the prolonged pressure the crisis has been putting on households' livelihoods and income.

Figure 25: Inadequate food consumption by COVID-19 impact on livelihoods
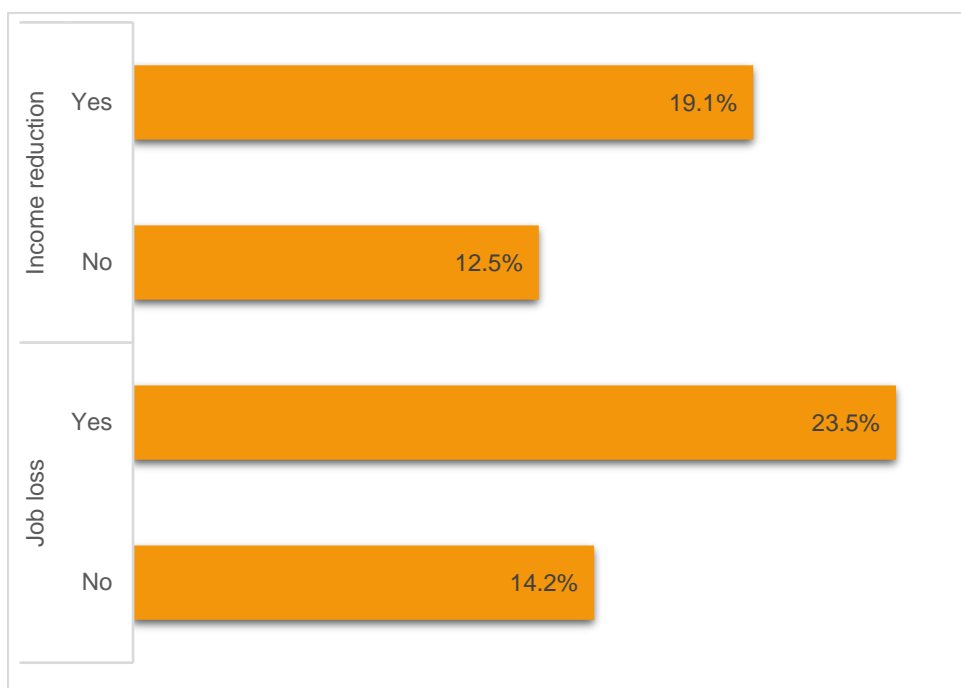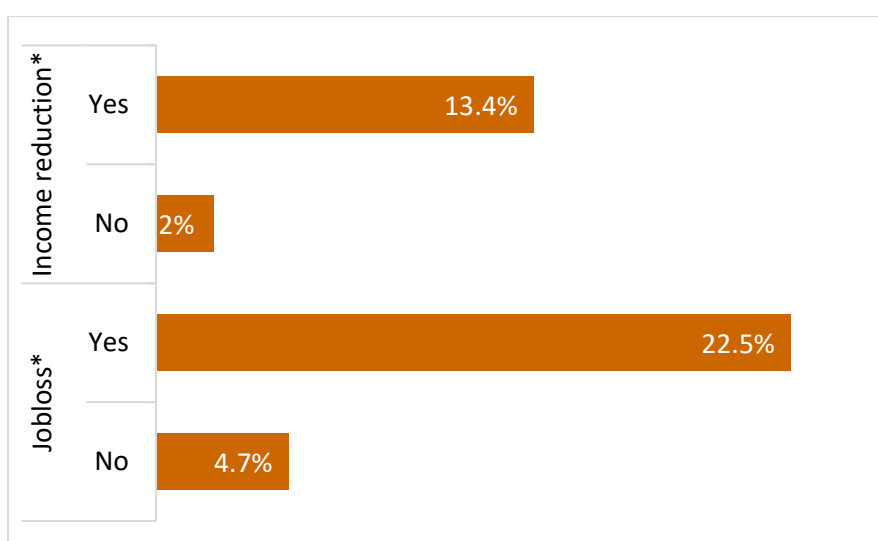
Figure 26: Household food insufficiency by the loss of job and income (among those that reported an insufficient food stock)

* Household food insufficiency showed a statistically significant association with job loss and income reduction

The findings from the June 2021 survey confirm that the widespread disruptions caused by the COVID-19 crisis has had an unremitting negative impact on lives and livelihoods of the Nepalese households, even during the relative easing of the primary health crisis. The far-reaching pressure that the crisis has produced on income generation, affecting broad range of livelihoods that are normally less vulnerable, has resulted in food insecurity. This is particularly notable for households with pre-existing vulnerabilities; poor households in the lowest wealth quintiles, illiterate households, households with a member with disability, rural

households and those reliant of volatile livelihoods. The food security of these households, already exposed to precarious conditions prior the crisis, has worsened. Further pressure and shocks can be detrimental for them, as the multi-faceted vulnerability is deepening, and their resilience is at risk. Likewise, the sustained economic slowdown will likely continue to pressure livelihoods and income generation beyond the most vulnerable groups. As the findings point to higher prevalence of income cuts among the second and middle wealth quintiles, these households can be pushed into lower quintiles. With the prolonged exposure to these adverse conditions, dominant market reliance for food sourcing, coping capacity of these households is therefore also at risk and can lead to amplified vulnerability and higher food insecurity.

Major Concerns During the COVID-19 Crisis

As the COVID-19 pandemic has had a multi-faceted and widespread impact on various sectors, the survey examined households' major concerns related to the COVID-19 pandemic. The results demonstrate that the major concern reported by the respondents was increase in food prices (19.4 percent), followed by disruption of education institutions (18.5 percent), reduction in income (18 percent) and getting sick (15.1 percent). This signals that the secondary crisis and the far-reaching disruptions are more concerning than the perceived primary medical crisis.

The impact of the COVID-19 crisis on agriculture sector, a major source of livelihoods for majority of people in Nepal, is of distinct interest to the researchers, planners, and the development community. As such, the survey investigated the key obstacles encountered during the COVID-19 crisis by households reliant on agriculture. This assessment confirms that a substantial part (37 percent) of the respondents is indeed engaged in agriculture as their primary livelihood. Nearly 14 percent of these encountered problems related to marketing of their products (See Figure 27). Among those who reported these problems, 58 percent considered transportation of goods, mainly vegetables and cash crops as a key problem,

followed by low demand in the markets (53.2 percent) and low price of their products (49.4 percent). At provincial level, the problem of transporting goods from farm to market was found to be high in Sudurpaschim province (77 percent), followed by Province 1 (64 percent) and Karnali province (63 percent percent), while most farmers (63 percent) in Province 2 reported a price decline for their products as the key concern. The reported problems related to low demand were more common in Lumbini (64 percent), followed by Sudurpaschim (63 percent), Province 1 (60 percent) and Karnali (58 percent). Around 16 percent of households noted that other problems such as lack of fertilizers, limited movement due to lockdown, and expensive agricultural inputs were also hindering the production and supply of food commodities to the markets.

Figure 27: Problems faced by households relying on agricultural production as a primary income source during the COVID-19 crisis
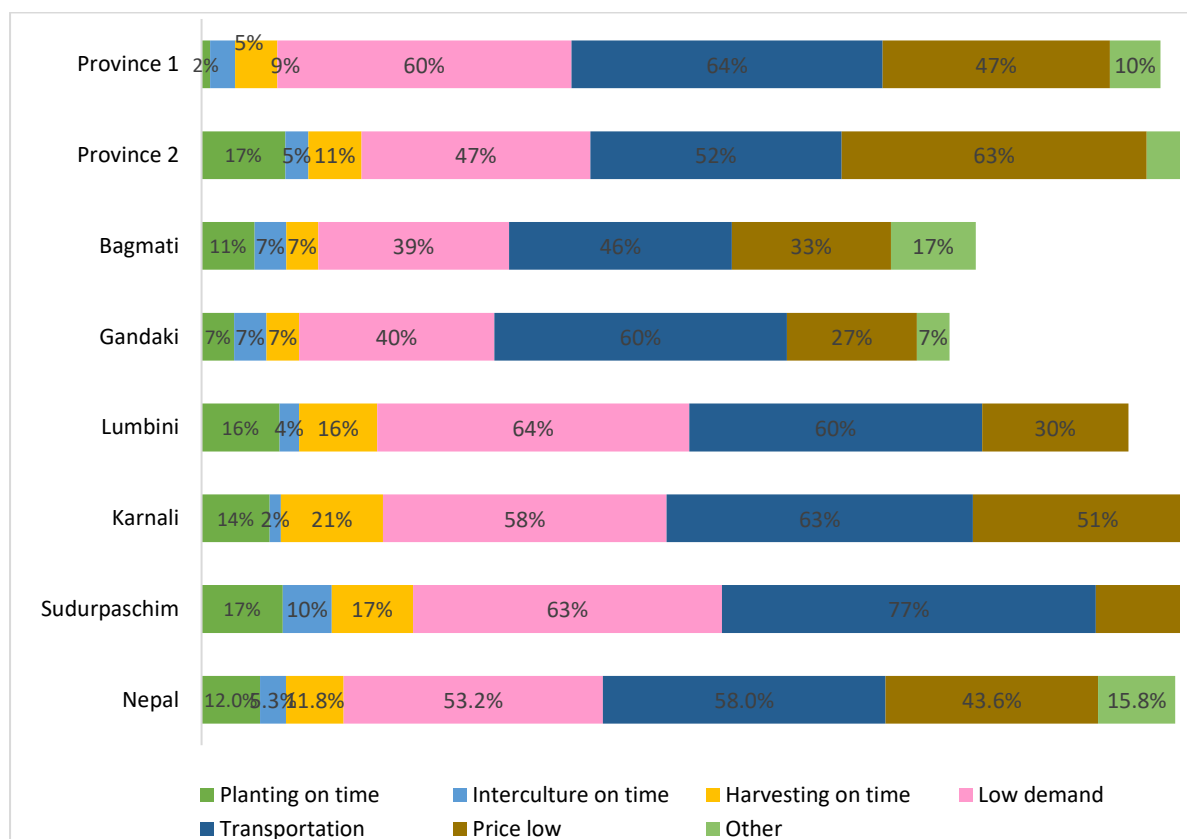

Support for the COVID-19 Crisis

Appropriate and well targeted response aimed at the primary health and secondary socio-economic crisis is vital for minimizing risks posed by the COVID-19 pandemic on lives and livelihoods of the Nepalese households. The Government of Nepal as well as other non-

governmental organizations and individuals have provided assistance to the most-affected households since March 2020, after the first nation-wide lockdown.

The survey result shows that about 3 percent of the interviewed households reported to receive some form of COVID-19 assistance either from the government or from non-governmental organizations during past three months since the survey was taken (See Figure 28). In-kind assistance, such as sanitation, masks or other health related materials, was the most common form of assistance as reported by 1.9 percent, followed by food (0.9 percent), while cash assistance was nominal.

Figure 28: The reported COVID-19 assistance
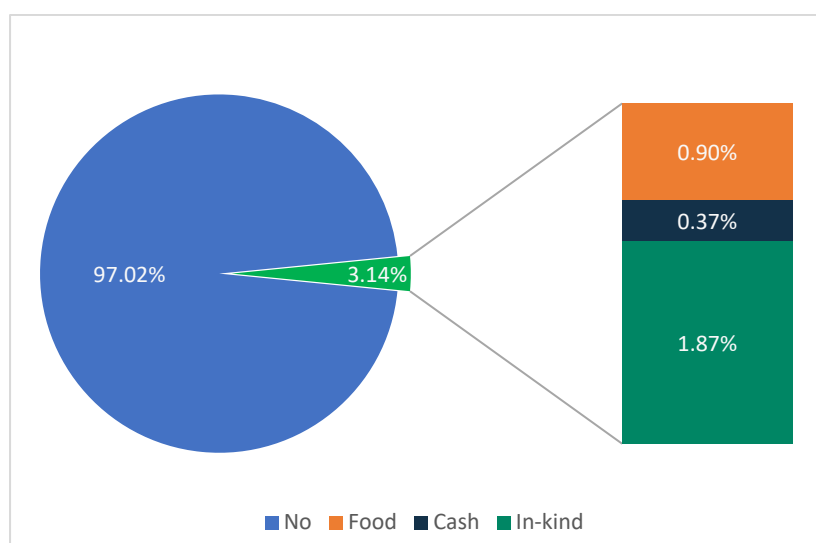
Compared to the first wave of COVID-19 crisis, proportion of households receiving some form of COVID-19 assistance was 6 percent lower in June 2021. Households that received some forms of COVID-19 assistance were relatively more vulnerable- such as households with pre-exiting conditions, chronic illness and female-headed households as shown in Figure 29.

Figure 29: COVID-19 assistance household characteristics

Disability: Yes 1.4%, No 3.5%
Chronic Illness: Yes 4.1%, No 2.9%
Female headed HH: Yes 3.7%, No 2.9%

Yes ■ No
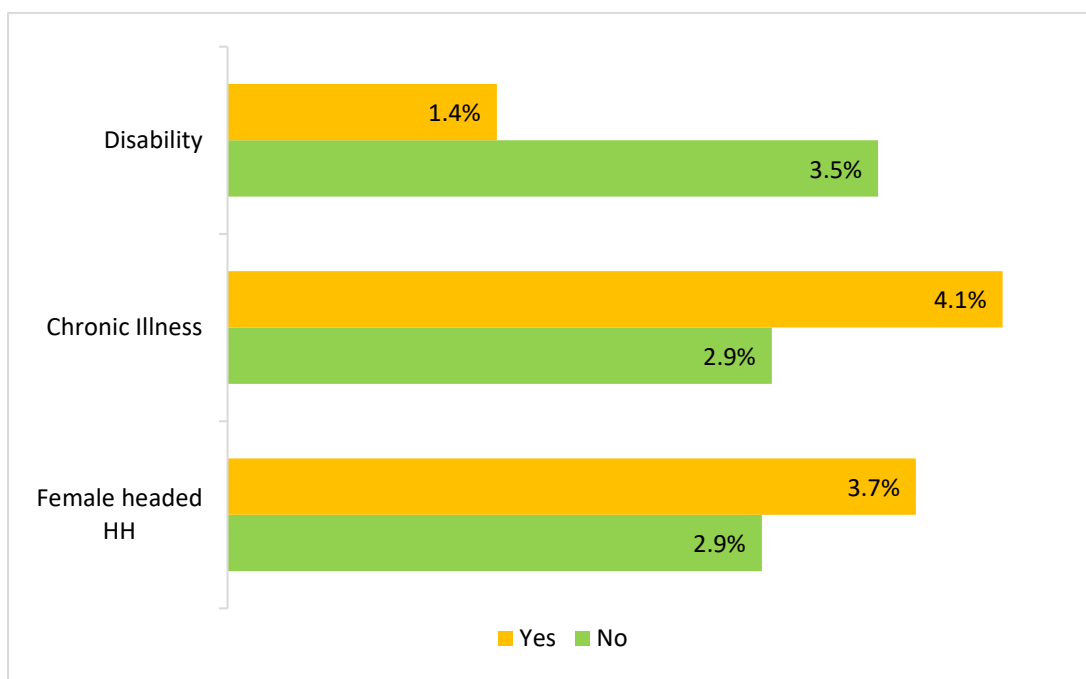
V.Household Characteristics

The nationally representative mVAM household survey using telephone interview started to conduct after COVID-19 pandemic lockdown with the aim of assessing the impact of COVID-19 crisis on the food security and livelihoods in April 2020. This is a fourth round since the beginning of COVID-19 pandemic and the first round in 2021; a total of 6,005 random respondents interviewed. The average household size of the sampled household is 5.29, ranging from the lowest in Bagmati Province (4.76) to the highest in Province 2 (6.2). The average age of respondents is 35 years old, with the youngest being 18 years old to the oldest, at 92 years of age. Out of the total 6,005 interviewed, 39.4 percent of respondents are female, while female-headed households accounted for 15.5 percent of total sampled households.

More than 59 percent of r the respondents are from rural areas and the remaining from urban areas. Nearly 23 percent of the household heads in the survey had a secondary education, followed by those with illiterate (21.1 percent), primary (16.8 percent) and nonformal literate (14.6 percent) level of education. A higher proportion of female-headed households (41.9 percent) were illiterate, compared to male-headed households (19.4 percent), likewise relatively higher proportion of female headed households were literate (21.1 percent) with non-formal education as compared to male headed households (13.3 percent). Households with illiteracy of head were relatively higher in Sudurpaschim Province (41.1 percent), followed by Karnali (29.1 percent) and Lumbini (25.6 percent).

Nearly 6 percent of the households had at least one disabled person in the household, with the highest rate in Karnali (10.2 percent), followed by Province 1 (9.3 percent) and Sudurpaschim (8.5 percent), while Bagmati province had the lowest rate of disabled household members (3.5 percent), followed by Province 2 (4.3 percent) and Lumbini (5.0

percent). Out of total disable members, nearly 28 percent of them had old disable card, followed by blue card (13.3 percent), red card (7.9 percent) and yellow card (7.3 percent). However more than 41 percent of them did not any disable cards, indicating that large number of disable people are out of disable registration. More than 24 percent of the surveyed households have at least one member with chronic illness, with relatively highest prevalence in Bagmati (29.8 percent), followed by Karnali (27.2 percent) and Lumbini (27.0 percent). Nearly 18 percent of surveyed households have at least one migrant member. Out of which, nearly 78 percent of them went for labour work, followed by high skilled job (11.0 percent), while about 11 percent went for abroad study. The proportion of premature returnees was only 2 percent, while 11 percent of households were received remittance from a migrant member during the last 90 days since the date these households were interviewed.

More than 18 percent of surveyed households reported at least one member in the household being sick, of which 20.5 percent sought a COVID-19 test. Out of total COVID-19 tests, 33.7 percent of were COVID-19 positive cases.

The results show that more than 28 percent of households had flushed toilet facilities, while nearly 56 percent of surveyed households had improved ventilated toilet. Nearly 95 percent of surveyed households observed good hand washing practices with soap. This could be due to increased awareness of hand wash practices caused by COVID-19 pandemic.

Nearly 77 percent of respondents had television with more than 85 percent respondents owning smart phone, while nearly 79 percent of respondents used gas or stove for cooking. Nearly 3 percent of respondents reported safety risks related to access to markets, hospitals, clinics, and healthcare centers for women and girls, much lower than previous surveys such as 27 percent lower than the last survey conducted in December 2020 and 10 percent lower than the last survey conducted in April 2020. Out of them, safety risk related to verbal abuse was found to be high (77.5 percent) followed by sexual violence (53.2 percent) and physical violence (49.6 percent). Relatively higher proportion of the reported safety risks was found in Province 2 (7.4 percent) followed by Bagmati (3.0 percent). Nearly 30 percent of respondents had some kinds of psychological stress to COVID-19 crisis, in which the highest proportion of the reported psychological stress was observed in Province 1 (34.8 percent), followed by Province 2 (34.3 percent), Lumbini (31.2 percent) and Karnali (30.9 percent).

Table 1: Household socio-economic characteristics

Province	Ave. Age	Average HHs Size	Gender		Vulnerable households		Absentee HHs	Remittance recipient HHs	COVID support recipient HHs
			Male	Female	Disable	Chronically ill			
Province 1	36.36	5.02	58.0%	42.0%	9.3%	25.9%	14.4%	8.4%	1.6%
Province 2	33.90	6.20	71.5%	28.5%	4.3%	20.4%	15.7%	7.5%	2.0%
Bagmati	34.79	4.76	57.1%	42.9%	3.5%	29.8%	16.2%	8.8%	2.9%
Gandaki	36.16	4.90	54.4%	45.6%	5.2%	27.0%	25.6%	13.8%	1.8%
Lumbini	34.69	5.12	57.1%	42.9%	5.0%	16.0%	20.9%	15.1%	7.9%
Karnali	34.77	5.88	62.0%	38.0%	10.2%	27.2%	20.7%	16.6%	1.5%
Sudurpaschim	33.47	5.87	66.7%	33.3%	8.5%	23.7%	17.9%	15.4%	1.3%
Nepal	34.91	5.29	60.6%	39.4%	5.9%	24.3%	17.9%	11.0%	3.0%

VI. Methodology

The information and data presented in this report was gathered from a nationally representative household survey conducted in the second half of December 2020 through live telephone interviews. Call 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 4,526 households were interviewed, with an average success rate of 12.3 percent (the ratio of successfully completed surveys to total dialled numbers, with 36,530 total dialled numbers). The success rate of telephone interviews ranges from the lowest at 64 percent in Mechi to the highest at 27.8 percent in Mahakali zone, followed by Dhaulagri and Janakpur (19.7 percent) zones. The non-response and deadline 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 by telephone interview for those at least 18 years of age.

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 as already noted stems from using phones to reach people. The survey is able to do inference for the phone-owning population of Nepal, but research shows that phone ownership is correlated with higher levels of food security [11]. It is therefore reasonable to conclude that the results presented here may understate the extent of food insecurity in the country. The second main source of bias is from call failure. Calls can fail to result in a completed survey for several reasons. Some of these, like the number not existing, or it belonging to a business, do not bias results but others, which could themselves 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. This survey has call failure due to both of these types of reasons. In this case as well, the results would be biased upwards, meaning that our results might be underestimating food insecurity in the country. However, the magnitude of these biases is not readily estimated.

Annex

Annex 1: Sampling design

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

Table 2: Sample size by province in June 2021

Province	Number of interviewed households	Target sample
Province 1	1031	1031
Province 2	968	968

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

Bagmati	1324	1321
Gandaki	601	601
Lumbini	946	920
Karnali	537	516
Sudurpaschim	598	543
Total	6005	5900

Table 3: Sample size by province in April and December 2020

Province Name	Number of interviewed households in April	Number of interviewed households in December
Province 1	769	769
Province 2	673	738
Bagmati	1,022	985
Gandaki	500	451
Province 5	812	792
Karnali	251	386
Sudurpaschim	360	405
Total	4,416	**4526**

Annex 2: Food Security Indices

Food Consumption Score (FCS), a proxy indicator for food security, 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 the food consumption status of the household. FCS is calculated based on the past 7-day reference period and classified 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 3: 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 (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. A diverse diet 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 a past 7-day reference period, are classified as low or poor dietary diversity.

Coping Strategy Index[3] (CSI) is a tool to measure the frequency and severity of the behaviour households engage in when faced with a shortage of food or financial resources to buy foods. 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 foods/ eating less expensive foods
2. Reduced quantities consumed by adults/ mother in favour of young children
3. Reduced portion size of meals
4. Reduced number of meals eaten per day
5. Borrow food or relied on help from friends and relative

Livelihood Coping Strategies (LCS[12]) is a WFP's standard indicators for understanding behavior households engage to meet their immediate food security needs at the time of crisis or shock. LCS captures types of coping strategies households adopted during the crisis of shock during the 30-days recall period. The behaviours are classified based on the type of coping strategies they adopted and the impact of particular coping strategies on the longer-term productive ability. The specific coping strategies utilized in this survey were adapted to suit the country context. As such following three categories and corresponding coping actions were examined:

1. **Stress livelihood strategies** such as borrow 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 that usual, and sale of households assets or goods such as radio, furniture, refrigerator, tv, 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 last female or productive animals such as milking cow or buffalo, and sale of house or land.

Annex 3: 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 composite index calculated from the key household

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[12]https://documents.wfp.org/stellent/groups/public/documents/manual_guide_proced/wfp271449.pdf?_ga=2.32997694.1468088556.1601188637-1476716381.1565168719

ownership variables. It is used as proxy indicator for household level wealth. Wealth index is often used to measure in food security assessment, and it provides an idea of household's ability to access to food, the severity of food insecurity and provides information about 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 index[13] is first to select variables that allow to 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 better the level of wealth of household (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 with using sampling weights. The Wealth Index generated from this survey is presented in Table 4.

Table 4: Wealth quintiles by province

Province	Lowest	Second	Middle	Fourth	Highest
Province 1	25 percent	26 percent	19 percent	16 percent	13 percent
Province 2	13 percent	18 percent	27 percent	28 percent	15 percent
Bagmati	8 percent	11 percent	18 percent	21 percent	43 percent
Gandaki	21 percent	21 percent	19 percent	17 percent	21 percent
Lumbini	25 percent	25 percent	23 percent	13 percent	14 percent
Karnali	45 percent	23 percent	15 percent	11 percent	6 percent
Sudurpaschim	32 percent	27 percent	23 percent	10 percent	9 percent
Nepal	20 percent	20 percent	21 percent	18 percent	21 percent

Annex 4: Test of statistical significance

To assess statistical significance of association between variables of interest in this study, Chi-Square test was conducted[14]. As the key variable of interest are categorical, Chi-Square

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[13] For more details https://www.wfp.org/publications/creation-wealth-index-june-2017 and
https://dhsprogram.com/pubs/pdf/CR6/CR6.pdf
[14] https://stats.idre.ucla.edu/other/mult-pkg/whatstat/

test is suitable. The statistical significance of association between following variables was tested:

- household food consumption (adequate or inadequate) and household socio-economic characteristics (education level gender of household's head, disability or chronic illness, head education, gender characteristics, type of food sourcing and presence of food stocks
- household food consumption (adequate or inadequate) and household livelihood type
- consumption (adequate or inadequate and COVID-19 impact on livelihood (income reduction and job loss)
- Job loss and household socio-economic characteristics (education level gender of household's head, disability or chronic illness, head education, gender characteristics, type of food sourcing and presence of food stocks)
- Job loss and household livelihood type
- Income loss and household socio-economic characteristics (education level gender of household's head, disability or chronic illness, head education, gender characteristics, type of food sourcing and presence of food stocks)
- Income loss and household livelihood type

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