

Food Security Study

In

Kalika, Jeetpursimara and Sundar Haraicha



Study Report , Dec 2024

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Executive Summary

Lumanti Support Group for Shelter's comprehensive study across three municipalities-Kalika, Jeetpur Simara, and Sundarharaicha-has revealed significant disparities in food security, driven by socioeconomic factors, climate change, and inadequate local policies. The study, employing qualitative methods including focus group discussions and key informant interviews, assessed food availability, access, stability, and utilization to identify the root causes of food insecurity and propose targeted interventions.

In Kalika Municipality, although agricultural engagement is high, landlessness and the lack of modern farming practices have led to substantial food insecurity among marginalized communities. Initiatives like collective farming, livestock promotion, and community savings have been suggested to enhance self-reliance and food access.

Jeetpur Simara presents a scenario where labor dependency and minimal agricultural engagement among landless communities worsen food scarcity. Recommendations include leveraging local resources through community involvement in agriculture and enhancing direct market access to mitigate the impacts of commercial farming.

Sundarharaicha Municipality experiences better access to markets and agricultural land, yet faces challenges due to climate vulnerability and economic barriers that affect food production and availability. Proposed solutions emphasize climate-resilient farming techniques, community education on nutrition, and strengthening local market systems to support sustainable food practices.

The predominant recommendation for all municipalities includes developing comprehensive food security roadmaps that involve all stakeholders-local governments, community members, and private sectors. These roadmaps should focus on improving agricultural productivity, ensuring equitable food distribution, and fostering economic opportunities that address the underlying causes of food insecurity.

This study therefore highlights the necessity for integrated, community-driven approaches to tackle food security, urging immediate action to safeguard and empower the most vulnerable populations within these municipalities. Through concerted efforts and strategic partnerships, Lumanti is expected to aim to transform these challenges into opportunities for sustainable development and enhanced community well-being through its purposed and anticipated project interventions to the above-mentioned municipalities.

Acknowledgement

We would like to express our deepest gratitude to all the participants whose active engagement and valuable insights made this food security study for "Enabling Communities for Socio-economic Transformation (ECST)" project entirely possible. Our heartily appreciation goes to the 'Lumanti Support Group for Shelter (LUMANTI)' team, particularly Mr. Mahendra Shakya, Mr. Ananta Raj Bajracharya and the entire team, for their unconditional support for timely and effective conduction of this study. Their feedback and guidance throughout the study were instrumental to its success.

We also extend our heartfelt appreciation to the entire field staffs of Lumanti in each municipality for their local support, in organizing and coordinating the entire fieldwork which greatly contributed to the smooth implementation of the study. We are equally grateful to all local government leaders, officials and the entire participants for their time and active participation during gathering of related information.

Lastly, we praise the effort of our study team for their dedication and determination in conducting the fieldwork under challenging time and circumstances. Their commitment reaching out the marginalized and vulnerable communities living with full of challenges, approaching them during festive season and asking for their time and participation was really commendable. We are truly grateful for their hard work, professionalism, and the significant contribution they made to bring this report to this shape.

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I. Background

I.1 About the Organization

Lumanti Support Group for Shelter is a leading non-profit organization in Nepal dedicated to reducing poverty by enhancing living conditions for marginalized and vulnerable groups. Since its founding, Lumanti has championed the rights and needs of informal settlers in urban and surrounding areas. Its efforts extend beyond just housing, addressing a broad array of socio-economic issues that affect disadvantaged communities. Lumanti works closely with local authorities, national bodies, and international partners to create and roll out sustainable, community-driven programs. The organization focuses on initiatives like slum upgrading, housing and WASH infrastructure improvements in marginalized families, disaster risk management, women's empowerment, and improving livelihoods to positively change the lives of thousands of Nepali families. Currently, Lumanti is committed to driving socio-economic change, with a strong focus on climate resilience and food security, helping communities to prosper despite challenges.

I.2 Addressing the Gaps in the Project

Lumanti Support Group for Shelter is actively working to close the gaps in food security and climate resilience with its "Enabling Communities for Socio-Economic Transformation (ECST)" project. This three-year initiative, which began in December 2023 with support from MISEREOR, is focused on assisting the most vulnerable populations in three municipalities: Jeetpur Simara in Bara district, Sundar Haraicha in Morang district, and Kalika in Chitwan district. The project is set to impact 2,103 households across 42 communities, addressing the socio-economic issues these marginalized groups face, particularly the effects of climate change and food insecurity.

The ECST project utilizes a community-driven approach to development, enhancing resilience to climate-related risks. It emphasizes improving access to government services, securing community access to funding, enhancing housing conditions, and implementing disaster risk reduction (DRR) and climate adaptation strategies. By involving affected families in decision-making, Lumanti fosters a sense of ownership among communities, enhancing their resilience to climate challenges. The project also prioritizes empowering women socially and economically and strengthening community groups and federations, which are vital for sustained development.

To augment the successes of the ECST project and more effectively tackle challenges related to food security, Lumanti was looking to hire a consultant to carry out an extensive food security analysis in the project locations. Sahayatri Consults, a consultancy committed to promoting social and economic development for marginalized groups, expressed its interest and submitted a proposal being an expert consultant providing the service to Lumanti. With a team of experts across multiple disciplines, Sahayatri Consults offers customized solutions on both national and international levels, aimed at elevating disadvantaged communities and promoting inclusive growth. Our commitment to professionalism, innovation, and inclusivity positions us as a reliable partner in transforming communities and reaching sustainable development goals.

Particularly within the study municipalities, Lumanti has been supporting the marginalized communities living in the remote/unseen corners at the face of poverty and hunger. Lumanti's support for shelter among the homeless and landless committee is supposed to help them live safely in a house designed at low cost using bamboo. Alongside, the issue of food security is a burning challenge in the community. Having a safe 'chhaana' (roof) to avoid rain, storm and scorching sun isn't sufficient for living. They also need 'maaana' of food to consume. This report is prepared as a result of the assessment of food security status in the working areas of Lumanti.

I.3 Objectives of the Study

The key objectives of the food security study outlined in ToR were as follows:

- ❖ To assess the status of food security in terms of availability, access, stability and utilization, which also includes food production, market, consumption, food habit, purchase capacity, food quality, etc. focusing on the targeted communities in three different cities, namely Jeetpursimara Municipality in Bara, Sundarharaicha Municipality in Morang, and Kalika Municipality in Chitwan district
- ❖ To identify the key factors contributing to food insecurity in the targeted communities

- ❖ To analyze the impact of climate change, conflict, and other external factors on food security
- ❖ To examine the existing policies and interventions related to food security in the region
- ❖ To make recommendations for improving food security in the region

2. Methodology Overview

This study primarily utilized qualitative research methods, beginning with an extensive review of pertinent literature, particularly focusing on major policy frameworks related to food security in Nepal. This foundational work set the stage for immersive fieldwork conducted in three distinct municipalities: Kalika, Jeetpursimara, and Sundarharaicha, located within the districts of Chitwan, Bara, and Morang, respectively.

2.1 Data Collection Techniques

The field research incorporated two main data collection techniques:

2.1.1 Focus Group Discussions (FGDs): These were held within community settings in each municipality, ensuring a broad representation of socio-economic backgrounds. Participants included male and female farmers, landless Dalits, members of indigenous communities, women heading households, and smallholder farmers, as well as local youth. The discussions aimed to delve into local food production systems, consumption habits, and access barriers, as well as to gather perspectives on the impact of climate change on food security, noting shifts in agricultural practices, water resource management, and local adaptation strategies.

2.1.2 Key Informant Interviews (KIIs): Interviews were conducted with pivotal community and government figures, including ward chairs, chiefs of agricultural sections, and agriculture extension workers. These conversations sought to gain a deeper understanding of government policies, planning, and interventions in food security. Interviews with cooperative leaders and farmer group representatives also provided insights into food supply chains, market access, and pricing mechanisms.

Beside structured data collection techniques, the study also used adequate secondary data to contextualize the study, review policy arrangements and existing challenges regarding food security in Nepal. Researchers also observed different communities in each of the municipality to examine and explore the real time situation and people's physical and housing conditions contributing to food security.

Table 1. Number of Participants and Interactions

Type of Interaction	No. of Interaction	Participants/ Respondents	Men	Women
Kalika Municipality-Chitwan				
Focus Group Discussion				
Community People of Ward-3, Shaktikhor	1			
Key Informant Interview				
Local government Officials (Information Officer & Agri. Technical Assistant	2	2	2	
Manager of agriculture cooperative, Shaktikhor Sana Kisan Sahakari Sanstha	1	1		1
Jeetpur Simara Sub-Metropolitan City- Bara				
Focus Group Discussion				
(Community people of Ward: 11, Khesraul & Community Leaders (Tole Committee Members)	2			

Key Informant Interview				
Deputy Mayor, Agriculture Officer, Chair of Chamber of Commerce and Industry & Local lead farmer	3	4	3	1
Sundarharaicha Municipality-Morang				
Focus Group Discussion				
Lead farmers (Men & women from ward 1, 2, 6 & 8)	1	7	5	2
Landless and Landholding women farmers (Chaudhary and Khawas Community, Ward-2)	1	6	1	5
Marginalized Farmers and Youth Groups, Ward-5 (Rishidev Community, Asina Simsar)	1	11	7	4
Key Informant Interview				
Agriculture Section Chief, Ward Chair Ward-2 and Cooperative Member Ward-2	3	3	2	1
Total	14 (FGD-6, KII-8)			

2.2 Analysis and Reporting Approach

The study employed thematic analysis to methodically identify, analyze, and report patterns or themes within the collected data. This process began with the meticulous transcription of mobile-recorded interviews and discussions, followed by an initial data familiarization phase. Codes were generated from the transcriptions and were then manually organized into themes and sub-themes, which were rigorously reviewed for consistency and relevance.

The final analytical phase integrated findings from the FGDs and KIIs with supplementary quantitative data to enrich the understanding of food security dynamics in the selected areas. Techniques such as triangulation, disaggregated analysis, and narrative construction further enhanced the robustness of the analysis.

The culmination of this methodological approach provided a comprehensive and nuanced understanding of the food security landscape, directly informed by community voices and grounded in empirical data. This synthesis of qualitative insights with quantitative data offered a holistic view of the challenges and opportunities within the study locales, making a significant contribution to the ongoing discourse on food security in Nepal.

3. A Glance on Food system in Nepal

3.1 Nepal's Vision for a Prosperous and Nourished Future

Nepal embarked on a new chapter in 2015 with the adoption of a progressive and democratic constitution. This significant step has enabled the three government tiers to collaborate more effectively in distributing the benefits of the country's development equitably. The Government of Nepal (GoN) is dedicated to achieving enduring peace, good governance, sustainable development, and prosperity for all its citizens. In pursuit of these goals, the government has defined a strategic development pathway under the vision of 'Prosperous Nepal and Happy Nepali.' This vision aims to simultaneously achieve sustainable economic growth and enhance individual well-being, aligning closely with the global 2030 Agenda for Sustainable Development (National Planning Commission, [NPC], 2019)

The GoN has acknowledged the right to nutritious and adequate food throughout the year as a fundamental right in its constitution and the Right to Food and Food Sovereignty Act. Aligning with its commitments to the Sustainable Development Goals (SDGs), the government has placed a high priority on food and nutrition security. Specific targets include ending hunger and malnutrition, doubling agricultural productivity and income, ensuring sustainable food production systems, fostering resilient agricultural practices, and preserving agricultural diversity (NPC, 2019).

3.2 Food Security Policy Architecture in Nepal

Food security policy in Nepal has evolved to encompass more than just agricultural production, addressing broader challenges such as food availability, pricing, and nutrition. Initially, the Nepal Food Corporation Act of 1964 set up a network of over 150 food depots nationwide to ensure access to subsidized food for those in need. Subsequent policies, like the Agriculture Perspective Plan launched in 1995, aimed to boost commercial agriculture, improve inputs, and enhance infrastructure.

More recently, the Agricultural Development Strategy (ADS 2015-2035) and the Multi-Sector Nutrition Plan (MSNP 2018-2022) have adopted a holistic approach, integrating health, education, WASH, and agriculture to improve food access and nutrition. These strategies are overseen by the National Planning Commission (NPC), which coordinates food security efforts across various sectors, aligning with the SDG-2 Zero Hunger goals.

The shift to a Federal Republic in 2015 introduced new dynamics in policy coordination. The new constitution empowered 753 local governments to handle services and public management, making the implementation of national policies more complex but also more responsive to local needs.

The Local Government Operation Act (LGOA) 2017 further mandates local authorities to manage development projects and services related to agriculture, education, and health, which are crucial for food and nutritional security. Additionally, the Right to Food and Food Sovereignty Act of 2018 enshrines the rights of all Nepali to access sufficient, nutritious food year-round and supports their right to engage in agriculture or food production. This act marks a significant step towards ensuring food as a basic right, following the 2015 constitutional declaration on food sovereignty.

The Right to Food and Food Sovereignty Act obligates the Government of Nepal to safeguard food security and enhance the well-being of its farmers. It mandates the government to track and maintain records of food-insecure individuals, households, and communities, target them for subsidized food or other assistance, and provide emergency aid during disasters. Additionally, the Act focuses on improving farmers' living standards, supporting local agricultural and livestock farming, ensuring the sustainable use of agricultural land, and implementing measures to mitigate the impacts of climate change.

The Right to Food and Food Sovereignty Act establishes a framework for food security within Nepal's federal structure, spearheaded by a National Food Council led by the Agriculture Minister. This council is responsible for developing a National Food Plan that ensures food security and sovereignty, managing food procurement, and stabilizing food prices. Subsidized food distribution through public centers significantly enhances food access for the economically disadvantaged.

The federal government is also tasked with overseeing food and nutrition education, scientific research, and technology development related to agriculture. The National Human Rights Commission (NHRC), along with other organizations, advocates for the rights of marginalized groups and monitors food and healthcare rights, particularly during disease outbreaks or other crises. In response to climate challenges, the 2019 climate change policy focuses on securing food and nutrition through climate-resilient agricultural practices. At the provincial level, Provincial Food Councils coordinate the implementation of the Act, while municipal governments, through Local Food Coordination Committees, are charged with designing and implementing food security initiatives that align with the Act's objectives.

3.3 Existing Food Security Challenges in Nepal

Marginalized households, which make up a significant portion of the agri-food workforce, face substantial disparities in accessing healthy food. Despite women comprising 70% of this workforce, they own only 19% of the land according to the Agricultural Census of 2021. The cost of a nutritious diet is notably higher, approximately twice as much as energy-only diets, which intensifies affordability issues for these households. Adding to their challenges are high climate vulnerability and production risks. Financial insecurity is exacerbated due to their limited access to loans, insurance, and subsidies. Furthermore, post-harvest losses, which account for 40% of total production (Khatiwada, 2022), severely impact food availability. Additionally, there is a persistent lack of awareness regarding food safety measures. The agricultural sector's appeal diminishes further due to the lack of supportive policies and mechanisms, compounded by the high encroachment of Indian foods and vegetables into local markets.

3.4 Impacts of Climate Change on Status of Food Security in Nepal

Climate change is profoundly affecting food security in Nepal, posing severe risks to the livelihoods and nutritional health of millions. Agriculture, which employs more than 60% of the population and accounts for approximately 27% of the GDP, relies heavily on stable weather conditions. Yet, the rise in extreme climate events, such as unpredictable monsoons, extended drought periods, and unexpected frosts, is causing significant fluctuations in food production. This increasing unpredictability jeopardizes food availability, access, and stability, hitting the most vulnerable rural and marginalized communities hardest.

The nation is grappling with notable declines in crop yields due to climate-related disturbances. Predictions indicate that rice production, a vital staple, could fall by 15% to 20% by 2050 due to increased temperatures and irregular rainfall. In 2021, climate-induced floods destroyed nearly 86,000 hectares of paddy fields, leading to acute food shortages in the impacted areas. This crisis in food security is directly linked to malnutrition, with around 36% of children under five experiencing stunted growth. As food insecurity intensifies, vulnerable groups, particularly children and pregnant women, find themselves caught in a cycle of poor nutrition and health. Moreover, severe droughts in crucial farming areas such as the mid-hills and Terai are diminishing irrigation capacities, curtailing crop yields, and further compromising food access for rural households.

Erratic weather is affecting critical aspects of food security in Nepal by decreasing agricultural productivity, particularly in areas dependent on rainfall, which diminishes food availability. This reduction in crop output increases prices, making food unaffordable for low-income families, particularly those in isolated regions with scant access to markets. Consequently, these families often turn to cheaper, less nutritious options, exacerbating malnutrition, particularly among children. Additionally, recurring natural disasters like floods and landslides are disrupting food systems, prolonging food insecurity in the hardest-hit areas.

Addressing this escalating crisis requires comprehensive actions at both practical and policy levels. On the ground, adopting climate-resilient farming techniques, such as drought-tolerant seeds, agroforestry, and sustainable water management, can help communities sustain food production under climatic pressures. Enhancing community-based disaster readiness can lessen the impact of climate disturbances on agriculture, while developing infrastructure and establishing local food markets can improve food access during crises. Policy-wise, it's crucial to implement climate-smart agricultural strategies, focusing on investing in resilient technologies, better water management practices, and crop insurance. Establishing effective food security monitoring and early warning systems will facilitate prompt responses to potential shortages, reducing adverse effects on vulnerable

groups. Furthermore, expanding social safety nets, including food assistance and conditional cash transfers, is essential for supporting low-income families during difficult times.

In conclusion, climate change is significantly undermining food security in Nepal, especially among marginalized farming communities. To counter these challenges, it is vital to integrate multi-sectoral strategies that combine local initiatives with supportive policies, thereby building resilience against climate shocks and securing sustainable food security for the future.

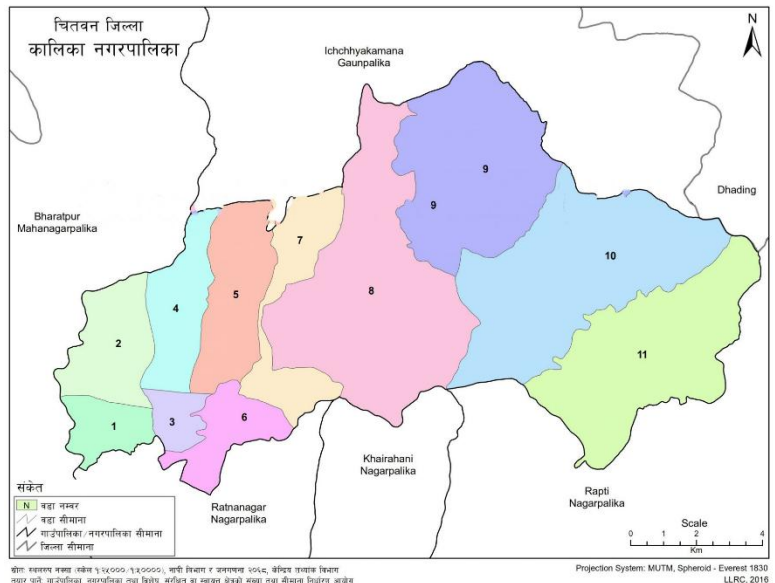
4. Finding and Discussion

4.1 Overview of livelihood-Kalika Municipality

4.1.1 Statistical information

Looking at the overall statistics, 2.46% of the total households in Kalika Municipality are landless, which mainly comprises people from Hill Indigenous, Hill Brahmin, Tharu, and Hill Dalits communities. Even among the households with land, 32.46% do not possess an authorized land ownership document (*purja*). It was also found that 24.3% of the total population was engaged in agriculture, 6.4% in unskilled labor work and 3.1 % in skilled labor work (*mistri* for construction) while 3.6% of the total population was unemployed (Annex 1 and 2, source: Municipality profile, Kalika Municipality).

From food security perspective, the household information shows that only 25.99% of the total households produce food crops that is sufficient for consumption throughout the year (Annex 3). Among the rest, 9.79% households have been under food insecurity status because of unavailability of land for farming. Families which are involved in farming, but their cultivation is sufficient only for 3 months is very high (27.57%) which indicates that assurance of food security from own production is a big challenge in the study area.



Agriculture statistics of the municipality revealed that most of the households (61.25%) cultivate maize in their lands, followed by paddy (46.20%), spice crops, rapeseed, vegetables and pulses. Among the banana farmers (12.48% of total households), 99.57% of them sell their products. However, very few of the other products are produced in saleable quantity. Among cereals, 22.08% of households cultivating millet and 17.08% of households cultivating maize sell these products in the market (Annex 4). This depicts that commercialization of these crops is very limited. In case of livestock, percentage of households rearing goats is quite high (43.79%) with significant number of holdings per household i.e. 6.91 (Annex 5). This shows that people in the municipality consider livestock as an important source of income.

It is deemed very much essential to disaggregate the statistical information on livelihood status of people to get an accurate picture of the marginalized communities whose conditions are overlooked because of minority in population. During the field observation, and interaction with the stakeholders, a wide range of differences in livelihood was seen among people in lower urban belt of the municipality and those in upper marginalized areas (wards 3, 9, 10, 11).

4.1.2 Community Scenario

Community people in ward no. 3 of Kalika Municipality are the ones who were dislocated from Rapti river basin for the clearance of buffer zone of the Chitwan National Park. They have been staying at Shaktikhor for more than 20 years. Yet, they haven't been provided with the ownership document for the land. Recently *Nissa* document has been distributed to each household, but this document only covers the ownership of 4-5 dhur of land where their small houses are built. They don't have any extra land for kitchen gardening and other purposes.

Rest of the land in that community comprises bari land, but the people don't know about the owner of these lands. Some people seldom come and mention that the land is theirs. Believing them, the people cultivate their

lands with cereal crops like rice (if water is available), maize, rapeseed, millet etc. Some landowners come to claim the share on the farm products while none of them provide any kind of support in seeds, fertilizers and other inputs. The community people don't have any enthusiasm to dedicate their hard labor in improving the fertility status of the land as they neither have any ownership, nor have they been bound to any contract for farming on these lands. Each household is cultivating others' land at a range of 3-10 Kattha, and this is the only means for consuming own-produced food. Some quantity of spinach and garlic is planted in the yard around the house.

The people make a living by doing labor works at farms or in construction sites. With this income, they buy food, clothes and other necessities for the family. Wage income is quite low, and the number of family members is high. The wages aren't paid on a regular basis (2-3 days or even up to 8-10 days). Also, it is difficult to get work opportunities every day. Based on the workload, a person eats around half kg of rice in one meal, if available. When they don't have money, they lend money or food from others and pay back when they get to work next time.

4.1.3 Food Security Status

Poverty, seasonal wage labor employment, and deprivation from land ownership clearly indicates the critical status of food security among the community people. Further, the verbatims of the respondents (please refer annex 13 and field notes) presents the piteous condition of the marginalized labor workers.

Table 2: Food security status by components in the study community-Kalika Municipality

Components	Description
Food production	▪ Though people are engaged in production of cereal crops in others' land, the productivity is low. They follow traditional methods of farming and haven't adopted any technologies for increasing the farm output. ▪ Major crops grown: Rice, maize, millet, rapeseed ▪ Production of vegetables is negligible. Only a few of them cultivate potato. ▪ Indigenous crops like millet, buckwheat, <i>bhatmas</i> etc. are grown in small quantity. These aren't scaled up for commercial cultivation rather are neglected with time. ▪ Recently goat farming has emerged as a profitable enterprise among landless communities. ▪ [Chepang communities produce local food crops like yam, Colocasia, ginger, turmeric and millet. They also produce potato which are bought by the traders from farm gate.]
Availability and access (market)	▪ Food items (rice, daal, oil etc.) are readily available in the market ▪ Mobile vendors often pass through the community to sell vegetables. ▪ Markets are at around 15-20 minutes walking distance. ▪ [Chepang communities living in the remote upper belts (around 45 minutes in auto-rickshaw) have less access to markets. They seldom come to the market, rather consume whatever is produced in the <i>Ailaani paakho baari</i>.]
Stability and utilization	▪ Stability in food production is often challenged by climatic factors (drought, excess rainfall, and uncontrolled wind) ▪ Availability of food and vegetables in market is however stable throughout the year, as these are supplied from Daman (vegetable production zone), other areas of Chitwan district and Indian market. ▪ Prices are not stable, and keep changing with the change in supply. Vegetable prices peak in off-season and aren't affordable by the labor workers. ▪ Food products produced by the community people are utilized by their own family, as it is not sufficient to sell in the market. People eat spinach daily rather than selling them if excess, because they don't have the capacity to buy other vegetables in return.

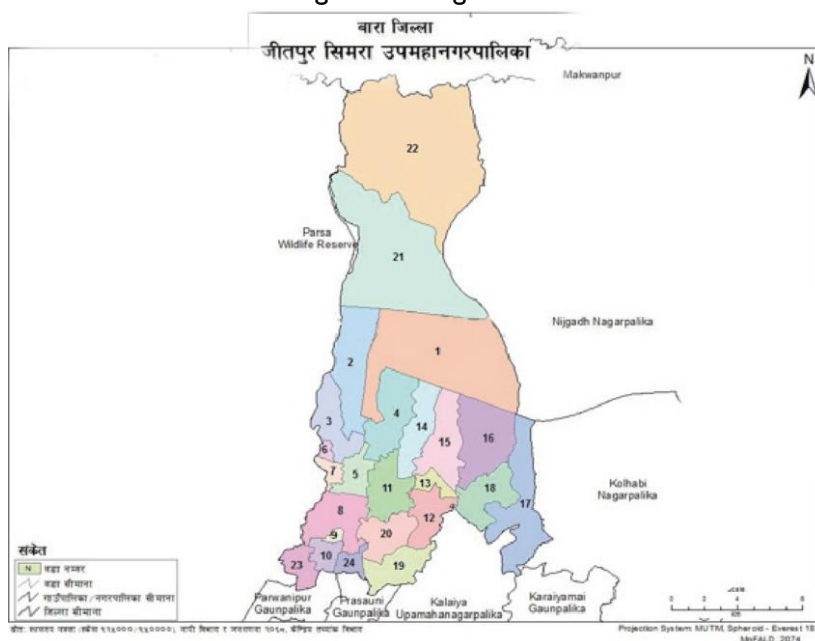
Purchase capacity	▪ Labor wages are too low [construction work: 600-700 for female, 1,000 for males; farm work 300-400 for both], and market prices are too high. ▪ The lowest price of a 25 kg rice sack is NRs. 2,000 for which one person has to work for 4 days (for NRs. 500 per day labor wage in average). But this quantity of rice is just sufficient for 8-10 days. ▪ People cannot afford to buy vegetables from the market, and rather eat rice with soup containing little potato or soybean. ▪ Price of oil is very high, and the home-produced rapeseed is not sufficient to produce oil required for the whole year.
Consumption Pattern	▪ Rice, daal, soybean and potato are the major foods that they consume. ▪ Some people eat <i>dhido</i> from the home-produced millet. But children and youths defer to eat. ▪ Labor workers get food items like <i>bhuja</i>, <i>chiura</i>, <i>samosa</i>, <i>kerau ko tarkari</i> etc as meal during the day. ▪ Animal products like milk, meat and egg consumption is very rare.
Food quality	▪ The quality of purchased food is not checked by the people as they are illiterate. ▪ Market monitoring by authorized agents hasn't happened. ▪ Consumption of junk food items is increasing among children.

4.2 Overview of livelihood - Jeetpur Simara Sub-Metropolitan city

4.2.1 Statistical information

According to the sub metropolitan city profile, majority of the households belong to so-called higher castes (Brahmin, Chhetri and Janajati). While the percentage of Tharu households is 5.06%, other minority communities residing in the sub-metropolitan city include Muslim (4.9%), Hill Indigenous (4.13%), Hill Dalits (3.59%), and Terai Indigenous (10.01%) (Annex 6). The percentage population of very poor and poor households is 19.48% and 23.87% respectively, which means around 43% of the total population is living under poverty. Only 37.14% of the total households have been cultivating own land greater than 5 kattha. 30.05% of the households have small holdings of land (less than 5 Kattha) and 3.56% households do not have any land ownership (Annex 7).

Around half of the total households (51.62%) are engaged in agriculture as their major occupation, but the number of households rearing livestock for their major income is less than 1%. Households with daily labor work as major source of income and households who have sent their family members to foreign country for employment are 11.06% and 12.96% respectively. Monthly income of the people is very low and expenses are high due to which people are unable to save their earnings for asset building. Statistics shows that 14.59% of the total households do not save any money from their monthly income. Only around 26% households are able to save an amount higher than NRs. 5,000 per month. These statistics resemble of very poor socio-economic status of the minority community people in the sub-metropolitan city.



Based on the production statistics, it was found that the per capita availability of paddy and maize is 434 kg and 253 kg per year respectively which indicates that people are food secure in terms of availability of cereal-based food (Annex 8). However, the distribution of the produced food is not uniform throughout the sub-metropolitan city, due to which cereals are sold by some households, while some do not have the affordability to buy from the market. On the other hand, per capita availability of animal products like milk, meat and egg is very low (Annex 9). It indicates that the consumption pattern of the people is highly dependent on cereal crops and the farmers have not diversified their farm products.

4.2.2 Community Scenario

The poor and landless people from Terai based ethnic community rely completely on labor work for their income. They don't have any land, and are living in small huts made of bamboo, mud and grass-roof (*khar ko chaano*). The landless community even has to beg with the landowners to get mud for plastering the bamboo sticks used on the walls. These weak houses get severely damaged during the rainy season, and they have to spend difficult nights waiting for the next day to repair. One of the respondents said that having a small house, at least, would hide their hunger within the four walls and others wouldn't discriminate them for their poverty. For them, eating or sleeping is less important than work. If they work today, they can get something to eat. When there is no work available, they even have to sleep without eating anything.

During the rice harvesting season, they take informal contracts from the farmers for harvesting and threshing the rice and work in a group of 2-3 people. In returns, they are paid with 5 kg of rice for every 40kg of harvest (*Man-pasheriya*). This earning is however only sufficient to consume for 2 months period. During the rest time, they have to beg with the employers to give them work, or else to lend them food such that they would pay back by doing the farm works, when necessary, with interest. For other kinds of farm work, the daily wages are very low. A person would get NRs. 150 for working from 6 AM to 9 AM, NRs. 200 for working from 10AM to 1 PM and NRs. 400 for working from 6 AM to 4 PM. They also go for labor work in the industries and construction sites where they receive NRs. 500 for 7 hours of work. This income is not sufficient for the family needs. They don't have the habit of saving money for the future, as they are already occupied with the loans of the past.

Raising livestock have been practiced by some people who had made some savings for investing to buy the animals. Further, they don't have enough space to make sheds for the livestock. Only 1-2 community people who have buffaloes drink milk. Others don't have the affordability to buy milk worth NRs. 100 per liter. Eating meat or eggs is very rare. Even if they rear goats, they are sold to the outside people when they have an urgent need of money. Children were seen eating junk food items from the local shop. But the major market for food items is quite far and requires NRs. 50 taxi fare. Prices are so high that a minimum of 1-2 thousand is spent on one visit to the market.

4.2.3 Food Security Status

Low wages and expensive market have created a cycle of poverty in the community (please refer annex 13 and field notes). The wage income earned today is sufficient for today's consumption only. They don't have the ability to save for tomorrow. Further the non-regular availability of labor work leaves them with no money in hand to buy food. Due to lack of nutrition and healthy diet, children often get sick and it takes a lot of money for the treatment. Such needs are fulfilled by taking loans from the landowners or other affluents in the society. In order to pay this amount, they have to work the next season. While striving to pay back the loan amount, they aren't able to buy food for today or to save money for tomorrow. With this, the cycle continues and the poor become poorer. In this circumstance, the community people are critically in the state of food insecurity.

Table 3: Food security status by components in the study community-Jeetpursimara S.M. City

Components	Description
Food production	Community people aren't engaged in any kind of food production on their own. They go for labor work in nearby farms and receive some vegetables in kind. Else, everything has to be bought.

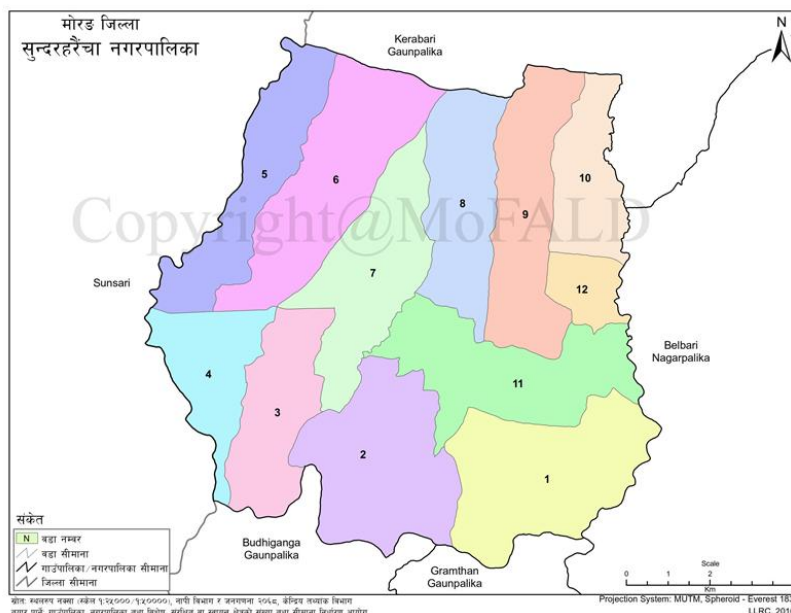
	Some people rear goats and chicken which feed on locally available fodder. However, the scale of production is very small (2-3 in numbers).
Availability and access	- There are some commercial farmers in the neighboring locality who cultivate vegetables in large scale. But these are directly sold to distant markets in bulk. Vegetables have to be bought in retail price from the market. - Daily food items like rice, daal, oil etc. are readily available in the market. - Markets are accessible by foot (1-2 hours), bicycles (30 minutes and auto-rickshaw (30-45 minutes).
Stability and utilization	- Availability of food and vegetables in market is stable throughout the year, as these are supplied from Daman (vegetable production zone), commercial production areas of Bara district and Indian market. - Prices are not stable, and keep changing with the change in supply. Vegetable prices peak in off-season and aren't affordable by the labor workers.
Purchase capacity	- Labor wages are too low [farm work: NRs. 150 for working from 6AM to 9AM, NRs. 200 for working from 10AM to 1PM, and NRs. 400 for working from 6 AM to 4 PM; construction work: NRs. 500 for 7 hours of work] and market prices are too high. - Paddy received as wage earning from <i>Man-pashariyai</i> is just enough for 2 months. - The lowest price of a 25 kg rice sack is NRs. 2,000 for which one person has to work for 4-5 days. But this quantity of rice is just sufficient for 8-10 days. The price of oil required during this period is twice more than rice. - People cannot afford to buy vegetables from the market, and rather eat rice with salt, or sometimes sleep without eating.
Consumption Pattern	- Rice, daal, soybean and potato are the major foods that they consume. - Labor workers get food items like <i>bhuja</i>, <i>chiura</i>, <i>samosa</i>, <i>kerau ko tarkari</i> etc as meal during the day. Some even pay just NRs. 20 extra on wage, and don't give anything to eat. - Animal products like milk, meat and egg consumption is very rare.
Food quality	- The quality of purchased food is not checked by the people as they are illiterate. - Market monitoring by authorized agents hasn't happened. - Consumption of junk food items is increasing among children.

4.3 Overview of Livelihood: Sundarharaicha Municipality

4.3.1 Brief Introduction

Sundarharaicha Municipality, located about 19 kilometers from Biratnagar, the headquarter of Morang district, is bordered by Belbari Municipality to the east, Itahari Sub-Metropolitan City to the west, Kerabari Municipality to the north, and Gramthan Rural Municipality to the south. Recognized as one of the municipalities with the greatest potential in Morang district, Sundarharaicha comprises 12 wards in a semi-urban area. This municipality is known for its vibrant trade, industries, factories, natural beauty spots, wetlands, captivating forests, and sites of religious, historical, social, and cultural significance.

Sundarharaicha is at the forefront in various sectors including education, agriculture, livestock, health, and physical infrastructure, all of which contribute to its rapid urban development. With substantial opportunities for infrastructure development, the area is experiencing an increase in population due to migration from other districts and local levels. The major source of income for many families is foreign employment, while agriculture and livestock remain the main local economic activities. Residents are gradually shifting from traditional farming to adopting a modern lifestyle, attracted by the benefits it offers. Notably, 52 percent of the land area is arable, supporting the community's agricultural practices.



4.3.2 Demographic Highlights

According to the National Census 2078, Sundarharaicha Municipality has a population of 120,213, with more females (52.6%) than males (47.4%), resulting in a sex ratio of 90.23 males per 100 females. The municipality contains 29,826 households, with 88% owning their homes and over 10% renting. The literacy rates are high, with 88.8% of males and 77.6% of females being literate, contributing to an overall literacy rate of 82.9%.

Ward no 10 is the largest, followed by wards 9 and 7, while ward no 1 is the smallest. Regarding housing materials, 42.7% of homes use cement bonds, 39.1% use RCC pillars, and 12.5% incorporate wooden and bamboo pillars. The primary water sources for 58.2% of households are tube wells and handpumps, while 30% access tap or piped water within their compounds, and about 10% use these sources outside their compounds. Other water sources like covered wells, spouts, and streams are minimally used.

Cooking fuels vary, with 80% of households using LPG, 17.6% using wood, and 2.4% using biogas. A significant 85% of households have access to smart mobile phones, which are the main tool for communication and accessing information. Economically, 37.9% of the population aged over 10 years is inactive. Ethnically, the municipality is diverse. Hill Brahmins make up 23% of the population, Chhetris 22.7%, Tharu 9.2%, Newar 5.5%, Rai 5%, Tamang 3.8%, Limbu 3.6%, Bishwakarma 3.5%, Khawas 3.3%, and Pariyar 2%. Smaller communities such as Musahar, Bantar, and Jhangad also reside in the area but in smaller numbers.

4.3.3 Vulnerability Status

In Sundarharaicha Municipality, there are 2,512 extremely poor families who cannot afford daily wages for food. Additionally, the number of families classified as poor, middle class, and upper class are 4,600, 9,503, and 2,390 respectively. A total of 2,603 families have food supplies lasting less than three months. It has been observed that

2,201 families face public discrimination. There are 7,990 families burdened by debt, and 2,901 families are landless. Furthermore, 3,389 families are in a situation where they cannot voice their rights. However, many households in Sundarharaicha Municipality are involved in some organizations, with 17,603 families engaged in community organizations. There are 8,090 families unable to afford basic needs like clothing, medicine, and education (*Municipality Profile-2081*).

4.3.4 Status of Self Reliance in Food

In Sundarharaicha Municipality, there are 2,477 households, which make up 13.03 percent of the total, with food supplies lasting less than three months. Similarly, there are 4,280 households, representing 22.52 percent of the



19,005 total households, with food supplies sufficient for four to six months. Additionally, Sundarharaicha Municipality has a higher percentage of families who consume and also sell their agricultural produce compared to other municipalities; here, 22.9 percent of families do so. Moreover, households with food sufficiency spanning seven to nine months are more prevalent in Sundarharaicha than in other areas, totaling 5,234 families (*Municipality Profile-2081*).

4.3.5 Agricultural Information

Due to the large flat terrain in the city, there is an ample area suitable for agriculture. Typically, the agricultural system includes both winter and monsoon crops such as rice, wheat, corn, potatoes, vegetables, fruits, bananas, pulses, and oilseeds, which are the main food and cash crops of the city, and their productivity is also high. Municipality has maintained its economic growth rate from the agriculture sector as well. (*Municipality Profile-2081*).

Sundarharaicha Municipality features 10 local markets where agricultural products and livestock are traded, but wards 4, 5, 6, and 10 do not have any markets. According to the Agriculture and Livestock Yearbook for 2080-81, the municipality has registered 229 livestock farms. This includes 108 goat farms, 89 pig farms, and 99 poultry farms. Additionally, there are 78 dairy shops and cooperatives, 46 meat shops or fresh houses, 17 feed suppliers, 47 professional fish farms, and 32 agrovets. Sundarharaicha also supports 37 farmers groups and 37 agricultural cooperatives that are currently active.

4.3.6 Climate Related Information

The riverbanks within Sundarharaicha Municipality are areas sensitive to erosion. Specifically, the Lohandra river affects Wards No. 1 and 11, causing flooding and erosion, while the Sukuna river impacts the squatter areas in Wards No. 10 and 12. Similarly, the Budhi river and Gachiya river lead to erosion and land degradation along their banks, particularly affecting settlements in Wards No. 4 and 5. In Ward No. 5, areas such as Lalajhoda and Khoksi, and in Ward No. 4, areas like Baliya and the western part of Chariguwa are also impacted.

The Gachiya river running through the central part of the municipality causes erosion in Wards No. 3, 4, 6, and 7, where specific areas like Gachiya Bazaar Line, the entrance to the Jungle area, Vrisar Tole, School Danda, Sitapuri, Hedangne Tola, Bhorjana Dobhan, and the western areas of Gachiya Bazaar, as well as Masanghat in Ward No. 3 and Haveli Tole, Badra Tole in Ward No. 4 are particularly vulnerable.

Additionally, excessive human settlement, uncontrolled fires, grazing habits, and disorganized stone extraction have disrupted the natural balance, leading to an increased risk of uncontrolled flooding affecting settlements and agricultural lands. Human activities and the pressure from livestock concentrated around the municipality's two main rivers have significantly and negatively impacted these erosion-prone areas.

To address this, it is necessary to adopt short-term, medium-term, and long-term measures. Short-term measures could include constructing spurs and embankments, medium-term measures might focus on tree planting around affected areas, and long-term measures could aim to protect the entire river-affected area. It is also essential to run intensive watershed protection programs to shield these areas from human activities.

4.3.7 Food Security Status

Food Access and Availability: In Sundarharaicha municipality, there are no significant issues concerning access to and availability of food. Local markets are conveniently located, with a maximum travel time of 20 minutes to reach them. Additionally, Itahari is nearby, ensuring that everything needed is readily accessible. Residents purchase vegetables and food items at retail prices directly from these markets. Daily necessities such as vegetables, dairy products, and other food items are readily available in the local markets, supporting the community's needs efficiently.

Food security remains a critical concern in Sundarharaicha, with approximately 30% of communities grappling with food insecurity. This issue is particularly pronounced among ethnic and marginalized groups, including Mushalman, Bishwokarma, Khawas, Pariyar, Mijar, Musahar, Danuwar, Oraon/Khuduk, Majhi, Bantar/Sardar, Jhangad, and Dom, with the Musahar, Bantar, and Dom communities facing the most severe vulnerabilities.

"Musahar, Bantar, Jhangad, Khawas. Dom and Uraon are the most vulnerable and food insecure groups who don't care much about food storage and consumption at dry seasons. They tend to drink alcohol and don't care much about their future and their families"- A KII participant, Sundarharaicha-2

The primary livelihood strategies that these communities rely on wage labor in construction, remittances from abroad, traditional sharecropping systems like Adhiya/Bataiya, and firewood collection. These activities are crucial for securing year-round food access, highlighting the need for targeted interventions to bolster food security and support sustainable livelihoods in these disproportionately affected groups. Food security of Sundarharaicha is largely addressed by the contribution of non-agricultural sector as the number of farmers interested in agriculture is decreasing over the years. The below statement made by one of the FGD participants substantiates the above findings:

"People with larger landholdings are often reluctant to invest in agriculture, whereas those with smaller parcels show more interest but lack sufficient collateral to secure loans from banks or financial institutions."- The FGD participant, Sundarharaicha Municipality

Food Production and Agriculture Practice: In Sundarharaicha municipality, the agricultural practices historically demonstrate a high prevalence of smallholder farmers. These farmers have traditionally cultivated a variety of cereals including paddy, wheat, maize, and finger millet. In addition to cereals, the area is also known for producing cash crops such as oilseeds, potatoes, and sugarcane. Vegetable production has been popular, encompassing all seasonal varieties like cabbage, cauliflower, beans, tomatoes, and mushrooms. The livestock sector is also diverse, involving the rearing of cows, buffalos, pigs, poultry, ducks, goats, and fisheries, contributing significantly to the local economy and food security. Most of the small holding farmers sale their all products because of their multiple household priorities and do not save adequate volume of food for their own consumption.

Farming Technique and Major Production Challenges: In Sundarharaicha, farming is predominantly subsistence-based, with infrequent transitions towards high-yield production techniques such as beekeeping,



mushroom farming, and dragon fruit cultivation. The municipality faces numerous significant production challenges that impede agricultural productivity and profitability. Key obstacles include the lack of critical infrastructure like cold storage facilities and collection centers, which are essential for maintaining produce quality and minimizing post-harvest losses. Additionally, local taxes imposed per kilogram of production further burden farmers' financial capacities. The already low levels of production are exacerbated by insufficient governmental subsidies, leading to substantial post-harvest losses and undermining the overall efficacy and sustainability of agricultural efforts in Sundarharaicha.

"As vegetable producers, we face a challenging 5 rupees/kg exit charge from each municipality, significantly increasing our costs and discouraging us. Our perishable products cannot be stored for long, and without practical insurance, we are left vulnerable. Instead of supporting us, local governments prioritize tax collection, leading to potential waste of our produce"-
FGD Participant.

"Last year, I didn't grow cucumbers due to low prices and high costs, saving money instead. But this year, despite higher cucumber prices, increased farmer numbers and rising production costs have squeezed profit margins. High wages and market volatility add to the uncertainty, making farming a risky and often unprofitable venture."- A lead farmer and
FGD Participant

Food Quality and Nutritional Support: In Sundarharaicha municipality, the food quality and nutritional support systems are facing significant challenges. There is a noticeable lack of knowledge about proper cooking and feeding practices among Dalit and Marginalized population, which worsen nutritional problems. Additionally, there is a high dependence on staple food items and an excessive availability and consumption of junk foods, which do not meet the nutritional needs of vulnerable groups. These groups include adolescents, as well as pregnant and lactating mothers, who require specialized nutritional support to ensure their health and well-being. This gap in nutritional adequacy highlights the need for targeted educational and support programs to enhance dietary practices within the community.

Table 4: Food security status by components in the study community - Sundarharaicha Municipality

Components	Description
Food production	- While many residents own land, it is not sufficient to meet their needs throughout the year; a notable number are tenants, including Dalits and other marginalized communities, who farm land owned by landlords who often reside outside the area. - The Musahar community in Ward-5, also known locally as Rishidev, is predominantly landless, relying on daily wage jobs such as construction, firewood collection, and other forms of labor to make a living. - The overall agricultural production within the municipality is enough to sustain its total population. - The area sees a high prevalence of smallholder farmers. - Farming activities include the cultivation of cereals, cash crops, and vegetables, alongside livestock rearing; however, these practices are primarily for subsistence. - The lack of collection centers and cold storage facilities, coupled with high local taxes and diminishing production due to unfavorable policies, have led to a decrease in agricultural interest and productivity.

Availability and access	▪ There are no significant issues with accessing or availability of food. ▪ The local market is conveniently close, within a maximum of a 20-minute distance, and Itahari is also nearby, ensuring that everything is easily accessible. ▪ Vegetables and other food items are purchased at retail prices from the market. ▪ A variety of daily essentials, including vegetables and dairy products, are readily available in the local markets.
Stability and Utilization	▪ Food and vegetable availability remain consistent year-round due to local production and imports from Joghani, India. ▪ Prices fluctuate based on changes in supply, leading to variable costs throughout the year. ▪ During the off-season, the cost of vegetables rises, making them unaffordable for many labor workers. ▪ Dalit and other marginalized communities are particularly affected by the variations in food prices, often struggling to access sufficient food. ▪ The primary nutritional concern among these communities is low calorie intake, as their diet mainly consists of staple and traditional foods like dal, rice, and vegetables.
Purchase capacity	▪ Sundarharaicha offers good employment prospects for laborers due to its proximity to major cities like Itahari, Damak, and Biratnagar, where various labor opportunities are available. ▪ Despite the availability of work, wages are low, typically around 600 for a full day's labor, with women often receiving even less. ▪ Key sources of livelihood for marginalized people include construction, remittance, traditional sharecropping (Adhiya/Bataiya), and collecting firewood, which provide stable options for securing food year-round. ▪ While there are no significant issues with the ability to purchase essentials due to consistent job availability, most Dalit and marginalized community members, such as the Musahar, Bantar, Khawas, and Jhangad, also receive grains as wages, which they can only store for 10-15 days due to inadequate food collection and storage facilities. ▪ These communities have limited purchasing power due to other pressing needs, often resulting in them eating just rice with salt or sometimes going to bed hungry. ▪ Their financial situation worsens during the dry and winter seasons when fewer work opportunities lead to reduced earning potential.
Consumption Pattern	▪ In Sundarharaicha, a typical meal consists of rice, pulses, and a vegetable dish. ▪ Dalit and marginalized workers often eat whatever is available during their labor shifts. ▪ Children commonly consume staple foods such as rice topped with a little vegetable and curry. ▪ Consumption of animal products like milk, meat, and eggs is infrequent. ▪ Pregnant and lactating women receive no special dietary consideration and eat the same foods as everyone else. ▪ Although children have access to midday meals at school, many remain at home and miss these meals. ▪ Local products are accessible in Sundarharaicha, yet the market is dominated by cheaper Indian products due to their lower production costs. ▪ Family consumption patterns are changing as the family size decreases with members moving abroad. ▪ Economic challenges have led to a reduction in money flow and social activities like feasts and marriage ceremonies are being scaled down or simplified, contributing to a gradual decrease in consumption habits over the years. ▪ Most of the farmers have small holdings, whatever they produce they are bound to sale all due to multiple household priorities. They are not able to put some for their

	own consumption. The products they sale will directly go to Biratnagar and elsewhere which makes the local consumption inadequate, which leads to malnutrition of local marginalized communities. ▪ Many producers are not consuming their own products, they sale it to meet their other household necessities.
Food quality	▪ Communities generally prioritize purchasing fresh food and vegetables but lack a formal practice for checking food quality. ▪ There is a weak accountability system in place; there is no food quality monitoring, food labeling is absent, and there is no oversight at fresh produce houses or general market monitoring by municipal authorities. ▪ Market monitoring typically becomes more routine during the Dashain festival but is largely perfunctory. ▪ There is an excessive presence of junk food in local markets, and children from marginalized families, such as the Musahar, have been noted to frequently consume these foods.

4.3.8 Major Barriers to Food Security

Poverty: In Sundarharaicha municipality, poverty is worsened by several critical factors including landlessness, low income levels, the absence of male family members, and a lack of agricultural knowledge among women. These challenges are further compounded by harmful behaviors such as alcohol consumption, general carelessness, and a lack of financial literacy.

"We, mainly from the Dalit community, RishiDev, Muslims, and Darji, live on land owned by the forest and the government. We work for upper-class people, earning minimal wages through daily labor. If the roads are accessible, we get work for 2-3 months, plus an additional month for agricultural activities. Throughout the year, we gather and sell firewood and engage in various other labor jobs to make ends meet. Despite these efforts, we still face about 3-4 months of unemployment annually, which significantly impacts our economic stability."- FGD Participant, Sundarharaicha-5, Asina Simsar

Marginalized families in the area receive insufficient support from the government, lacking essential resources such as irrigation and production subsidies. Additionally, there is no substantial research into weather patterns which could aid agricultural planning, and a definitive agricultural roadmap detailing policies, plans, priorities, and data is notably absent. This lack of structured support and information significantly hinders the community's ability to improve their socio-economic status and escape the cycle of poverty.

"We would definitely be interested in collaborative agriculture if the municipality gave us land. However, we haven't been given any land yet. We previously attempted Sancho production as a group, but it turned out to be an unsuccessful agricultural venture, resulting in significant losses for us."- FGD Participant, Sundarharaicha-5, Asina Simsar

Socio-economic Barriers: Increased real estate development, along with growing interests in housing and plotting, coupled with low governmental support and complex insurance systems, have led to a declining interest in agriculture. Additionally, male migration further degrades these socio-economic barriers, straining the agricultural sector even more.

Climate Impact: Climate change is profoundly affecting the local environment at Sundarharaicha, particularly evident in the shift in weather patterns. The three major wetlands in the region are drying up, a direct consequence of insufficient water recharge, leading to a worrying decline in underground water levels. This drop-in aquifer levels have resulted in heightened drought conditions and more severe cold waves, challenging both the natural ecosystems and agricultural practices. These changes highlight the urgent need for effective water management and climate adaptation strategies to mitigate these impacts and secure sustainable environmental future.

"Droughts limit water resources, and irrigation facilities are unavailable. People with their own land can afford boring systems, but they're expensive for others. Certain paddy varieties grow well but require a lot of water. Due to limited knowledge, we haven't implemented drought-resistant crops extensively. We want to learn about suitable crops, seed selection based on weather, and how to improve production using technical knowledge "- FGD Participant, Sundarharaicha-2

Other Community Level Barriers: At the community level, significant barriers further complicate the viability of agriculture and livestock management. One major issue is the perceived risk associated with these sectors, which deters investment and participation. Additionally, the lack of land ownership poses a substantial challenge. Many community members, particularly those from lower socio-economic backgrounds, find it difficult to acquire land. This difficulty is often worsened by their low status and poor track record, which makes landowners hesitant to lease or sell land to them. These barriers not only hinder individual progress but also stall the overall development of the community's agricultural potential.

Coping Strategies: In response to the challenges faced in agriculture and livestock management, community members have developed several coping strategies to sustain their livelihoods. One prevalent approach is the use of a barter system, which allows individuals to exchange goods and services without the need for cash, thereby circumventing financial constraints. Additionally, community members actively engage in bargaining with landowners to secure better terms for land access, which can include reduced rental rates or more favorable leasing conditions. Another adaptive measure involves changing seed varieties to more resilient types; for example, switching from traditional varieties like 'Masino' and 'Katarni' to 'Ranjeet,' which may offer better yields or adaptability to local conditions. These strategies represent pragmatic responses to the socio-economic and environmental challenges that restrict agricultural productivity.

After we were organized by Lumanti and it formed a savings group here, we can now save money and use it as a loan for various purposes. We contribute Rs. 100 or Rs. 200 based on our needs within the committee. With that savings we are now able to deal our day to day issues and address food insecurity as well"- FGD Participant, Sundarharaicha-2.

4.4 Overall findings

4.4.1 Factors contributing to food insecurity

Among the several drivers of food insecurity, poverty is the most pertinent cause in the study area. Poor landless people who cannot afford proper food with the limited wage earnings fall under the category of food insecure as they don't have their own land for cultivation. Looking at the livelihood status of the community people, following factors were identified as the root cause of food insecurity;

Lack of productive resources (land, livestock, money): Income comes from investment only. The community people don't have anything to invest other than the physical labor. They don't have an ownership of land, where they could cultivate crops for consuming. Even if they want to lease lands, they don't have money to pay the lease amount. Additionally, cultivating crops in others' land comes with the risk of crop loss due to disease, insect or unfavorable weather, and they don't have the capacity to bear the risk. Rearing livestock could be an option for landless people, but that also needs initial investment in buying the animals (one buffalo costs around NRs. 1 to 1.5 lakhs). Raising 1-2 goats and a few chickens would never be enough to earn for the livelihood.

Seasonal and non-regular employment of unskilled workers: The marginalized community people have accepted the labor work as their fate, and the only source of income. They are prepared to do any kind of work, at any time of the day. They mentioned that they would choose to work rather than sleep or eat, if they got the opportunity. However, this kind of work is not regular. On-farm workers are hired only during the peak seasons such as planting, weeding and harvesting. Construction contractors hire these laborers based on the availability of work. On an average, a construction worker gets to work for 15-20 days in a month. Thus, the people don't have any assurance of regular income. Even for the daily wage basis work, they get paid in the timeframe of a week or more. When they get the cash in hand, they immediately buy food items and feed the family. Despite knowing that there is no guarantee of earning the next day, they don't have any money left for saving.

Low wages and expensive market: Income expenditure deviation is one of the major reasons for poverty and food insecurity. When incomes are low, and expenses are high, people fall into the trap of deprivation. They are deprived of basic needs like food, clothing and housing. Labor wage received by the community people is very low because they are unskilled and have no supportive voices to raise. Income earned after all day of hard work is not more than NRs. 500-600 for a person. This neither justifies their level of physical contribution, nor their family needs. Two working adults have 4-6 children to feed. Market price of food items are too high for them. Because of this, they limit their food habit to rice, potato, soybean and few quantities of daal.

Traditional farming system: Few people who have some lands, or have taken land in lease are still following the traditional farming system. Most farmers in Kalika Municipality have limited their cropping system to maize, rapeseed and little millet cultivation. Moreover, production from these crops is completely dependent on rainfall. They don't consider it important to invest for applying fertilizers, and managing irrigation in others' land. They haven't realized that adoption of diverse cropping system in such lands can give them high production as well as monetary benefits. Some of them have been cultivating indigenous crops like millet, buckwheat, soybean etc. but the productivity is very low. Farmers lack specific knowledge on ways to increase production, reduce loss (disease, insects) and obtain high price (through local branding). Further, adoption of modern technologies (improved seeds, mechanization, drip irrigation etc.) is very limited.

Inadequate awareness on quality and quantity of food: Community people prioritize quantity over quality. They have the hunger of eating large quantity of food. Mostly their fooding habit is limited to rice, potato, soybean etc. They purchase daal, vegetable and oil based on the affordability. Consumption of milk is almost negligible. Though they rear chicken, and goats in small number, these have to be sold for money rather than used for home consumption. Some people eat *dhindo* (made of millet flour) when produced at their farm, but they mentioned that today's generation people don't like to eat these food items. The family doesn't have any money to buy vegetables or eggs, but their children insist to buy market items like noodles and biscuits. People lack knowledge on nutritional composition of food, and just focus on fulfilling the hunger.

4.4.2 Existing policies and intervention

The municipal representatives and agriculture officials from the study site mentioned that they don't have any specific plans/strategic documents for improving food security and livelihood status of the marginalized communities. Despite the realization of importance of food security, and the attempt to uplift the living standard of community people, the local government lacks technical expertise in formulating such plans. However, the regular budgetary programs are supposed to make some contribution to achieving these goals (Annex 10, 11 and 12). For example:

Nutrition Campaigns: Recruitment of *Poshan Karyakarta* (Nutrition agent) in the marginalized communities, from among the youths of the same locality has been practiced. These agents deliver information about different programs by the Palika, and also share knowledge on importance of nutritious foods in the locally understandable language. Similarly, other programs for maternal and child nutrition are regularly organized by the health section of the municipal office, in which agriculture and livestock sections collaborate for promoting self-production of healthy foods.

Diwa khaja program program has made a significant contribution to improving child nutrition and in increasing the number of school-going children. Children from the marginalized communities, who are devoid of sufficient food at home, get meals during the day at school. Effectiveness of the program needs to be increased further by promoting the distribution of locally produced foods (millet, *bhatmas*, *kerau*, *chana* etc.) rather than other market available foods like *chiura*, *bhuja*, *samosa* etc. Also, quantity of animal products like egg and meat has to be increased to maintain the balanced diet of children.

Skill-based training to youth and women: Trainings on small scale kitchen gardening, off-season cultivation and disease pest management are conducted for farmers by the local government as well as other organizations. Farmers who are actively conscious of such programs get the opportunity to learn. But these trainings don't

reach to the marginalized farmers who don't visit the Palika regularly because of involvement in labor works. Different skillful trainings on making incense sticks, beauty parlor, tailoring and embroidery, plumbing, wiring etc. have been provided to people by various organizations in collaboration with the local government. However, sustainability of such programs has been a major question, as providing skill-based employment to the trainees, and maintaining enabling environment for small and medium scale enterprises is still a challenge.

Employment opportunities at farm and industries: Being a hub for large scale factories and industries, many unskilled laborers have got employment in daily wage basis. Further, there are opportunities to employ people in higher paid jobs by increasing their technical skills and level of knowledge. The land has high potential for agriculture, and many commercial farmers have been emerging from the area with large scale cultivation and employment to on-farm workers. Though these sectors have created work opportunities, the wage laborers are paid at a low rate, which is not sufficient to feed the family with nutritious food at daily basis.

Budgeted agriculture support programs: Like other local governments, agriculture section in the respective municipal offices has been conducting regular budgeted programs related to subsidy, mechanization and irrigation. Some interventions have also been made through Mayor Krishi Karyakram, Prime Minister Agriculture Modernization Project, small irrigation support, subsidy on mechanization and processing industries (tractors, combined harvesters, milk processing plants etc.), One Ward One Production campaign, agro-tourism promotion, indigenous crop promotion programs etc. that are organized from federal, provincial or local level at different periods. In Sundarharaicha municipality, some support programs are being implemented to bolster agriculture and livestock management. The major initiative noted is enlisting farmers and distributing them ID cards to mainstream them into support system the local government would come up with in future. Additionally, regular federal and provincial conditional activities are carried out, although there is no provision for special grants activities currently. The overall participation of farmers in such programs is satisfactory but these programs haven't been able to target marginalized landless communities. There are no any reservations for the disadvantaged groups of people, because of which they lack proper information sharing, and are not encouraged to apply for the services.

4.4.3 Gaps in existing mechanisms

Despite several efforts, significant gaps remain in the policy and institutional framework affecting agricultural productivity and food security. There is a clear absence of an agricultural/livestock policy, master plan, or even a periodic plan, and no specific projects are being implemented to address food security concerns directly. The lack of adequate institutional support includes deficits in human resources, storage infrastructure, supplies, training, and orientation. Furthermore, the municipalities struggle with inadequate data and information management systems, capacity building, and financial literacy activities.

"Specialized product sellers from India hold a dominant position in our market. Unfortunately, we lack comprehensive data on production quantities, consumption rates, and sales figures. Additionally, we don't have access to quality seeds, which is a significant setback. It's crucial that we identify the major products and address the production-related and market-related gaps that exist."

Another critical gap is the absence of a family empowerment strategy and support for women entrepreneurship, which is crucial as 36% of households in Sundarharaicha are women-headed. Additionally, the lack of research into weather patterns and a strong information mechanism to reach farmers directly at their doorsteps further complicates these challenges.

Farmers often don't receive seeds or necessary facilities on time. When we complain to the municipality, they don't pay enough attention. During fertilizer shortages, the municipality distributes it, but often through influential farmers or ward offices. This leads to unequal distribution and disputes. If fertilizers were provided directly to ward offices, this problem could be avoided- KII Participant, Sundarharaicha-2

FGD participants unanimously shared that insurance provisions for loans are overly complex, with a heavy 25% of the amount required as a service charge or commission. This is a significant burden for them as farmers, especially when the safety of their food products is questionable due to excessive pesticide use. The local

government needs to engage actively with organizations working on food security, devising clear plans that can gather NGO support. However, the process is hindered by a lack of detailed data, making it challenging to pinpoint and address the precise needs of farmers.

*"Last year one cold storage was built but the local government did not know what to keep inside that cold storage. Municipality had no provision of seed production which could be kept for off season usage and consumption. We advocated with the local government to plan for mass seed production program to make that cold storage functional and having that infrastructure functional"- **A lead farmer and FGD participant***

Participants also shared that the local government's information mechanism is weakening, leading to significant gaps such as unknown quantities of seed production and fertilizer availability. There is a disconnection between local governments, lead farmers, and their products, which further complicates the situation. Instead of approaching the local government, farmers tend to seek advice from agrovets who often recommend expensive pesticides and minerals. Moreover, the presence of microfinance institutions poses another challenge; their loan strategies do not favor the marginalized as they focus on achieving targets rather than fostering sustainable economic activities like agriculture.

Health Section Chief of Sundarharaicha Municipality expressed that the internal resources and budget allocated by the Municipality are insufficient to tackle the food security issues of the marginalized populations effectively. The municipal government relies heavily on conditional grants from federal and provincial levels, and the budget allocated annually is significantly reduced during the planning stage. Projects are implemented on a temporary basis, showing positive changes and outcomes only during their active phases. Once these projects conclude, the improvements are not maintained, and best practices are not sustained.

*"The local government has persistent policy confusion, budget constraints, lack of awareness, shortage of agricultural and livestock extension workers, and a deficit in technology to boost production, all of which are major challenges that stakeholders need to address to improve the food security situation in Sundarharaicha"- **Agriculture Section Chief, Sundarharaicha Municipality***

In a nutshell, following gaps or limitations were observed in the existing mechanisms and provisions made by the government. Project intervention for fulfilling such gaps would be highly impactful in the targeted region.

- **Training or awareness programs specific to food diversity and balanced diet** have not been provided yet. People with lands lack knowledge on how to diversify their production and are continuing farming in traditional way. On the other hand, landless and marginalized communities have not been able to engage themselves in activities like livestock rearing, let alone the use of advanced technologies for soil-less culture and vertical farming. Further, both landowner and landless households don't have adequate knowledge on balanced diet consumption, nutritional importance of indigenous foods and the demerits of junk food.
- Local governments are lagging behind for the **formulation of strategic plans for food security** through collaborative efforts with other development partners. It is necessary to identify the existing food systems in the area, pin-point the weaknesses and suggest measures to improve. Currently, there are no updated database on food security status of the people for example: yearly productions statistics, ward-wise production and consumption pattern, family food sufficiency, income and saving status etc. Availability of such data can serve as a foundation to make strategic plans for social and economic development.
- No concrete **action** has been taken **against low wage rate and food rights of laborers**. Some respondents indicated that industries prefer to hire Indian workers to Nepalese workers, when trade unions or other organizations tend to raise voice for wage increment and facilities to laborers. The government officials have not addressed this issue as they haven't received any written complaints. But it is a bitter truth that the laborers are overexploited, but paid very less due to which they cannot fulfill

their basic food requirements too. Further, the issue of seasonal and non-regular employment of these workers has not been given due attention. There are no any kind of services which would ensure the food rights of laborers when they don't get work opportunities for several days.

- When it comes to organizing trainings, awareness programs or other facilities, very limited attention is given towards the **outreach to targeted communities**. Information flow and encouragement initiatives was found to be minimal in the community level. They are deprived of some agriculture support programs like boring construction, agriculture input subsidy etc. because they don't have the required documents (land ownership document). Further, no distinct programs with reservations for marginalized communities have been organized that would promote small scale farming, kitchen gardening and livestock rearing among such people.

5. Conclusion and Recommendations

5.1 Conclusion

The comprehensive study across the study area reveals deep-rooted challenges in achieving food security, predominantly due to socioeconomic disparities, inadequate agricultural practices, and systemic policy gaps.

In Kalika Municipality, despite a significant portion of the population engaging in agriculture, the yield remains low due to traditional farming methods and a lack of land ownership. This situation is compounded by the inability to commercially scale crop production and the limited success of livestock rearing as a consistent source of income.

Jeetpur Simara Sub-Metropolitan City faces its own set of challenges where a significant proportion of the community relies on daily wage labor, with agriculture playing a secondary role. The lack of land ownership and the high dependency on labor work create a precarious living condition where food security is directly tied to the availability of daily work. The cyclical poverty exacerbated by high living costs and low income underscores a critical need for sustainable economic strategies and food security interventions.

Sundarharaicha Municipality represents a vibrant and dynamic community marked by its diversity and potential in sectors like agriculture, livestock, and small-scale industries. However, the municipality faces significant challenges related to food security, particularly among its most vulnerable populations including Dalits and other marginalized groups. These challenges are compounded by socio-economic barriers, inadequate agricultural infrastructure, and climatic vulnerabilities that disproportionately affect the less affluent communities. Despite these hurdles, Sundarharaicha demonstrates a resilient and adaptive community spirit. The area's agricultural practices, though predominantly traditional and subsistence-based, contribute significantly to local livelihoods. However, the limited commercialization and lack of adequate support infrastructures such as cold storage facilities and effective market strategies stifle economic growth and sustainability in farming.

The community's vulnerability to food insecurity is worsened by factors like low wage levels, irregular employment opportunities, and high dependency on remittances and daily wages. To combat these issues, it is imperative to implement holistic and sustainable development strategies that focus on enhancing agricultural productivity, improving access to markets, and ensuring equitable food distribution. Strengthening local governance and community engagement in planning and implementing food security measures will also play a crucial role. Emphasizing education on nutritional practices, expanding infrastructure, and fostering more inclusive economic opportunities can transform the subsistence economy into a more vibrant, sustainable, and equitable system. Sundarharaicha's path forward lies in leveraging its agricultural heritage while integrating modern innovations to build a resilient community that can thrive in an ever-changing global landscape.

The findings highlight the urgent need for targeted interventions to address the gaps in agricultural support and labor conditions. Strategies must include the promotion of modern agricultural techniques, better access to markets, structured policy support for landless farmers, and robust programs that ensure regular income for daily wage workers. Additionally, enhancing the knowledge base regarding nutritious and diversified diets and

introducing innovative farming solutions like community farming and vertical agriculture can play pivotal roles in overcoming food insecurity.

By addressing these challenges through collaborative efforts between local governments, community members, and development agencies, there is potential to transform the existing socioeconomic landscape into one that supports sustainable growth and equitable food distribution, thereby significantly improving the living standards and food security of the marginalized populations in these municipalities.

5.2 Recommendations

Based on the above findings, and an understanding of the scope of intervention by Lumanti, following practically feasible recommendations are made for improving the food security status of marginalized communities in the study area.

5.2.1 For improving food security at community level

A) Land lease for collective farming: Since most of the communities associated with Lumanti are from the landless groups, facilitation for leasing land for cultivation can be an important step. The people are illiterate, and have little or no knowledge about making contractual agreements, and there are high chances that they would be deceived by charging high lease amount, or by other kinds of fraud. Hence, the project team needs to support them via coordination and documentation. Major actions to be taken by Lumanti include preparation of contract documents, explanation of the terms and transaction facilitation through formally set procedures.

Taking into consideration, the inability of marginalized communities to be engaged in agriculture commercially at once, the project should encourage them to participate in collective farming. For this, the project should facilitate the formation of a group of 4-5 farmers, and help them register as a group in the municipal office. Keeping records of landowners interested to lease their lands can also be done in coordination with the Palika through the Land Bank program launched by the government. Once a leasing agreement is signed between the group and the landowner, the group should be capacitated to apply for agriculture input subsidy from the Palika's program. The group will contribute their labor in the farm, and also make small investments for the purchase of inputs like seeds, fertilizers and pesticides. The project should provide them some support financially through credit, and subsidized supply of inputs. Further, in order to increase production, trainings, technical guidance and technology dissemination has to be done. For this, agriculture officials from the local government should be trained, while the project can also mobilize local youths through ToT (Training of Trainers) programs.

This kind of intervention will help improve the food security of the community people by helping them produce what they consume. Being in a group, other members can do their daily wage work, when one is taking care of the farm in turn. Thus, they can save their wage income for other works like education, health and shelter.

B) Livestock Promotion: Unavailability of land shouldn't be a constraint to food security. Livestock rearing is possible even in small area of land. It was quite amazing to hear that the children slept together with their goats in the small house in Bara. When they raise these goats by hook or by crook, they can sell them at the time of financial crisis. Even if they don't have lands, people can rear local chicken which feed on insects, livestock manure, or anything else available in the yard. These can be sold for money, and also consumed for animal protein. The marginalized landless community people who go for labor work during the day can spare some time in the morning and evening to collect fodder for the livestock. Such practice would diversify their diets and improve their body health, due to which they can work with greater efficiency in the workplace too.

Most of the community people showed great interest in livestock farming during the Focus Group Discussion. During the observation, it was found that people have already started rearing goats. Their efforts can be enabled further through particular support on improved breed and proper feed in collaboration with the Palika. For example: under the 'One Ward One Production' program, goat farming has been allocated as the major product for ward 3 of Kalika Municipality. The project can support by sharing such information and by conducting community strengthening programs.

As the community people can contribute their labor work, they can be trained for constructing bamboo sheds for their livestock. If they are assisted with the arrangement of bamboo from the forest through necessary communication, provision of small tools like screw, nuts, saw etc., and training on shed structure and maintenance, they can build the sheds themselves at low cost. Such support will be helpful in increasing the number of livestock holdings in each household thus, increasing their income.

C) Tole Bikas Samiti Mobilization: Lumanti has been working with community based committees (*Tole Bikas Samiti*) of the intended beneficiaries in each locality. Community engagement and participation in different programs was found to be very impressive. This initiative has not only enhanced the leadership skill among local youths but also eased in program facilitation through communication and gathering. Moreover, the habit of regular meetings and monthly savings have been developed.

At this stage, the project can take actions to mobilize these youths in several activities. Some of the suggested approaches are as follows;

- ❖ 'Passing the gift' initiative under which one person who gets support from an organization would pay back by providing the same kind of support to another person in the society. Example: if a person gets a she-goat, he would rear that goat and when it gives birth to kids, he would gift one she-goat to another person in the committee.
- ❖ Just as bargaining power of producers increase with collective farming, 'collective purchase' of food items from the market increases the purchasing capacity of people. The group members can save some part of their income and buy rice, daal, oil etc. from the market in bulk. This kind of initiative is also helpful in promoting the consumption of quality foods like egg, milk etc.
- ❖ The concept of 'common kitchen garden' can be developed in areas where community people have lands for their house only. This can avoid the conflict of cultivating vegetables in others' yard. By developing the habit of sharing, even a small portion of land in between two houses can be used for cultivating gourds and other vegetables. It can further be promoted by distributing seeds to the community through the committee.

D) Promotion of diverse cropping system: For improving the food security status of the people in study area, the project can also intervene by raising awareness on importance of diverse cropping system and nutritious diet consumption. Community people with small land holding, or those who have taken land in lease for farming should be encouraged towards the production of indigenous crops like finger millet, buckwheat, bhatmas, maas ko daal etc. Promotion of diverse cropping system can be directed towards several aim to achieve such as;

- When farmers consume these nutritionally important crops, they would move ahead towards achieving food security.
- Utilization of such products in nutrition programs by local government (health section), schools (for *diwa khaja*) and by market agents (as local brand) would promote their marketing and raise farm incomes.
- Preparation of local meals using these products in restaurants near tourist area would attract tourists and ensure better price at once.

5.2.2 For advocacy on food security

Advocacy with government stakeholders

- ❖ **Strategic plan formulation through community engagement:** Government of Nepal has developed several laws, policies and strategic documents for food sovereignty and food system transformation. These plans and documents have to be customized at local level based on the local context and livelihood status of people. Recently, a food system dialogue organized by National Planning Commission as a part of UN food system summit 2021 has identified 6 action pathways for transforming food system in Nepal. The local government have been considered responsible for the adoption of local food plan, and creation of Local Food Coordination Committee. Technical guidance and consultancy services can be provided for such works by the project team.

Further, during interaction with the municipal representatives, it was realized that they have distinct vision on improving the livelihood of marginalized people. Specifically, agriculture, tourism and industry were mentioned as the priority sectors in their verbal manifesto. However, these plans need to be well-documented and organized such that the vision can be realized in action. Proper technical guidance on this matter can make a significant contribution on efficient allocation of resources and justified distribution of services.

- ❖ **Ward profiling for socio-economic status of people:** The municipality profile of all three study areas contains information that isn't updated with time (the latest available ones relevant to the current study are presented in the annex). These data provide valuable information for guiding future plans if they could be timely updated. Nevertheless, such documents lack proper information on food availability, access and utilization status of the people. While working as a supplementary organization for providing services to the people, Lumanti can develop a framework for preparing the ward-wise profile including important information on socio-economic status of people. Other necessary support and coordination can be done to collect data and prepare the socio-economic profile of different communities. Such documents will serve to assess the current situation of marginalized communities thus, providing a basis for conducting targeted programs.
- ❖ **Distinction of quota for landless and marginalized people in trainings and support programs:** Though several training and support programs are regularly conducted from the local government, duplication of services is often observed due to lack of proper monitoring mechanism. While some people receive the same kind of training twice, some people don't even get to hear about those opportunities. Different skill-based trainings provided by different organizations, as well as relief support brought by people from different areas are not recorded well in the local government's database. Lumanti should advocate for the arrangement of proper record management system that keeps record of the beneficiaries from different programs. Specially, maintaining records of skill-based trainee would be used to hire required personnel at later date. Also, the records will help in avoiding the same person from getting the same service time and again thus, giving opportunities to others. While conducting such programs, it is important to distinguish certain reservations for marginalized communities.

Advocacy with industry/farm employers

The working areas of Lumanti have good potential for agriculture, and are also the major industrial hubs. People from these areas are mostly employed by the industries or farms on daily wage basis. Therefore, Lumanti can advocate for food security of the laborers through essential interaction with the employers.

- ❖ **Industry Canteen:** Healthy food can be served to the laborers at low price through the establishment of industry canteen. Landless people working in the industries, who don't have enough food to eat at home can consume this food and satisfy their hunger for at least one time a day. This initiative was found to be made by Surya Nepal Factory in Bara, where workers get healthy food at just NRs. 25. This service should be specifically targeted to marginalized communities, so that they can get proper food and work efficiently. Lumanti, in collaboration with the local government, can organize workshops and interaction meeting among industry owners on how such initiatives can be effective in improving food security condition of the workers.
- ❖ **Wage Rate Agreements:** Low wage rates accompanied with tough physical work is a serious concern from human rights perspective. The wage amount that workers receive from industries and farms are lower than the minimum wage rate determined by the government. Tripartite interaction among industry owners, local government and Lumanti (representing the laborers) should be organized to agree on wage rates that is justifiable to the level of work difficulty and is also sufficient for covering basic family expenses. The community people should be made aware about the agreed wage rates, and regular monitoring should be done by the local government for its execution. Understanding the condition that healthy-laborers means better-work-performance, industry owners should be encouraged to support their workers for small scale farming for family food consumption. As a part of Corporate Social Responsibility, they can promote diversified farm production by providing agriculture inputs as material support, or any other forms of bonus/tips to the workers. For example: farm employers can provide small quantity of seed to them when

they leave from work. Similarly, industries can provide spray tank, secateurs, gloves or other kind of equipment in special occasions like: high sales, festivals etc.

5.3.3 Approaches for food system transformation

Individual/ Household level Approaches

- ❖ Accelerate the adoption of intelligent practices, such as Climate Field Schools. Climate Field Schools (CFS) play a pivotal role in improving food security by educating farmers about climate-smart agricultural practices. These schools provide hands-on training on how to adapt farming techniques to changing weather patterns, thereby enhancing crop resilience and yields. By integrating traditional knowledge with new technologies, CFS helps farmers make informed decisions that increase productivity and sustainability, directly contributing to better food security.
- ❖ Introduce households to digital platforms to enhance their access to resources and information regarding food security.
- ❖ Implement Behavior Change Communication (BCC) strategies and activities aimed at reducing family sizes, particularly in ethnic and marginalized families.
- ❖ Initiate activities to increase livestock numbers to enhance opportunities for income generation among households.
- ❖ Connect smallholders to local government food security initiatives.
- ❖ Promote an environmentally friendly food system through consistent soil testing, and the use of organic fertilizers and pesticides, encouraging the consumption of locally grown nutritious food.
- ❖ Link social protection initiatives to food security efforts, raise mass awareness, and establish a strong tracking mechanism.
- ❖ Provide training and orientation to smallholders and farming communities on smart agriculture practices and the proper use of underground water resources.
- ❖ Train families, especially mothers, in practicing homestead food production and maintaining kitchen gardens.
- ❖ Develop and mobilize local food security advocates through a role model approach.
- ❖ Build the capacity of households in improved drying and storage techniques for surplus produce to ensure availability during lean seasons.

Approaches related to landless and marginalized communities

- ❖ It's crucial to provide orientations on financial literacy and savings strategies to marginalized communities, teaching them how to manage expenses and empower them to handle their income effectively.
- ❖ Initiating mass orientations and establishing community laws can help maintain checks and balances and improve the behavioral aspects of marginalized communities resistant to change.
- ❖ Adopting a role model approach can empower leaders within the community to enforce community laws and regulations, moving away from project-based controls.
- ❖ The behavioral attitudes of Dalits and marginalized groups need significant correction to foster positive community development.
- ❖ Conducting detailed municipality and ward profiling to identify disaster-prone areas and determine necessary relief measures is essential for preparedness.
- ❖ Supporting the creation of community welfare and emergency funds managed by marginalized groups themselves can boost their morale and enable them to address issues independently, with strengthening their support systems.
- ❖ Foster financial literacy by forming separate cooperatives for marginalized communities, helping them utilize their income to secure adequate, nutritious food and address household-level food insecurity.
- ❖ Implementing tailored nutrition education and awareness programs specifically designed for marginalized communities can significantly improve their health outcomes.
- ❖ Promoting kitchen gardening and raising awareness about the negative impacts of pesticide use and the benefits of consuming seasonal vegetables are key to improving food safety and sustainability.
- ❖ Raising awareness about recent weather patterns and promoting traditional water storage solutions like ponds and wetlands can help local farmers adapt to environmental changes.

- ❖ Developing networking platforms to connect farmers, cooperatives, and local government officials can enhance the information mechanism and stimulate discussions about food security, ensuring a more coordinated approach.
- ❖ Work with local governments to design and implement social safety programs such as guaranteed minimum days of employment, food for work, or direct food aid during off-seasons or in times of economic downturns
- ❖ Establish community gardens where landless workers can grow vegetables and fruits. This not only provides access to fresh produce but also fosters a sense of community and collective responsibility. Identify and utilize any underused public or private lands that could be temporarily converted into community garden spaces.
- ❖ Implement programs that provide nutritional supplements or fortified foods to vulnerable populations, especially children, pregnant women, and the elderly. These programs can help mitigate the effects of nutritional deficiencies common among low-income, food-insecure populations
- ❖ Offer training programs that enable wage workers to acquire new skills in areas such as handicrafts, small-scale food processing, or other vocational skills that do not require land. This can help diversify their income sources and reduce dependency on daily wages.
- ❖ Collaborate with local restaurants, supermarkets, and farms to set up food recovery and donation programs that redirect surplus food to those in need rather than letting it go to waste.
- ❖ Advocate for local policies that provide a minimum income guarantee or seasonal employment schemes during agricultural off-seasons or economic downturns, ensuring that landless workers have a basic income safety net.
- ❖ Encourage the establishment of community-managed food reserves that can be used in times of personal or widespread crisis. Training on how to manage and rotate stock can ensure sustainability and readiness.
- ❖ Provide financial and technical support women's groups such Health Mothers Groups, Lumanti supported Saving and Credit Groups for super flour (Sarbottom Pitho) production and marketing. Coordinate with local government for its wider sale and consumption
- ❖ Design and disseminate family food menu and kitchen calendar targeting vulnerable population such as adolescent girls, pregnant and lactating women and children below 5 years
- ❖ Provide support for land rehabilitation and river bank vegetable farming, both at communal or individual level

Community/Institutional Level Approaches

- ❖ Advocate for the timely provision of technical support and agricultural inputs, ensuring there are enough agri/livestock extension workers available.
- ❖ Work towards the economic empowerment of smallholder women and focus on developing their leadership capabilities.
- ❖ Bolster community networks and farming institutions such as groups and cooperatives to strengthen local agriculture.
- ❖ Partner with the Government of Nepal's Agriculture Knowledge Centers, Agribusiness Promotion Support and Training Center, and the Council for Technical Education and Vocational Training to train and produce community-based female extension workers.
- ❖ Create women led marketing groups and collection centers focused on women to enhance their market influence and economic power.
- ❖ Advocate for investment in post-harvest management infrastructure such as cold storage and dry chains, and ensure linkages to financial services and markets.
- ❖ Promote and implement strong information mechanisms and accountability measures, including digital platforms, public hearings, feedback and suggestion boxes, and community participation in local level planning.

Policy and System Level Approaches

- ❖ We can assist the local government in crafting a comprehensive food security roadmap.
- ❖ Conduct ward profiling to establish a baseline status and set annual benchmarks for progress.
- ❖ Advocate for policies that guarantee the right to food, ensure food sovereignty, provide access to subsidies, and enhance social protection measures.

- ❖ Promote collaborative learning, sharing, and adaptation among various stakeholders.
- ❖ Support government subsidy programs that enhance agricultural outputs.
- ❖ Implement climate change adaptation policies, including the development of climate-smart local plans by local governments.
- ❖ Encourage private-sector support to combine technical services with supply provisions, enhancing agricultural efficiency.
- ❖ Empower marginalized communities to advocate for their own food rights and actively participate in the local level planning processes.
- ❖ Establish clear land use policies, particularly for land left unused by original owners, to optimize agricultural productivity and land management.

To effectively enhance food security, it is crucial to prioritize support for marginalized households by tailoring interventions to suit the specific agroecological contexts and household priorities. Efforts should focus on boosting both the production capabilities and incomes of these households. Additionally, it is important to facilitate coordinated actions that address the supply, demand, and policy frameworks necessary to foster a safe and equitable food environment. This comprehensive approach ensures that food security measures are both inclusive and effective.

6. Annex

Annex 1: Number of households according to land ownership by wards and ethnic groups – Kalika Municipality

Category	Total households	Landless households	Households with land		Households without kitchen garden
			With Purja	Without Purja	
Ward					
1	826	18	779	29	119
2	1,093	17	1,051	25	93
3	1,446	20	536	890	354
4	815	35	692	88	69
5	1,032	37	973	22	362
6	1,577	49	1,367	161	240
7	1,208	37	488	683	470
8	1,423	24	468	931	502
9	872	7	519	346	157
10	501	21	232	248	92
11	327	8	132	187	126
Total	11,120	273	7,237	3,610	2,584
Ethnic group					
Hill brahmin, kshetris, sanyasi, Thakuri	3,267	50	2,774	443	511
Hill indigenous	5,758	140	2,903	2,715	1544
Tharu/Terai indigenous	1,442	51	1,261	130	293
Hill Dalits	640	32	289	319	235
Terai others (Yadav, Shah, Teli, Thakur)	8	-	7	1	2
Muslim	5	-	3	2	1
Total	11,120	273	7,237	3,610	2,586

Source: Municipality profile, Kalika Municipality

Annex 2: Percentage distribution of households according to land ownership by wards and ethnic groups-Kalika Municipality

Category	Total households *	Landless households* *	Households with land**		Household s without kitchen garden**
			Wit h Purj a	Withou t Purja	
Ward					
1	7.43	2.18	94.31	3.51	14.41
2	9.83	1.56	96.16	2.29	8.51
3	13.00	1.38	37.07	61.55	24.48
4	7.33	4.29	84.91	10.80	8.47
5	9.28	3.59	94.28	2.13	35.08
6	14.18	3.11	86.68	10.21	15.22
7	10.86	3.06	40.40	56.54	38.91
8	12.80	1.69	32.89	65.43	35.28
9	7.84	0.80	59.52	39.68	18.00
10	4.51	4.19	46.31	49.50	18.36
11	2.94	2.45	40.37	57.19	38.53
Total	100	2.46	65.08	32.46	23.24
Ethnic group					
Hill brahmin, kshetris, sanyasi, Thakuri	29.38	1.53	84.91	13.56	15.64
Hill indigenous	51.78	2.43	50.42	47.15	26.81
Tharu/Terai indigenous	12.97	3.54	87.45	9.02	20.32
Hill Dalits	5.76	5.00	45.16	49.84	36.72
Terai others (Yadav, Shah, Teli, Thakur)	0.07	-	87.50	12.50	25.00
Muslim	0.04	-	60.00	40.00	20.00
Total	100	2.46	65.08	32.46	23.26

Note: * - Percentage of total households in the municipality; ** - Percentage of total households from the respective ward, or ethnic group

Source: Municipality profile, Kalika Municipality

Annex 3: Statistics on food sufficiency from own production – Kalika Municipality

Food sufficiency from own production	Number of households	Percentage of total
12 months	2890	25.99
10-11 months	692	6.22
7-9 months	1052	9.46
4-6 months	1859	16.72
up to 3 months	3065	27.57
No land	238	2.14
Not engaged in farming	472	4.24
No land for cultivation	851	7.65
Total	11119	100

Source: Municipality profile, Kalika Municipality

Annex 4: Crop farming and marketing information – Kalika Municipality

Crops	Households engaged in farming		Households engaged in marketing	
	Number	% of total households	Number	% of farming households
Paddy	5137	46.20	329	6.40
Maize	6811	61.25	1163	17.08
Wheat	397	3.57	19	4.79
Millet	963	8.66	15	1.56
Beans	2028	18.24	464	22.88
Pigeon pea	21	0.19	1	4.76
Lentil	2198	19.77	185	8.42
Chickpea	52	0.47	3	5.77
Soybean	1465	13.17	26	1.77
Rapeseed	4103	36.90	160	3.90
Flaxseed	11	0.10	0	-
Potato	4238	38.11	116	2.74
Cole crops	3798	34.15	116	3.05
Cowpea	3275	29.45	196	5.98
Tomato	3464	31.15	151	4.36
Cucurbits	4802	43.18	164	3.42
Ginger/turmeric	4168	37.48	154	3.69
Onion/garlic	4646	41.78	47	1.01
Mushroom	20	0.18	11	55.00
Banana	1388	12.48	1382	99.57
Mango	637	5.73	49	7.69

Citrus/lime	187	1.68	40	21.39
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Source: Municipality profile, Kalika Municipality

Annex 5: Livestock farming details – Kalika Municipality

Livestock	Number	Households	% of total households	Holdings per household
Cattle	7018	2906	26.13	2.42
Buffalo	577	525	4.72	1.10
Goat/sheep	33673	4870	43.79	6.91
Pig	1412	688	6.19	2.05
Poultry	165796	2900	26.08	57.17
Duck	5360	713	6.41	7.52

Source: Municipality profile, Kalika Municipality

Annex 6: Households by ethnic group – Jeetpursimara Sub-Metropolitan City

Ethnic group	No. of households	Percentage
kshetri	4357	20.54
Bhrahmin	5653	26.65
Magar	719	3.39
Tharu	1073	5.06
Tamang	2613	12.32
Newar	1527	7.2
Muslim	1039	4.9
Hill indigenous	876	4.128
Hill Dalits	761	3.59
Terai indigenous	2123	10.01
Others	469	2.212
Total	21211	100

Source: Municipality profile, Jeetpursimara Sub-Metropolitan City

Annex 7: Socio-economic status of people - Jeetpursimara Sub-Metropolitan City

Description	No. of households	percentage
Poverty level		
Very poor	4132	19.48
Poor	5063	23.87
Medium	7906	37.27
Rich	4110	19.38
Land ownership		
No land ownership	755	3.56
Given for rent	6205	29.25
less than 5 kattha	6373	30.05
Own land (>5 Kattha and self-cultivating)	7878	37.14

Major occupation		
Agriculture	10950	51.62
Livestock	62	0.29
Poultry	45	0.21
Fish	17	0.08
Trade	4367	20.59
Industry	345	1.63
Service job	1230	5.80
Daily labor	2345	11.06
Foreign employment	2750	12.96
Monthly savings		
0	3095	14.59
500-1000	3096	14.60
1000-2000	3228	15.22
2000-3000	2688	12.67
3000-5000	3516	16.58
5000-10000	2895	13.65
>10000	2693	12.70

Source: Municipality profile, Jeetpursimara Sub-Metropolitan City

Annex 8: Food production and availability status - Jeetpursimara Sub-Metropolitan City

Production	Area (ha.)	Production (Mt.)	Per capita availability (kg per year)*
Paddy	10714	51250	434.51
Maize	3534	29950	253.92
Millet	20	28	0.24
Wheat	540	9465	80.25
Pulses	190	1463	12.40
Oilseed	230	1655	14.03
Vegetables	6830	20166	170.97
Spices	70	168	1.42
Fruits	302	49977	423.71

Note: * - Calculated by dividing total production by total population, to estimate food availability under the assumption that the product is consumed by the people before selling

Source: Municipality profile, Jeetpursimara Sub-Metropolitan City

Annex 9: Livestock production and availability status - Jeetpursimara Sub-Metropolitan City

Livestock	Population	Milk (l)	Meat (kg)	Egg (No.)
Production				
Cattle	2220	4230		
Buffalo	1430	8210	80280	
Goat	2602		61175	

Pig	145		6250	
Poultry	9224		107559	22500
Duck	375		1064	255
Fish	1003		2010	
Per capita availability				
		0.11	2.19	0.19

Note: * - Calculated by dividing total production by total population, to estimate food availability under the assumption that the product is consumed by the people before selling

Source: Municipality profile, Jeetpursimara Sub-Metropolitan City

Annex 10: Relevant programs allocated with certain budget from Kalika Municipality for the fiscal year 2081/82

Budget heading	Purpose
Miscellaneous	
22522	Industrial enterprise promotion program
22522	Training to consumer groups
22522	Skill development and capacity building of housewives
22522	Mobilization and coordination with Tole Bikas Sanstha
22522	Program for land management
22611	Market monitoring
Agriculture	
22522	Farmers registration
22522	Subsidy on lime seedlings and Bordeaux paste
22522	Bee promotion program
22522	Subsidy (80%) on seeds and seedlings of ginger, turmeric, Colocasia, and citrus fruits among farmers of ward 9, 10 and 11
22522	Problem based training and seminars (vegetables, fruits, cereals, bee, crop insurance, soil testing, pesticide awareness etc.
22522	Subsidy (50%) to farmers interested in collective farming
31159	Subsidy (85%) on irrigation construction and repair
Livestock	
22522	One day training-visit on cattle/goat/poultry/pig farming (one for each ward)
22522	Improved shed program for goats
22611	Monitoring of meat and dairy shops

Source: Budget allocation 2081/82 Kalika Municipality

Annex 11: Relevant programs allocated with certain budget from Jeetpursimara Sub-Metropolitan city for the fiscal year 2081/82

Budget heading	Purpose
Miscellaneous	
25315	Collaborative program with Lumanti
26332	Incentives to Poshan Karyakarta under multi-sector nutrition program
26332	Subsidy for operation of women entrepreneurship development facilitation center
26332	Miscellaneous expenses for employment service center
Agriculture and Livestock	
31131	One village one technician for agriculture and livestock
25313	Agriculture and livestock-based training and subsidy program

31131	Subsidy on improved seeds of cereal crops (paddy, wheat)
22522	Subsidy on bank interest for commercial livestock growers
26413	New pocket program cattle/buffalo
22522	Good livestock husbandry (cattle/buffalo) promotion program
22522	Calf promotion program for meat

Source: Budget allocation 2081/82 Jeetpursimara Sub-Metropolitan City

Annex 12: Relevant provisions enlisted in the budget announcement for fiscal year 2081/82 - Jeetpursimara Sub-Metropolitan City

Sector	Description
Economic Development (Agriculture)	Modernization, commercialization and mechanization of agriculture sector to develop this sector as a foundation for poverty eradication, end of unemployment and food security
	Encouragement to farmers through technical assistance and agriculture input services
	Execution of the concept of vegetable pocket and milk city
	Training and visit programs for farmers
Social Development	Skill-based capacity development programs for upliftment and development of women, indigenous groups, Muslims, Madhesis, Dalits, minority populations and disadvantaged groups
Land conservation	Management of landless (<i>sukumbasi</i>) problems, and unmanaged settlement through the bill for the center for management of land ownership

Source: Budget allocation 2081/82, Jeetpursimara Sub-Metropolitan City

Annex 13: FGD Checklist

Major questions	Supportive questions
What are the major food crops available in your community?	• Which of them are cultivated in your farm? • Is their production sufficient for your household consumption? • How do you fulfill the demand of insufficient food? • What is the market price and availability status of these crops?
How is the access, stability and utilization of food crops in your community?	• Do all people in your community have equal access to healthy and nutritious food? • Is farm production and market supply stable throughout the year? • How do you consume the food, and how do you utilize the excess food?
How do you describe the quality of food and its nutritional adequacy?	• How do you ensure balanced diet consumption in your family meals? • By what means do you determine the quality of food that you consume?
What are the major factors leading to food insecurity at your family and community?	• How has poverty affected your consumption pattern and purchasing power? • How far is the market located, and what are the barriers to accessing the market? • For what purposes are the lands used, and how is the productivity status? • Please describe the major agricultural practices adopted in your community.

What type of impacts have been observed on the local food system due to climate change and other external economic shocks?	• Please share about the climate-related hazards like erratic rainfall, droughts, and floods that happened in your community in the past 3 years. • How did these hazards impact food production? • How have the external shocks like food prices, market instability, etc. affected the food security status and livelihood of community members?
What kind of climate-adaptive agricultural practices have you been adopting to cope with adverse conditions?	• Have you practiced varietal shift to resistant crops? • What are the improved soil and water management practices adopted? • What other climate-smart measures can be applied in your farming system?
What are the specific climate-resilient food security strategies implemented by associated stakeholders?	• How have such strategies been effective in improving the food security status of community members? • What roles have government and non-government organizations been playing in addressing the impacts of climate change? • How are equity and inclusivity ensured in the implementation of such activities? • What further programs and interventions are needed to improve the food security status of people in your locality?

Additional questions:

- What is the socio-demographic description of the area?
- What is the economic status of the area?
- What do people usually do for their living in this community? (Probe: type-agriculture and livestock, stability, programs or initiatives to support livelihood opportunities)
- Please provide an overview of dietary practices in the community. (Probe: diversity of foods, consumption of fast foods and junk foods, availability, affordability, frequency of consumption). What about allocation of food among family members? Can it be changed?
- How do you allocate food portions among family members, especially for children, mothers and adolescents?
- What are the hardships in the area?
- How do you describe the main income sources and economic status of families?
 - Income sources
 - Economic engagement
 - Agriculture production: major crops/varieties
 - Employment opportunity: inside and outside
 - Wellbeing status
- Copping strategy: in case of emergency
- Have you noticed any community/group/families experienced economic hardship/challenges:?
- Specific groups living in hardship situation, their social and economic status and engagement.
- Types of support from local government, NGOs, private

Annex 14: KII Checklist

Section 1: Food Security Status and Community Context 1. Food Access and Stability:	1. Could you describe the food security situation in this community? What are the key challenges in accessing adequate food? 2. How have recent conditions (such as inflation, market availability) impacted households' ability to purchase food? 3. Which caste/ethnic groups suffer most by food insecurity in your community and why?
2. Food Production and Agricultural Practices:	4. What types of crops are primarily produced locally? Are there specific barriers impacting agricultural productivity here? 5. How are local farmers adapting to current agricultural challenges? (e.g., climate-resistant seeds, new farming techniques)
3. Food Quality and Nutritional Support	6. Do you think that the available food meets the nutritional needs of the community? Why or why not? 7. Are there specific groups (e.g., children, pregnant women) particularly affected by food or nutritional deficiencies?
Section 2: Drivers of Food Insecurity 4. Socio-Economic and Environmental Factors:	8. What do you see as the main causes of food insecurity in this community? (e.g., poverty, market access, land availability) 9. How do local infrastructure or government services affect food access?
5. Climate Change Impacts:	10. Have you observed any changes in weather patterns affecting food security? (e.g., drought, irregular rainfall, heat wave) 11. What coping strategies are used by households during times of food shortage due to climate change?
6. Community-Level Barriers:	1. How does social or economic status impact food security access? Are marginalized groups more affected? If yes, How and to what extent? Please give examples.
Section 3: Effectiveness of Existing Policies and Interventions 7. Government and NGO Interventions:	1. What food security or agricultural support programs are currently available in this area? 2. In your opinion, how effective are these programs in addressing food security issues? 3. Have your local government made the Agricultural Policies and Master Plan? If yes, what institutional and programmatic provisions are there to promote food security and food rights of the people you serve?
8. Gaps in Services and Policy Implementation:	1. Are there any gaps or challenges in how current policies or programs are implemented? 2. What improvements do you believe could make these programs, implemented by local governments or NGOs, more effective for vulnerable groups? 3. Do you remember any sustainable approach adopted by the local government to promoting food security in the last 3 years? Please give examples.
9. Stakeholder Coordination:	4. How well do local government and NGOs coordinate on food security initiatives? What challenges exist in this coordination?

Section 4: Recommendations for Future Initiatives 10. Climate-Resilient and Sustainable Solutions:	5. What agricultural or economic strategies do you think would help improve food security in this community? 6. Do you see potential for climate-resilient agriculture (e.g., drought-resistant crops, sustainable water use)? Are there barriers to implementing these? 7. What agricultural or economic strategies do you think would help improve food security in this community? 8. Do you see any potential for climate-resilient agriculture (e.g., drought-resistant crops, sustainable water use)? Are there barriers to implementing these in the community you live/serve?
11. Community Engagement and Ownership:	9. How involved are community members in decision-making on food security and related issues? 10. What role could community groups or cooperatives play in supporting food security improvement?
12. Suggested Interventions:	11. What are your top recommendations to improve food security for the long term? 12. Are there specific interventions or supports you would recommend for women, children, or marginalized groups? 13. Is there anything else you would like to add that we haven't discussed?

7. References

1. Municipality profile of Kalika Municipality Chitwan (2080-81). <https://kalikamunchitwan.gov.np/en>
2. Jeetpur Simara Sub-metropolitan Profile, Bara (2020 July). <https://jeetpursimaramun.gov.np/en/nagarprofile>
3. Municipality profile of Sundarharaicha, Morang(2074). <https://sundarharaichaprofile.hamropalika.org/home>
4. National Planning Commission. (2019), The food security atlas of Nepal. https://www.npc.gov.np/images/category/Food_Security_Atlas_2019.pdf
5. Municipality yearly planning and budget book, Kalika, Jeetpursimara and Sundarharaicha (2081-82)
6. Khatiwada, B. (2022). Postharvest and quality management of fruits and vegetables in Nepal. Researchgate, (2),pp.69-82. http://dx.doi.org/10.1007/978-3-031-09555-9_5
7. National Planning Commission. (2018). Multisector nutrition Plan II (2018-22). <https://publichealthupdate.com/multi-sector-nutrition-plan-ii-2018-2022-nepal-english-version/>
8. Ministry of Agriculture and Livestock (2024). Agriculture development strategy (2015-25). <https://moald.gov.np/agriculture-development-strategy-ads-2015-to-2035-part-1/>

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