NUTRITIONAL STATUS OF THE WOMEN OF REPRODUCTIVE AGE AND CHILDREN UNDER 5 YEARS IN THE AREAS COVERED BY CHHUMCHAUR, PATARASI AND GUTHICHAUR VILLAGE DEVELOPMENT COMMITTEES IN JUMLA

~ A Baseline Survey Report ~

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ACRONYMS

ARI:	Acute Respiratory Infection
BMI:	Body Mass Index
CBS:	Central Bureau of Statistics
CNP:	Community Nutrition Project
FAO:	Food and Agriculture Organisation
FCHV:	Female Community Health Volunteer
HP:	Health Post
ICIMOD:	International Center for Integrated Mountain Development
KCST:	Karnali Community Skills Training
KTS:	Karnali Technical School
MCHW:	Maternal and Child Health Worker
MUAC:	Mid-upper Arm Circumference
NCHS:	National Centre for Health and Statistics
NFE:	Non Formal Education
PAHO:	Pan-American Health Organisation
PEM:	Protein Energy Malnutrition
SHP:	Sub Health Post
TALC:	Teaching-Aids at Low Cost
TBA:	Traditional Birth Attendant
UMN:	United Mission to Nepal
USAID:	United States Agency for International Development
UNICEF:	United Nations Children's Fund
VDC:	Village Development Committee
WHO:	World Health Organisation

cm:	centimeters
g:	grams
kg:	kilograms
kg/m^2	Kilograms per meter square
mm:	millimeters
ppm:	Parts per million

DEFINITIONS

Anthropometry: measurement of height and weight. When related to age and sex of children it provides evidence of nutritional status. Either acute or chronic malnutrition can be identified.

Acute Malnutrition or wasting: Body measurement (low weight for height); reflects recent onset malnutrition.

Chronic Malnutrition or stunting: Body measurement (low height for age); reflects long-standing malnutrition.

Exclusive Breastfeeding: No additions to breast milk – e.g. water, fluids nor food. Essential in first 5 months of life.

Malnutrition: Inadequacy (or imbalance) of required nutrients/calories due to lack of feeding, absorption/ utilisation (during illness) or increased need (during growth). Caused by lack of food, health and care.

Mid Upper Arm Circumference (MUAC): A more approximate way of estimating malnutrition in young children. A value below 125mm indicates severe malnutrition. A value between 125 and 135 mm indicates moderate malnutrition.

Sarbottam Pitho: A traditional cereal grain-pulse based weaning food made of 2 parts pulse, 1 part whole grain cereal and 1 part another whole grain cereal.

Supplementary Food: Any solid or semi-solid food in addition to breastmilk.

EXECUTIVE SUMMARY

Purpose of the survey:

The study was conducted to obtain baseline information on the nutritional status of the area covered by the three target VDCs: Guthichaur, Chhumchaur and Patarasi in Jumla to provide a guideline for Community Nutrition Project of UMN Nutrition Programme and to provide useful reference for other agencies who are interested in findings of such nutrition research.

Methodology:

Cluster sampling technique was used for the survey. A total of 15 clusters (each with 7 households) were taken as sample for the 3 target VDCs. A total of 105 mothers were interviewed and 134 children under 5 years were included in the survey. A household was included in the survey if a mother with at least one children under 5 years of age was present in the household at the time of the survey. A questionnaire form was the main survey tool with additional survey equipments - UNICEF electronic scales, Salters scales, measuring tapes, mid-upper arm circumference tapes and iodine test kits.

Main Findings:

- According to MUAC classification, nearly half of children between the age of 1 to 5 years were either severely or moderately malnourished.
- According to Z-score classification, almost 60 percent of the children under 5 years were moderately or severely wasted and stunted.
- More than half of the mothers surveyed were in 'at risk' group according to MUAC classification.
- Only about 53 percent of infants were fed colostrum.
- Almost 17 percent of children were given supplementary food before reaching 5 months, while more than 25 percent of them only received supplementary food after reaching 7 months or older.
- Only 9 percent of children were fed 5 or more times per day.
- Almost 46 percent of the households had zero ppm of iodine in the salt they consumed.

- More than 80 percent of the households depended on agriculture for their subsistence, however, only about 47 percent of the households surveyed had enough food throughout the year.
- More than 30 percent of the households reporting food shortage indicated more than 4 months of food shortage per year. *Baisakh* was the most hard hit month in terms of food shortage for 67 percent of those households.
- More than 60 percent of the mothers included in the study had four or more pregnancies to date.
- More than 74 percent of the mothers were 19 years or younger at first pregnancy.
- Sixty percent of the mothers smoked during pregnancy, while 28.6 percent consumed alcohol.
- Only about two percent of the mothers had a trained Traditional Birth Attendant present during child birth.
- Less than nine percent of the mothers surveyed had antenatal checkup.
- Forty two percent of the households reported to having at least one child suffering from ARI and 33 percent of the households responded to having at least one child suffering from diarrhoea in the previous two weeks.
- More than one third of the households neither took the sick children anywhere for treatment nor treated them at home; about 15 percent consulted the faith healer.
- About 86 percent of the mothers breast-fed their children even while they had diarrhoea.
- Although 73.3 percent of the households owned kitchen garden, only about 27 percent of them used modern agricultural input.
- More than 80 percent of the households had five or more family members.
- Seventy nine percent of the mothers were aged between 20 to 34 years.
- More than 90 percent of the mothers were illiterate.
- More than 95 percent of the households did not boil water for drinking.
- More than 75 percent of the households admitted that their children did not wash hands after defecation.
- Only 19 percent of the households surveyed had latrine facility.

CHAPTER 1

Introduction

Initial focus group meetings carried out by United Mission to Nepal (UMN) Nutrition Programme for problem identification in three Village Development Committees (VDCs) - Guthichaur VDC, Chhumchaur VDC and Patarasi VDC in Jumla indicated a strong need for implementation of a nutrition program. Thus UMN Nutrition Programme commenced Community Nutrition Project (CNP) in these three VDCs in 1999 in collaboration with Karnali Community Skills Training (KCST) program after an agreement with UMN/Education Department. A baseline nutrition survey was carried out in these three target VDCs in September 1999 in an attempt to understand the specific nutritional problems existent there.

Aim of the study:

The aim of the study was to obtain baseline information on the nutritional status of the area covered by the three target VDCs in Jumla.

Specific objectives:

1. To provide a guideline for UMN Nutrition Programme by providing an overview of nutritional status of the area, which will indicate the important issues that demand attention and intervention from the programme. This information will be applied for developing strategies suitable to the people's need for the betterment of their overall nutritional status.

2. To provide useful reference for other agencies who are interested in findings of such nutrition research.

CHAPTER 2

A Glimpse of Jumla

Jumla is one of the five districts of the Karnali Zone in Mid-Western Nepal. There is no motorized road connection to Jumla. Transportation goes either by air or by foot; it is a remote district. An official milestone in Jumla states that it is situated at a walking distance of three hundred and forty-two miles northwest from the traditional Royal palace of Hanumandhoka in Kathmandu. Jumla Bazaar (Khalanga) is the head quarters of the Karnali Zone.

Jumla is markedly dry and cool although summer days can still be warm. Jumla belongs to the Zone of Cool and Alpine type of climate. The average maximum temperature in the summer is 25 degrees Celsius, and the average minimum temperature in the winter is minus 6 degrees Celsius. The monsoon starts mid July and ends around mid October.

Table 2.1: Population figures of Target VDCs.

	1991 Census				1996 Projection			
VDC	Total Household	Total Population	Male	Female	Total Household	Total Population	Male	Female
Chhumchaur	226	1409	718	691	237	1480	754	726
Guthichaur	316	2003	1067	936	332	2104	1121	983
Patarasi	371	2279	1144	1135	390	2394	1202	1192

Source: Central Bureau of Statistics (CBS), 1991.

Seasonal migration is common in Jumla. The migrants go to Nepalgunj, Surkhet, and India. The migration is coordinated with the annual agricultural calendar in the winter months when little can be done on the farms, mostly from November/December until February.

Figure 2.1: Map of Jumla

Source: District Health Office, Jumla.

★ Working VDCs.

Position of Women

Women farmers in Jumla work many hours a day and take responsibility for the vast majority of work: carrying water and firewood, child care, preparing food as well as all the heavy agricultural tasks, apart from ploughing (which is a lower-caste male task). Male farmers in contrast have less tasks and work shorter hours, and therefore have time to attend meetings and relax. This causes problems in eliciting women's participation in new activities. The need for farming to feed the family is so crucial that women find it hard to make time for training, etc. Also, women have no access to and control over resources and are kept aside in any decision, even regarding household affairs.

District's Economy

Traditional agriculture is the main source of village economy in Jumla district. Methods of digging, ploughing, manuring, harvesting and grain-storing are based on their family traditions.

Due to the lack of a good road transportation network, trade and commerce have not developed in other areas of the district. No regular `*haat-bazaar*' (weekly market) is organized and managed in which small farmers could get opportunities to sell their agricultural products and make some earnings. Other sources of income have less developed. There are small industries like: furniture making; *radi-pakhi* weaving but the engagement remains limited within their own families. On village scale, the agricultural production cannot meet the local demand for food grains, mainly due to shortages of arable land and low level of productivity.

Food Shortage Situation

Since food production is such an important aspect of life, food availability or food shortage is considered as a main indicator describing the households wealth. In general, the amount of food available to a household is expressed in terms of

months per year. Besides food availability, also the size of the agricultural holding, the number of economically active members in the family, the number of children in family (access to labor), involvement in trade and business, and seasonal migration to India were mentioned by the villagers as indicators of wealth.

Nepal Food Cooperation

Jumla is a food deficient district. Soil fertility and natural hazards decrease the crop production while on the other hand the population is increasing. The government used to supply wheat and rice at subsidised rate, but the food depots have been withdrawn since this year.

Agriculture

Agriculture is the main occupation of the people in Jumla. The majority of farmers grow their crops in a traditional way. The productivity of land is very low due to the use of low yielding local varieties, inadequate manure of farm yard, poor soil condition, lack of irrigation facilities, negligible use of chemical fertilizer, delay in weeding, traditional types of cultivation practices and other reasons.

Crop production and vegetable production is increasing, but food is still not enough for internal consumption. In most areas 25% of people are not getting enough food.

Livestock

Livestock raising is one of the common economic activities of almost all of the farmers in Jumla. It is an integral part of the farming system. Cattle farming is popular but the processing industries like dairy farming have not yet started. The market for eggs and meat is in big demand. Horses and mules are used for business in addition to transportation purposes.

Drinking Water

According to International Center for Integrated Mountain Development (ICIMOD) (1997), 36.9 % of the population in Jumla have access to safe drinking water. It is worth mentioning that in most VDCs and wards the lower caste people have their own source of water in or nearby the settlement, as have the people of higher castes (this goes for taps and springs mainly).

Health and Sanitation

In every VDC in Jumla, a governmental health service is established. The district hospital is located in Khalanga. There are 9 Ilaka Health Posts and 20 Sub health posts.

Besides the HMG health services, following institutions work in the health sector:

- International Nepal Fellowship (INF) has a Tuberculosis and referral clinic in Khalanga for the whole Karnali Zone.
- Eye Center (also gives dental service)
- Nepal Red Cross Organization
- The Karnali Technical School (KTS) started a Maternal Child Health clinic on the hospital campground.
- UMN supports KTS in teaching and has a community development program with health components in Patarasi, Chhumchaur and soon in Guthichaur VDC as well.

It appears that personal hygiene, environmental conditions (unclean drinking water, poor sanitation, flies) and malnutrition are responsible for the majority of the health problems. However, it should be noted that malnutrition is not a clinical disease but a social one with many interrelated causes.

Infant and Child Mortality

The infant mortality rate (average number of deaths under one year of age per 1000 live births) in Jumla was 130. Jumla was number 65 on a ranked list of 75 districts with infant mortality as indicator, with rates varying between 32 and 201.

Since usually marriage takes place at a very young age, women give birth to their first child at the age of 15 to 16, which means before she is physically and mentally grown-up. Since they have the least understanding of precautions to be taken in order to avoid bad health situations, this-combined with the fact that almost all mothers are uneducated-can be considered as contributing factors to the low utilization of Antenatal Care. Post Natal Care is almost non-existent. Jumla is not yet covered by the governments' Traditional Birth Attendant (TBA) training program. This means that there is no one in the community to advise mothers in health practices and identify problems. Since trained TBAs are not present in the villages, assistance of a trained person is not available.

The female community health volunteers are playing a big role in the communities. This program started in 1989 in Jumla and seems to be very difficult. Their role in the community is creating awareness and motivation about immunization of children, health and sanitation, child care, nutrition and family planning. Every ward has its own Female Community Health Volunteer (FCHV), a total of 482 FCHVs for the whole district of Jumla. Each ward in Jumla also has a mother's group.

Traditional health practices are still common in the villages

The first "institute" to be consulted for health care in the villages is the *Dhami* (traditional healer). Using medical herbs is another option local people use for treating diseases. In general Dramas do not prohibit using medicinal herbs. Only in those cases where the above mentioned treatment methods failed and when the patient is about to collapse, a local health facility is visited.

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CHAPTER 3

Methodology

3.1 Sample Selection

3.1.1 Selection of VDCs

UMN Nutrition Programme started CNP in Jumla in collaboration with KCST. Therefore the VDCs selected for the implementation of CNP coincides with the working VDCs of KCST.

3.1.2 Sampling Technique

Cluster sampling technique was used for the survey as recommended by UMN Nutrition Programme. This technique was considered to be appropriate for several reasons (Sinha, 1997). First, this technique allows a small number of the total population to be sampled, reducing the cost associated with survey. Furthermore, as the survey was to find out baseline information, comparisons between sub-groups (e.g. ethnic groups) were not needed. Thus, considering the focus of the study as uniform amongst all or any sub-groups within the target area, cluster sampling technique seemed appropriate. Moreover, a cluster survey was easy to align with the existing ward divisions of the VDC (taking a ward as a cluster). Taking wards as a cluster also excluded possible validity problems on data available for these VDCs (if other techniques were to be used).

A total of 15 clusters (each with 7 households) were taken as sample for the 3 target VDCs. This was decided through taking into account the Dailekh sample which had 30 clusters for 6 VDCs (Sinha, 1997). Logically deducing the sample for half the number of VDCs, the clusters needed would be 15. Each cluster (wards in this case) would require the same proportion of households as used in

Dailekh (i.e. 7 households). Therefore, the total number of sample required for Jumla study would be 105. The number of sample looks adequate when it is compared with 10 percent of total children aged 5 years and under of the three VDCs. The figures for both round off just the same.

3.1.3 Selection of Clusters

The 15 clusters (wards) were randomly selected for the survey. For the selection process, their survey areas were allocated to the three survey groups. Then, ward numbers of specific VDCs were written on equal sized pieces of papers and folded papers were put in a bag. The bag was shuffled and the three nutrition assistants of the three VDCs were asked to pick a folded paper turn by turn. The ward number written on the paper was noted, and the paper was put back in the bag. The papers were picked until the number reached fifteen.

Table 3.1.1: Wards by VDCs in sample.

Name of VDC	Selected wards	Total no. of wards
Guthichaur	1, 2, 7, 8	4
Chhumchaur	1, 4, 6, 9	4
Patarasi	1, 2, 3, 4, 5, 8, 9	7
Total		15

3.1.4 Inclusion

The household was included in the survey if a mother with at least one children under 5 years of age was present in the household at the time of the survey.

3.2 Methods of Data Collection

3.2.1 The survey team

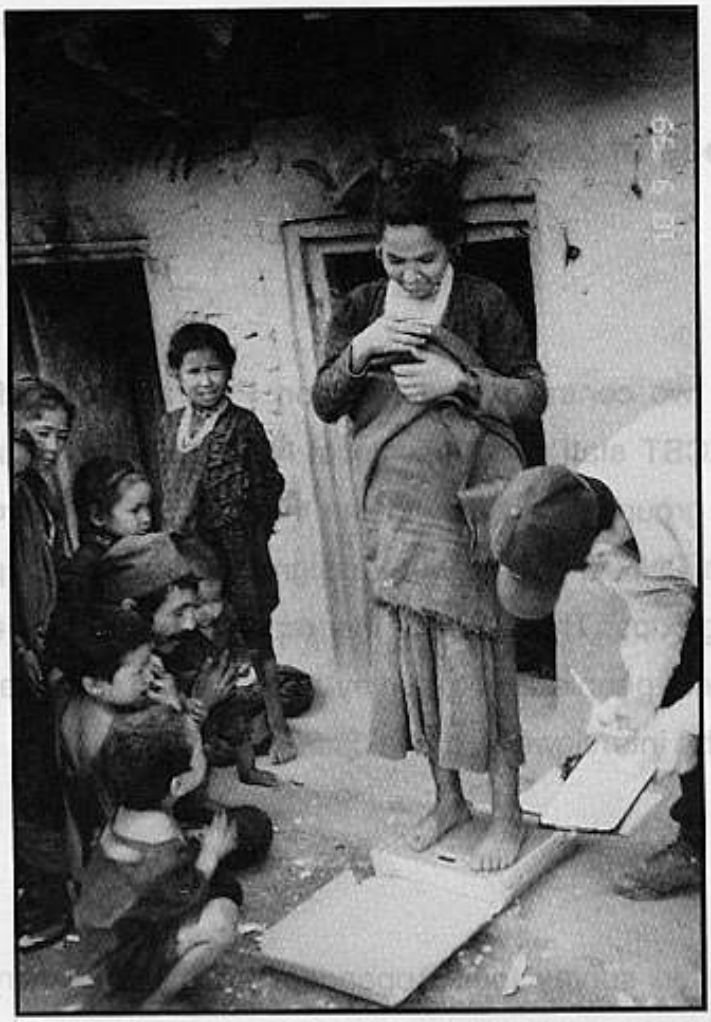
The survey team comprised of two central based Nutrition Programme staff, Jumla CNP in-charge, a local KCST staff and three local Nutrition Assistants. The team was divided into three groups, one each for the three VDCs. The two central based staff and the Jumla CNP in-charge were assigned to be the group supervisors of the three survey groups. The writer of this report supervised the overall team. The inclusion of local people in the survey team helped in better understanding the responses of the interviewees.

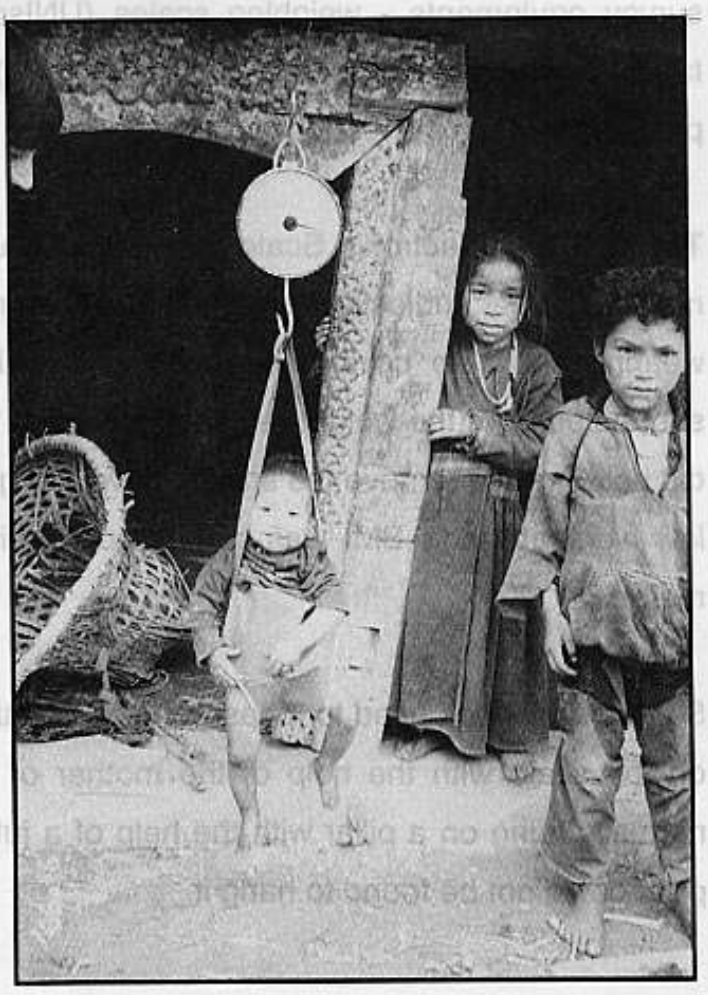
3.2.2 Survey equipment

A questionnaire form was the main survey tool (Appendix A). The necessary survey equipments - weighing scales (UNIscales), Salters scales, measuring tapes, mid-upper arm circumference (MUAC) tapes and iodine test kits were provided to each survey team.

The UNICEF Electronic Scale 890 (seca) was used to measure weight of the mothers. The subjects were measured in normal clothing. For the women wearing shawl to cover their head, the weight of their shawl (0.9 kg) was subtracted from the weight recorded to obtain their actual weight. (Some women did not agree to remove the shawl for weighing, if village men or their mothers-in-law were around.) BMI was calculated by dividing weight in kg by height^2 in meter.

Salters scale was used to measure weight of the children. The children were put on the scale with the help of the mother or the householder. The scale was normally hung on a pillar with the help of a jute rope or held by hand when the pillar could not be found to hang it.





A measuring tape (mostly used by tailors) was used to measure the height of mothers and children. The measuring tape was glued on a specially made straight stick for the convenience of measuring height. The barefoot subjects were asked to stand still on a flat ground against a straight wall where possible. A flat clipboard was placed on the top of the subjects' head perpendicular to the wall and the height was measured using the measuring stick. For the children who needed support to stand up, length measurement was taken by asking the mothers to have their children lie flat on ground, with legs straight. The surveyor would then take measurement of the child from head to feet. The top of the child's head was determined by placing a flat clipboard perpendicular to the head and measurement was taken from either left or right side of the child's body.

The MUAC was measured using an insertion tape manufactured by teaching-aids at low cost (TALC). It was measured for both mothers and children. One survey personnel took the measurement on the left mid-arm, while the other recorded the information. The arm had to be relaxed and hanging for the measurement.

An iodine test kit (recommended by UNICEF) was used to find the level of iodine in salt used by the households. A drop of test solution was discharged on the salt as instructed on the salt test kit. The colour change on the salt was compared with the colour chart on the kit and the level of iodine was recorded accordingly.

Each group was also given a food availability form. This form was used to gather information on types of food available in each of the VDCs. These forms were to be filled by the chairman of the VDC or the vice-chairman or a member if the chairman was absent (Appendix B, C & D). The alphabet "y" was used in the food availability form for Patarasi VDC to indicate that the particular food was available on that month; while for the forms for Chhumchaur and Guthichaur VDCs, "o" was used to indicate grown in their own fields, "b" indicated bought and "s" indicated that the particular food was sold on that month.

3.3 Field Work

A day long orientation program was conducted for the surveyors 5 days before the survey was started to familiarise them with the survey. They were familiarised with the nutritional concepts to be used in the survey, the questionnaire layout and sampling. Specific instructions were given on the use of instruments for anthropometry and on appropriate interview / probing techniques.

A pilot study was undertaken the next day in Dadagaun, a village located near Khalanga Bazzar. Before starting the pilot study, the survey questionnaire was reviewed to refresh the information given to the surveyors during orientation. The surveyors were divided into 3 groups in alliance with the 3 VDCs they were going to survey. The groups included a mix of Nutrition Programme central staff, district staff and a KCST staff. Each group interviewed the mothers fitting the study criteria while being observed by a consultant and the survey supervisor. Feedback and suggestions were given by the consultant and the survey supervisor to the groups on their interview skills and techniques. A total of five mothers were interviewed (two interviews each by two groups and one interview by the remaining group) and the time taken for the interview was noted. At the end of the day, the survey team had an interactive session on ways of making the actual survey work smoother and all groups shared their pilot study experiences.

On reaching the selected wards, the survey groups first inquired which households had children under five years of age with a ward member or a teacher, whoever was available at that time. With a rough estimate of households that fitted the survey criteria, they started the survey from the topmost house in the ward and moved down from there randomly choosing the houses with children under five years. This method was most convenient for the dense housing situation of Jumla where the houses are made in terraces, one on top of another. There were a few instances when the mother of the children was

not present at the house. In such cases, the survey group moved to the house next to it.

When approaching a household for interview, a brief introduction was given about the survey team and their permission was asked on conducting the survey, especially, to talk with the mother. It is noteworthy that all the houses approached agreed for the interview.

At the end of the day, the group supervisors were to check the questionnaires filled for the day for possible discrepancies, miscalculations or for blank responses. The survey supervisor visited all three groups on their work sites and was informed about the progress of each groups. All three groups gathered in Patarasi at the completion of survey, where all the questionnaires were double checked by the survey supervisor and the survey equipments were collected back.

3.4 Data Analysis

The survey questionnaires were coded and the data was analysed using Epi-Info program (Version 6).

CHAPTER 4
Findings

4.1 Sample Characteristics

4.1.1 Household Composition

Table 4.1.1 shows that almost 50 percent of the households had 5 to 6 family members. A significant proportion of households (almost 23 percent) had nine or more members. The largest family size was 14.

About 56 percent of the households resided as extended families (Table 4.1.1).

Table 4.1.1: Household Composition

Characteristics	Count	Percent
Household Size		
Four or less	16	15.2
Five to Six	50	47.6
Seven to Eight	15	14.3
Nine or more	24	22.9
Type of Family		
Nuclear	46	43.8
Extended	59	56.2
Total	105	100.0

4.1.2 Mothers

Majority of the mothers surveyed (79 percent) were aged between 20 to 34 years (Table 4.1.2). Only about 6 percent of them were under 19 years old, while almost 10 percent of them were over 40 years old. It should be noted that all mothers included in the survey had at least one child under the age of five.

More than 90 percent of the mothers were illiterate (Table 4.1.3). None of the mothers had literacy level higher than non formal education (NFE).

Table 4.1.2: Age of Mothers in years

Age of mothers, Years	Count	Percent
19 or under	6	5.7
20-24	27	25.7
25-29	28	26.7
30-34	28	26.7
35-39	6	5.7
40 or over	10	9.5
Total	105	100.0

Table 4.1.3: Level of Education of Mothers

Level of Education	Count	Percent
Illiterate	97	92.4
Literate (NFE)	8	7.6
Higher	0	0
Total	105	100.0

4.1.3 Children

Among the children aged under 5 years who were included in the survey, more than half were males (Table 4.1.4).

Table 4.1.4: Sex of Children

Sex	Count	Percent
Female	64	47.8
Male	70	52.2
Total	134	100.0

Among those children, 34 percent were under 1 year old, 25 percent were 12 to 23 months old and the remaining children were between 24 to 59 months old (Table 4.1.5).

Table 4.1.5: Number of children by age

Age, months	Count	Percent
0-5	30	22.7
6-11	15	11.4
12-23	33	25.0
24-35	15	11.4
36-47	22	16.7
48-59	17	12.9
Total 0-11	45	34.1
Total12-59	87	65.9
Total	132	100.0

4.2 Household Food Security

Household food security status is an important determinant of nutritional status of children. In this report, household income source, land size, number of domestic animals, status and period of food shortage, mode of food procurement during shortage and presence of kitchen garden are considered as the proxy indicators of household food security.

4.2.1 Household Income Source

More than 80 percent of the households indicated agriculture as their main source of income (Table 4.2.1). The remaining households mainly gained their income from business, iron casting, tailoring and cattle raising.

Nearly 43 percent of the households indicated to have no additional income, while almost 24 percent of the households gained some additional income with herb collection and trading (Table 4.2.1).

Table 4.2.1: Income Sources

Income Source	Count	Percent
Main		
Agriculture	88	83.8
Business	4	3.8
Cattle raising	4	3.8
Iron casting	7	6.7
Tailoring	1	1.0
Other	1	1.0
Additional		
Herb Trading	25	23.8
Business	4	3.8
Cattle Raising	4	3.8
Service	6	5.7
Labour	4	3.8
Agriculture	5	4.8
Herb trading & Porter	1	1.0
Herb Trading & Cattle Raising	1	1.0
Other	10	9.5
None	45	42.9
Total	105	100

4.2.2 Size of Holding

The size of land and number of livestock holdings of the households were asked in the survey as an indication of household's socio-economic status. The survey showed that 41 percent of the households had 1 to 10 Hal of total land possession, while 39 percent had 11 to 20 Hal of land possession (Table 4.2.2). Thirty seven percent of the households had 1 to 10 livestock, while almost 24 percent of the households had 11 to 20 and almost 22 percent had more than 30 livestock including cows/ox, buffalo, sheep, goats, horse, chicken (Table 4.2.2).

Table 4.2.2: Household possession

Possessions	Count	Percent
Amount of land, Hal		
0	1	0.9
1-10	43	41.0
11-20	41	39.0
21-30	16	15.2
More than 30	4	3.8
Number of Livestock		
None	3	2.9
1-10	39	37.1
11-20	25	23.8
21-30	15	14.3
More than 30	23	21.9
Total	105	100.0

4.2.3 Food Shortages in the Household

According to the survey, almost 47 percent of the households did not have enough food throughout the year (Table 4.2.3).

Table 4.2.3: Status of Food Shortage of the Households

Food enough?	Count	Percent
Yes	56	53.3
No	49	46.7
Total	105	100.0

Of those households suffering food shortage, almost 40 percent suffered from 3 to 4 months of food shortage per year (Table 4.2.4). More than 30 percent of the households reported more than 4 months of food shortage per year.

Baisakh was the most hard hit month in terms of food shortage with 67 percent of the households reporting food shortage, followed by *Jeth* (about 59 percent of the households), *Chaitra* (about 57 percent of the households) and *Asar* (51percent of the households) (Table 4.2.4).

Table 4.2.4: Period of Food Shortage

Food Shortage	Count	Percent
Number of months		
1-2 months	14	28.6
3-4 months	19	38.8
5-6 months	9	18.4
7-8 months	5	10.2
9-10 months	1	2.0
11-12 months	1	2.0
Total	49	100.0
Months of food shortage		
Baisakh	33	67.3
Jeth	29	59.2
Asar	25	51.0
Shrawan	17	34.7
Bhadra	19	38.8
Asoj	14	28.6
Kartik	9	18.4
Mangsir	9	18.4
Poush	6	12.2
Magh	7	14.3
Falgun	10	20.4
Chaitra	28	57.1
Total Households	49	**

** Total Percent adds to more than 100 due to multiple responses.

Table 4.2.5 shows that during the period of food shortage, more than 90 percent of the households reported to have bought food. People procured food from many sources, with about 47 percent of the households getting food from within their village or the neighbouring villages. About 14 percent of the households bought food from the food depot. Some of them went as far as Jajarkot, Dolpa and even Tibet to buy food.

Table 4.2.5: Food procurement during shortage

Food procurement during shortage	Count	Percent
Methods		
Buy	37	75.5
Borrow	4	8.2
Buy and Borrow	8	16.3
Source		
Village/Neighbouring Village	13	26.5
Neighbours/Relatives	10	20.4
Khalanga Bazzar & Neighbours/Relatives	1	2.0
Food Depot	7	14.3
Bazzar (Local market)	2	4.1
Tibet	1	2.0
Village/Neighbouring Village & Food Depot	3	6.1
Village/Neighbouring Village & Khalanga Bazzar	2	4.1
Jajarkot	2	4.1
Village/Neighbouring Village & Jajarkot	3	6.1
Dolpa & Village/Neighbouring Village	2	4.1
Khalanga Bazzar, Jajarkot & Dolpa	2	4.1
Khalanga Bazzar & Tibet	1	2.0
Total Households	49	100.0

Corn seemed to be the most important food as almost 94 percent of the households reported to have bought it during period of food shortage, followed by millet (about 61 percent), rice (about 39 percent) and wheat (about 37 percent) (Table 4.2.6).

Table 4.2.6: Types of Food Procured During Shortage

Source	Count	Percent
Corn	46	93.9
Millet	30	61.2
Rice	19	38.8
Barley	11	22.4
Wheat	18	36.7
Buckwheat	3	6.1
Other	3	6.1
Total Households	49	**

** Total Percent adds to more than 100 due to multiple responses.

4.2.4 Kitchen Garden

A majority (73.3 percent) of households reported to own a kitchen garden in the months when the climate is favourable (Table 4.2.7). Of those households with kitchen garden, only about 27 percent used modern agricultural methods such as using cultured seeds, compost manure, plotting the land etc. It was observed that most households had kitchen garden on the rooftops.

Table 4.2.7 Kitchen Garden

Kitchen Garden Have ?	Count	Percent
Yes	77	73.3
No	28	26.7
Total	105	100.0
Use of Modern Agricultural Input		
Yes	21	27.3
No	56	72.7
Total	77	100.0

4.3 Health and Nutritional Status of Mothers

The mother's health and nutritional status may have implications for child care practices.

4.3.1 Pregnancy Information

Information on past pregnancies of mothers was collected during the survey which showed that more than 60 percent of the mothers included in the study had four or more pregnancies to date (Table 4.3.1). Almost 7 percent of the mothers claimed to have become pregnant more than 9 times. The highest number of pregnancies recorded was 14. More than 74 percent of the mothers were 19 years or under at first pregnancy (Table 4.3.1).

Table 4.3.1: Past Pregnancy Information of Mothers

Pregnancy Information	Count	Percent
Number of Pregnancies		
One	15	14.3
Two to Three	26	24.8
Four to Five	32	30.5
Six to Seven	15	14.3
Eight to Nine	10	9.5
More than Nine	7	6.7
Age at first pregnancy		
19 or under	78	74.3
20-24	23	21.9
25-29	4	3.8
30 or over	-	-
Total	105	100.0

Sixty percent of the mothers admitted to have smoked during pregnancy, while only 28.6 percent of them admitted to consuming alcohol during that time (Table 4.3.2).

Table 4.3.2: Habits during pregnancy

Habits	Count	Percent
Smoking		
Yes	63	60.0
No	42	40.0
Alcohol consumption		
Yes	30	28.6
No	75	71.4
Total	105	100.0

Only about 2 percent of the mothers had a trained TBA present during child birth (Table 4.3.3), only 5 percent had an untrained TBA present, and 2.9 percent had a FCHV or Maternal and Child Health Worker (MCHW) present at the time of delivery.

Table 4.3.3: People present at child birth

People	Count	Percent
Trained TBA (Traditional Birth Attendant)	0	0
FCHV/MCHW	1	1.0
Untrained TBA	1	1.0
Neighbour	4	3.8
Relative	54	51.4
Husband	4	3.8
Neighbour, relative & untrained TBA	3	2.9
Relative & untrained TBA	13	12.4
FCHV/MCHW & relative	3	2.9
Neighbour & untrained TBA	3	2.9
Trained TBA & relative	1	1.0
Neighbour & relative	1	1.0
Trained TBA & FCHV/MCHW	1	1.0
Relative & husband	4	3.8
Untrained TBA & husband	1	1.0
No one	11	10.5
Total	105	100.0

Less than 9 percent of the mothers surveyed had antenatal checkup done (Table 4.3.4).

Table 4.3.4: Antenatal check-up

Antenatal check-up done?	Count	Percent
Yes	9	8.6
No	96	91.4
Total	105	100.0

4.3.2 Nutritional Status of Mothers

- MUAC of the mothers was measured in order to understand their nutritional status. Standards for the MUAC test are based on the standards used by WHO, USAID and PAHO (Pan-American health organisation).

The following MUAC categories have been used for mothers in this report:

Good nutritional status	: MUAC greater than 235mm
At risk nutritional status	: MUAC between 211 and 235mm
Poor nutritional status	: MUAC less than 211mm

The survey showed that more than half of the mothers surveyed were in 'at risk' group according to MUAC classification (Table 4.3.5). Similarly, more than 12 percent of them had 'poor' nutritional status.

Table 4.3.5: Nutritional status of mothers (assessed by MUAC measurement)

Total no. of Mothers	Poor (<211mm)		At risk (211mm-235mm)		Good (>235mm)	
	Count	Percent	Count	Percent	Count	Percent
105	13	12.4	53	50.5	39	37.1

However, when classified according to Body Mass Index (BMI), following the categories defined for people of developing countries (King and Burgess, 1998), 3 percent of the mothers were found to be undernourished (BMI below 16) and almost 19 percent were found to be possibly undernourished (BMI 16 to 18.5) while more than 77 percent of them were found to be probably well nourished (BMI 18.6 to 25) (Table 4.3.6). The average height of the mothers was 1.49m.

Table 4.3.6: Nutritional Status of mothers classified according to BMI

BMI, Kg/m^2	Count	Percent
Below 16 (Undernourished)	3	3.0
16-18.5 (Possibly undernourished)	19	18.8
18.6-25 (Probably Well nourished)	78	77.2
25.1-30 (Possibly obese)	1	1.0
Over 30 (Obese)	-	-
Total	101	100.0

4.4 Child Feeding Practices

Child care practices have implications for the nutritional status of children. Child feeding practices also indicate child care practices in the household.

4.4.1 Infant Feeding Practices (0-5 month old)

Almost 23 percent of the children surveyed were under 5 months old (Table 4.4.1) among whom, all of them were being breast fed, but only about 53 percent had been given colostrum (Table 4.4.1).

Table 4.4.1: Infant feeding practice (0-5 month old)

Infant Feeding Practice	Count	Percent
Breast fed?		
Yes	30	100.0
No	0	0.0
Colostrum given?		
Yes	16	53.3
No	14	46.7
Total	30	100.0

4.4.2 Child feeding Practices (6-23 month old)

Table 4.4.2 shows that among the children aged 6 to 23 months, almost 17 percent were given supplementary food before reaching 5 months. Supplementary food was introduced at 5 months to almost 19 percent of those children, which is the age recommended in the behavioural guidelines for infants and children in Nepal. More than 25 percent of those children only received supplementary food after getting 7 months old or older, with about 10 percent of them receiving it only at or after 12 months. Age of introducing supplementary food was not sex specific as indicated by Table 4.4.3.

Mothers of more than 50 percent of the children intended to breast feed up to 3 years or over (Table 4.4.2). The mothers of almost 13 percent of children said they would breast feed until next pregnancy.

Forty percent of the children were reported to be fed 3 times a day, about 29 percent were fed 4 times a day, only about 9 percent were fed 5 or more times per day (Table 4.4.2).

Most of the mothers indicated that they fed the normal family diet to the children as the supplementary food which, most of the time, included *roti* (flat bread) made of corn, millet or wheat flour, potato, beans, *Dhido* (thick porridge), milk and sometimes rice and *lito* (soft porridge) (made of mixed cereals).

When asked what type of food the mothers would like to give to their children if available, more than 50 percent of the mothers indicated oil/ghee, rice and meat. These are the food items that are scarce in the surveyed communities. More than 40 percent of the mothers responded they would like to give their children "city foods" such as Horlicks, *chow chow* (instant noodles), biscuits if available. Only about 11 percent of the mothers mentioned *lito*.

Table 4.4.2: Child Feeding Practices (6-23 month old children)

Child Feeding Practices	Count	Percent
Age Supplementary Food introduced		
Less than 5 months	8	16.7
5 months	9	18.8
6 months	13	27.1
7 months	3	6.3
8 months	1	2.1
9 months	3	6.3
10 months	1	2.1
11 months	0	0
12 months	4	8.3
More than 12 months	1	2.1
Not yet started	5	10.4
Total	48	100.0
Length of Breastfeeding		
7 months	1	2.1
Until milk dries up	2	4.3
Until next pregnancy	6	12.8
Still Breastfeeding	9	19.1
1 year	1	2.1
2 years	4	8.5
3 years	12	25.5
More than 3 years	12	25.5
Total	47	100.0
Number of times fed per day		
Once	1	2.2
Twice	5	11.1
3 times	18	40.0
2-3 times	3	6.7
4 times	13	28.9
4-5 times	1	2.2
5 times	2	4.4
6 times	1	2.2
more than 6 times	1	2.2
Total	45	100.0

Table 4.4.3: Introduction of Supplementary Food by Sex

	Male children		Female children	
Age Supplementary Food introduced	**Count**	**Percent**	**Count**	**Percent**
Less than 5 months	4	16.7	4	16.7
5 months	5	20.8	4	16.7
6 months	6	25.0	7	29.2
7 months	3	12.5	-	-
8 months	1	4.2	-	-
9 months	-	-	3	12.5
10 months	-	-	1	4.2
12 months	-	-	4	16.7
More than 12 months	1	4.2	-	-
Not Yet started	4	16.7	1	4.2
Total	24	100.0	24	100.0

4.5 Household Health Environment

4.5.1 Drinking Water

Table 4.5.1 shows that about 70 percent of the households fetched water for the household from a public tap, while remaining households got water from sources such as river, well, spring etc. Most of them (88.6 percent) had water source nearby house, therefore took less than 15 minutes to fetch water (Table 4.5.1). This included the time to get to the source and come back and the waiting time. None of the households required more than an hour to fetch water.

More than 95 percent of the households did not boil water for drinking (Table 4.5.2).

Table 4.5.1: Household Characteristics

Characteristics	Count	Percent
Main Source of Drinking water		
Piped in dwelling	0	0
Public Tap	73	69.5
Well/Spring/*Kuwa*	8	7.6
Pond/River/Stream/Lake	23	21.9
Public Tap and Spring	1	1.0
Time required to fetch water		
1-15 minutes	93	88.6
16-30 minutes	3	2.9
½ -1 hour	1	1.0
More than an hour	0	0
Don't know	4	3.8
Water on premises	4	3.8
Total	105	100.0

Table 4.5.2: Drinking Water

Boil Drinking Water?	Count	Percent
Yes	4	3.8
No	101	96.2
Total	105	100.0

4.5.2 Domestic Food Safety Practices

Only about 25 percent of the households kept the water vessels covered, while about 73 percent of the households reported that they cover their food and leftovers (Table 4.5.3). This practice is important as in many households leftover foods are eaten later or next day. If not kept properly, flies and dust may pollute the food and water and have direct implication on health.

Table 4.5.3: Practice to Cover Drinking Water and Leftovers

Practice	Count	Percent
Water Vessel Covered		
Yes	26	24.8
No	79	75.2
Food and Leftovers Covered		
Yes	77	73.3
No	28	26.7
Total	105	100.0

4.5.3 Personal Hygiene Practices

Simple habit of washing hands before eating meal and after defecation may make a big difference in the prevention of diseases. When asked about the hygiene practice of children, about 54 percent of the households reported that their children washed hands before eating. Alarmingly, more than 75 percent of the households admitted that their children did not wash hands after defecation (Table 4.5.4).

Table 4.5.4: Hygiene and Sanitation Practices of Children

Practice	Count	Percent
Hand Wash before Meal		
Yes	57	54.3
No	48	45.7
Hand Wash after defecation		
Yes	26	24.8
No	79	75.2
Total	105	100.0

4.5.4 Use of Latrine

Proper and hygienic disposal of waste is a major problem in many rural areas. Among the households included in the survey, only 19 percent had latrine facility and children in 35 percent of households with latrine facility did not use it (Table 4.5.5).

Table 4.5.5: Latrine Use

Characteristic	Count	Percent
Latrine Facility		
Yes	20	19.0
No	85	81.0
Total	105	100.0
Children use latrine		
Yes	13	65.0
No	7	35.0
Total	20	100.0

4.5.5 Iodine content of salt used by the households

Iodine content of salt is considered in this report as a factor of household health (and nutrition). Household salt was tested with iodine kit to assess the level of iodine (in ppm) in it. Almost 46 percent of the households had zero ppm of iodine in the salt they consumed, while almost 43 percent of the households had 15 ppm or more iodine in their salt (Table 4.5.6).

Table 4.5.6: Iodine content of salt used in the households

Iodine content, ppm	Count	Percent
0	48	45.7
7	12	11.4
15	11	10.5
30	34	32.4
Total number of households	105	100.0

4.6 Child Health

4.6.1 Acute Respiratory Infection

The prevalence of Acute Respiratory Infection (ARI) of children under 59 months was estimated by asking the mothers whether their children had been ill with cough and cold in the two weeks preceding the survey. Overall, 42 percent of the households reported to having at least one child suffering from ARI.

The most common symptom recognised by the mothers was fever, followed by cough and blocked/runny nose (Table 4.6.1). Only 2.3 percent of household reported a symptom of chest in-drawing in their child.

Table 4.6.1: Symptoms of ARI as reported by mothers

Symptom	Count	Percent
Cough	28	63.6
Blocked/Runny nose	13	29.5
Fever	41	93.2
Fast Breathing	4	9.1
Difficulty Breathing	4	9.1
Chest in-drawing	1	2.3
Trouble Swallowing	3	6.8
Other	11	25.0
Total Households	44	**

** Total Percent adds to more than 100 due to multiple responses.

About 41 percent of the households reported that they neither took the suffering children anywhere for treatment nor treated them at home (Table 4.6.2). Only 9.1 percent of households took the children to the HP or SHP and 18.2 percent of the households sought the help of VHW. More than 15 percent of them consulted the faith healer (*Dhami/Jhankri*).

Table 4.6.2: Sources of Treatment for ARI

Source	Count	Percent
Nowhere and no treatment	18	40.9
Nowhere but home treatment	3	6.8
Sub Health Post / Health Post	4	9.1
Village Health Worker	8	18.2
Faith Healer	7	15.9
HP/SHP and hospital	1	2.3
Medical shop/pharmacy	1	2.3
Herbal and Faith Healer	1	2.3
Hospital and Faith Healer	1	2.3
Total	44	100.0

4.6.2 Diarrhoea

Thirty three percent of the households responded to having at least one child suffering from diarrhoea in the previous 2 weeks. Thirty four percent of them reported to have had diarrhoea with blood.

Table 4.6.3 presents the types of food given to the suffering children during diarrhoeal episode (as reported by the mothers). About 86 percent of the mothers said that they breast-fed their children even while they had diarrhoea; about 30 percent of them gave oral rehydration solution, whereas about 11 percent of mothers gave nun-chini-pani (salt-sugar-water solution); 37 percent of them gave cereal based gruel and about 23 percent gave bean pulse soup.

Table 4.6.3: Food given during diarrhoea as reported by mothers

Foods Given	Count	Percent
Breast milk	30	85.7
Cereal based gruel	13	37.1
Bean Pulse Soup	8	22.9
Vegetable soup	2	5.7
Yoghurt	3	8.6
Nun Chini Paani	4	11.4
Oral Rehydration Solution	10	28.6
Milk	3	8.6
Water while feeding	12	34.3
Plain water	9	25.7
Total Households	35	**

** Total Percent adds to more than 100 due to multiple responses.

As can be seen from Table 4.6.2, about 34 percent of the households reported that they neither took the suffering children anywhere for treatment nor treated them at home. Only 22.8 percent of households took the children to the HP/SHP or hospital and 11.4 percent of the households sought the help of VHW. About 23 percent of them received treatment of the faith healer (Dhami/Jhankri).

Table 4.6.4: Sources of Treatment for Diarrhoea

Source	Count	Percent
Nowhere and no treatment	12	34.3
Nowhere but home treatment	1	2.9
Sub Health Post / Health Post	6	17.1
Hospital	2	5.7
Village Health Worker	4	11.4
Female Community Health Volunteer	1	2.9
Faith Healer	5	14.3
Other	1	2.9
HP/SHP and Faith Healer	2	5.7
Herbal and Faith Healer	1	2.9
Total	35	100.0

4.6.3 Immunisation Coverage

Each mother was asked to show the vaccination card of her children. In some households, the mothers were quite positive about having their children immunised, but failed to produce the vaccination card. These responses were recorded as "yes" to having vaccination card. Children of seventy nine percent of the households had vaccination cards (Table 4.6.5) indicating that they had been immunised.

Table 4.6.5: Have vaccination card?

Vaccination card?	Count	Percent
Yes	83	79
No	22	21
Total	105	100.0

4.7 Nutritional Status of Children

4.7.1 Anthropometric Measurements

Anthropometry is a useful tool for assessment of nutritional status of individuals and communities, and has been extensively used for identification of children suffering from malnutrition. Various anthropometric measurements (MUAC, height and weight) were taken during the survey to assess the nutritional status of children. Selection of these methods was based on the recommendation made by UMN Nutrition Programme. The anthropometric parameters measured were compared with National Centre for Health and Statistics (NCHS) reference values as these values are nowadays used as an internationally accepted standard to compare results of anthropometric surveys in most countries.

The following MUAC categories have been used in this report:

Normal	: MUAC greater than 135mm
Moderately undernourished	: MUAC between 125 and 135mm
Severely undernourished	: MUAC less than 125mm

The Analysis of MUAC measurements of children between the age of 1 to 5 years showed that nearly half of these children were either severely (22.1 percent) or moderately (20.9 percent) malnourished (Table 4.7.1). The highest proportion of severely malnourished children was in 12 to 23 months old category. Furthermore, analysis showed that about the same proportion of male and female children were malnourished (Table 4.7.2).

Table 4.7.1: MUAC classification of children's nutritional status, by age groups

Age (Months)	Number examined	Severely Undernourished (less than 125mm)		Moderately Undernourished (125-135mm)		Normal (more than 135mm)	
		Count	Percent	Count	Percent	Count	Percent
12-23	33	16	48.5	6	18.2	11	33.3
24-35	14	1	7.1	3	21.4	10	71.4
36-47	22	2	9.1	6	27.3	14	63.6
48-59	17	0	0	3	17.6	14	82.4
Total 12-59	86	19	22.1	18	20.9	49	57.0

Table 4.7.2: MUAC classification of children's nutritional status, by sex

Number Examined	Severely Undernourished			Moderately Undernourished			Well Nourished		
	M %	F %	Total	M %	F %	Total	M %	F %	Total
86	47.4	52.6	19	55.5	44.5	18	55.1	44.9	49

Moreover, Z-scores were calculated from the height and weight data to assess the nutritional status of children. Z-score cut-offs are considered as a reliable technique for understanding nutritional status. Z-scores have the statistical property of being normally distributed, thus allowing a meaningful average and standard deviation for a population to be calculated (Epi Info, 1994). Z-scores were calculated for weight for height (wasting), height for age (stunting) and

weight for age (wasting and stunting). The reference population used was based on the growth reference curves developed by NCHS.

The Z-score classification used was as follows:

moderate : proportion between -2.0 to -3.0 standard deviation

severe : proportion greater than -3.0 standard deviation

Analysis showed that only 6.3 percent of 0 to 59 month old children were moderate to severely wasted indicating acute malnutrition (Table 4.7.3), however, 17.3 percent of them were moderately stunted and 55.1 percent were severely stunted indicating chronic malnutrition among those children (Table 4.7.4). Almost 60 percent of the children under 5 years were moderately or severely wasted and stunted, of which more than half were severely wasted and stunted (Table 4.7.5).

Table 4.7.3: Children's Weight for height status (Wasting) in Z scores, by age groups

Age (Months)	Number examined	Moderate (Median -2 to -3Z)		Severe (Below median -3Z)		Moderate + severe (All below median -2Z)	
		Count	Percent	Count	Percent	Count	Percent
0-5	26	0	0	0	0	0	0
6-11	15	3	20	0	0	3	20
12-23	32	1	3.1	2	6.2	3	9.4
24-35	15	0	0	0	0	0	0
36-47	22	2	9.1	0	0	2	9.1
48-59	17	0	0	0	0	0	0
Total 0-11	41	3	7.3	0	0	3	7.3
Total 12-59	86	3	3.5	2	2.3	5	5.8
Total	127	6	4.7	2	1.6	8	6.3

Table 4.7.4: Children's Height for age status (Stunting) in Z scores, by age groups

Age (Months)	Number examined	Moderate (Median -2 to -3Z)		Severe (Below median -3Z)		Moderate + severe (All below median -2Z)	
		Count	Percent	Count	Percent	Count	Percent
0-5	26	5	19.2	4	15.4	9	34.6
6-11	15	3	20	6	40	9	60
12-23	32	4	12.5	24	75	28	87.5
24-35	15	3	20	9	60	12	80
36-47	22	3	13.6	16	72.7	19	86.3
48-59	17	4	23.5	11	64.7	15	88.2
Total 0-11	41	8	19.5	10	24.4	18	43.9
Total 12-59	86	14	16.3	60	69.7	74	86.0
Total	127	22	17.3	70	55.1	92	72.4

Table 4.7.5: Children's Weight for age status (Wasting & Stunting) in Z scores, by age groups

Age (Months)	Number examined	Moderate (Median -2 to -3Z)		Severe (Below median -3Z)		Moderate + severe (All below median -2Z)	
		Count	Percent	Count	Percent	Count	Percent
0-5	26	2	7.7	1	3.8	3	11.5
6-11	15	4	26.7	4	26.7	8	53.3
12-23	32	10	31.3	13	40.6	23	71.9
24-35	15	6	40	4	26.7	10	66.7
36-47	22	10	45.4	10	45.4	20	90.9
48-59	17	4	23.5	8	47.1	12	70.6
Total 0-11	41	6	14.6	5	12.2	11	26.8
Total 12-59	86	30	34.9	35	40.7	65	75.6
Total	127	36	28.3	40	31.5	76	59.8

4.7.2 Mother's Perception

More than 57 percent of the mothers thought their children were malnourished (Table 4.7.6).

Table 4.7.6: Mother's perception of her children's nutritional status

Nutritional Status	Count	Percent
Nourished	19	40.4
Malnourished	27	57.4
Don't know	1	2.1
Total	47	100.0

CHAPTER 5

Discussion, Conclusion and Recommendations

The survey gathered information on various health and nutrition issues related to the mothers and children under five to understand the nutritional status of the people in the three target VDCs - Guthichaur, Chhumchaur and Patarasi.

5.1 Reflection on Field Work During Survey:

The significant problems encountered during field work are discussed below:

- During the interview of mothers, elderly women of the household and the women of neighbouring households would gather around her and intervene in the interview. Sometimes the answers would come from the group and not from individual mother, or the answer of the mother would be influenced by the crowd. The mothers sometimes would not respond to the questions in presence of the mother-in-law or husband.

- Some householders expected some return (e. g. medications) from the interviewers, but when they were not provided anything, some of them got upset.

- The time period when the survey took place was the *Chino* (one of the staple cereals in Jumla) harvest time. Thus it was difficult to find the mothers at home as they would be in the harvest field.

Some other observations:

- The houses in Jumla are clustered together, which made the task of sampling procedure easy.

- The time of the year when the survey was conducted was September. It was obviously the time of the year when Jumla was green. There was plenty of pumpkins, apple and walnuts.

  An interesting observation about walnut: People are not allowed to pick the walnuts individually even though the walnut trees are everywhere in the jungle. The people of the village go to pick the walnuts at an allocated time and share the walnuts equally amongst them. This way none of the family is at disadvantage.

  An alarming observation: Conversation with a man on the way to Patarasi revealed that more than half of the ripe pumpkins nicely stored on the roofs of the houses were actually to feed the cattle. The children were lucky to get a portion of it. Same applied for soybeans. Soybean was fed to the cattle while green, but was not dried up to feed the children later. This indicated a big lack of awareness about food and nutrition amongst the people there.

- The surveyors found salt brought from Tibet 12 years ago in one of the households in the survey area. Even at the time of the survey, no shop was found around the area which sold salt. The iodised salt packets sold in Khalanga Bazzar from where most people bought salt was very highly priced.

- The surveyors found 2 cases of goitre in the survey area.

- The infants and younger children are left at home with the older siblings while the parents are at field. Who gets to eat the little food that is left for the younger children is questionable.

- People did not seem to have concept of food preservation – drying, pickling for use during the months of food scarcity.

- Very few people had concept of hygiene and sanitation. It was customary for the people not to wash themselves (This may be due to cold weather and lack of fuel to heat up the water for washing).

5.2 Conclusions and Recommendations

Conclusions and Recommendations based on the issues found in the survey:

5.2.1 For women of reproductive age

- The survey indicated that majority of mothers got pregnant before reaching 19 years and had more than four children. More than 90 percent of them did not have any antenatal check up or health care available during child birth. More than 50 percent of the women were at risk of having poor nutritional status, while more than 12 percent had poor nutritional status. This points to a need for special attention to be given to the mothers' health and nutritional status. There is an urgent need to promote family planning and use of antenatal services, and for training of TBAs. Only after attaining good nutritional status for themselves will the mothers be able to provide proper care to their children and help them attain good nutritional status.

- Habit of smoking was found to be prevalent among the women, even during pregnancy. So anti-smoking messages should be included along with the messages on nutrition and the women should be informed on harms of smoking, especially during pregnancy.

5.2.2 For children under five years

- While looking at infants (0-5 months), though all of them were breast fed, about half of them were not given colostrum. Feeding colostrum to children and duration of breastfeeding should receive priority for nutritional development. Therefore, the importance of colostrum should be emphasised during the community activities.

- Among the children aged 6 to 23 months, more than a quarter of them were given supplementary food only after 7 months. Five months as the optimum age for introducing supplementary food should be promoted. Mothers and caregivers should be made aware of the advantages of introducing supplementary food at five months and the types and number of times in a day supplementary food should be given to the children.

- Mothers infrequently mentioned *Lito* (roasted corn or rice flour) as supplementary food they would like to feed their children. The concept of *sarbottam pitho* should be introduced. This can be done effectively by demonstration. The aim of giving supplementary food after 5 months is to supply nutrients which are not supplied by breast milk alone. Super flour porridge "*sarbottam pitho ko lito*" is the modified traditional cereal grain-pulse porridge which is the most nutritious supplementary food for an infant (Adhikari and Krantz, 1997).

- More than one third of the households did not seek any treatment for their children's illnesses (ARI and Diarrhoea). Only a small proportion of them sought the help of health personnel, while more than twenty percent of them sought help of the faith healer (*Dhami/Jhankri*). This custom of consulting faith healers or not seeking any treatment may be risky on part of children. Therefore, the community should be counseled on the importance and advantage of seeking help of health personnel in the community. It may be

fruitful to investigate how the faith healers operate on child related illnesses, and perhaps counsel them, on newer methods proven to be beneficial for the health of children.

- It was found that the mothers lacked awareness of the symptoms of ARI, and probably other illnesses. Thus, it is recommended that CNP promote awareness of different childhood illnesses, whether directly nutrition related or not, including symptoms, ways of prevention and the danger signs after manifestation of disease.

- More than 85 percent of the mothers breast fed their children even while the children had diarrhoea; about one third of them also gave other liquid such as cereal based gruel, bean pulse soup etc and were aware of the availability of oral rehydration salts. This custom of continuing to breastfeed and giving other liquids during diarrhoeal episode should be re-emphasised and the mothers following this custom should be praised and asked to spread the word around. At the same time they should be encouraged to do the same during other illnesses as well. It is also important for the mothers to be able to treat their children at home when diarrhoea and ARI are not serious. Therefore, they could be taught simple home remedies for common illnesses.

- The survey showed that **72.4 percent** of the children under five suffered from **chronic malnutrition** (stunting), 6.3 percent of them suffered from acute malnutrition (wasting) and 59.8 percent of them were moderately or severely wasted and stunted. It is worth noting that this data was collected during the month of harvest. The scenario may be worse during other time of the year. This indicates a serious problem of malnutrition in the majority of children in the area and calls for an immediate attention of CNP to tackle this problem. One recommendation is to monitor growth of children under 5 years in these VDCs and use the growth monitoring sessions as both monitoring as well as educational sessions to increase awareness of mothers on nutrition issues.

- If possible, it would be interesting to carry out a longitudinal study of the children included in this study over the course of the project, to see what happens to them over the next three years – whether infant mortality and under 5 childhood mortality is higher for children who are malnourished.

- The number of children included in the study by age (Table 4.5.1) showed that almost 60 percent of them were below two years. Therefore it seemed that many children are dying in the first and second year of life. It may be possible to document what is happening to the children in baseline study by conducting a study on them at mid-term and at the end of CNP.

5.2.3 For the Household

- Mothers are often the key persons in handling the welfare of the family. Therefore properly educating the mothers on the issues related to nutrition could be a key to improving nutritional status of the members of the household. The survey showed that most of the mothers were illiterate. Nutrition Programme may support NFE programme to work towards increasing their literacy level as well as providing knowledge on nutrition related issues by using simple, easy to understand tools.

- Almost 47 percent of the households reported food shortage sometime during the year. More than 50 percent of the households indicated *Chaitra* to *Asar* as the main months of food shortage. Therefore, it is important for CNP to develop strategies to handle the hard hit months. The communities could be made aware, by practical demonstration, of the possibility of food preservation during months of plenty to be used later and utilisation of wild foods. Awareness should be raised on local food values.

- Although majority of households owned kitchen garden, use of modern agricultural input was found to be minimal. It was observed that the many households used the kitchen garden to plant tobacco. CNP could encourage the communities to plant the nutrient rich fruits and vegetables instead, educate them on various types of nutritious food that could be produced in the kitchen garden and promote and if possible, demonstrate the ways of improving yield. Coordination of CNP with KCST about distribution of seeds could be beneficial for the community.

- The survey showed that the survey areas lacked awareness of basic health and sanitation issues. Awareness related to use of latrine, hand cleaning habit after handling faeces, type of water used for drinking and other domestic purposes, domestic food safety practices, immunisation of children against preventable diseases, although not significantly related to nutritional status, will considerably support other initiatives of nutritional development and provide beneficial results. Therefore messages related to these issues should also be included along with the nutrition messages.

- Only 32.4 percent of the households were using salt that contained 30 ppm iodine. Nearly half of the surveyed households had zero ppm of iodine in the salt they consumed. Thus CNP should take initiative to persuade the householders to only purchase iodised salt, not the crystal non-iodised salt and if possible, contact and persuade salt trading corporation to make iodised salt available in reasonable price through at least one retailer in each VDC.

In future surveys, information on the type of salt (whether iodised or non-iodised, powder or crystal) should also be noted.

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APPENDICES

Appendix A

Form No. ……..
Interviewer's Name ……

Jumla Nutrition Survey Form

VDC…… Ward no. …… Village …… Name of Householder ……..

Occupation of Householder ……..Total members living in Household ……..

Extended/Single family…… ……..Hal(s) of land owned ……..

Household's main source of income …… Additional income …… …… …

HH work outside Jumla .. .YES / NO Months HH work outside Jumla ……

Name of mother …… Age of mother …… Occupation …… Education ……

Iodine in Salt (ppm.) Circle	0	7	15	30	50

Mother's Health & Nutritional Status

Number of past pregnancies ……. Boy……..
Girl …….
Number of living children …… .. Boy ……
Girl …….
Mother's MUAC (mm) measurement ……
Mother's BODY MASS INDEX: weight (kg)…... height (m)……BMI …..
Age at first pregnancy ……. (years)
Did you smoke during your last pregnancy? Yes / No
Did you take alcohol during your last pregnancy? Yes / No

Access to Basic Health Services & Healthy Environment

Immunization:

1. Does your child have a vaccination card? Yes / No
2. Is it updated? Yes / No (tick if possible: BCG, DPT1, 2, 3, OPV 1, 2,3, Measles)

Births attended by TBA:

1. Who attended (helped) you in your delivery?
   …….TBA ……FCHV/MCHV ……Neighbors ……Relatives ……..Nobody
2. Did you visit HC/HP/SHP for Antenatal checkup? Yes / No

Food Situation

Are you and your householder able to provide enough food for your household all throughout the year ? Yes / No If not, which months are difficult for you to provide food?

Months	Baisakh	Jestha	Asar	Shrawan	Bhadra	Asoj
	Kartik	Mangsir	Poush	Magh	Fagun	Chait

How do you manage to provide food in these difficult months?
Buy …… what food …… from where ……
Borrow …… what food …… from where ……

Feeding Practices:

1. Mothers of infants 0-5 months of age

Child's No.	Sex	Age	Breast fed (BF) or not	How soon BF after birth	Fed Colos-trum?	If not, until when or amount of BF not given?		When was child given anything extra than BF ?
						time	amount	
1.								
2.								

2. Mothers of children 6-24 months of age

Child's No.	Age	Sex	How long BF?	Age solid foods given	UNDER ONE YEAR ONLY		OVER ONE YEAR ONLY		Is your Child Maln-Ouris-hed?
					Times/Type Solid Foods given in a day?		Times/Type Solid Foods given in a day?		
3.									
4.									
5.									

3. If available, what foods would you prefer to give to your child?

Nutritional Status of Children (under 5 years of age)

Child's Name	Age (in months)	Sex	Height (in cm)	Weight (in kg)	MUAC (in mm)
1.					
2.					
3.					
4.					
5.					

Child Mortality Information

No.	Age	Sex	Cause(s) of death	Coding
1.			1.	A= Diarrhea
2.			2.	B= Malnutrition
3.			3.	C= ARI (Pneumonia)
4.			4.	D= Measles
5.			5.	E= Stillbirth
6.			6.	F= Others (specify)

Kitchen Garden and Livestock

Do you have a kitchen garden? Yes / No (OBSERVE)

If yes, what do you grow in the garden (months)? B.....|J.....|A.....

.....|S.....|B.....|A.....|K.....|M.....

.....|P.....|M.....|F.....|C.....

Where do you get your seeds from? .....

Do you use modern agricultural inputs in your field (eg.) Yes / No

Tot. no. of livestock..... (sheep ..... Cows/ox ..... Goats ..... chicken..... horses.....)

Diseases

ARI

1. Have your children suffered from cough and cold during the last two weeks? Yes / No
2. What signs or symptoms did you notice when your children are ill?

coughing ..... blocked nose/running nose ..... fever .....
breathing fast ..... Difficulty breathing ..... chest in-drawing .....
trouble eating/drinking ..... Don't know ..... other (specify) .....

Treatment sought for children with ARI:

1. Where did you take your child for treatment?
   Nowhere and no treatment ..... nowhere but home treatment ..... sub/health post .....
   primary health center ..... Hospitial ..... village health worker .....
   female community health volunteer ..... private clinic .....
   medical shop/pharmacy ..... dhami/jhakri ..... ayurvedic center .....
   Other (specify)..... .....
2. Of the list above, whom did you consult first? .....

Diarrhea

1. Has your child had diarrhea in the last 2 weeks? Yes / No
2. If yes, for how many days? ..... 3. Was there blood in stool during diarrhea? Yes / No
4. During diarrhea, did you give the child anything to drink?

Breast milk ..... Cereal based gruel or soups ..... Bean pulse soup .....
vegetable soup ..... yogurt ..... Fruit juice ..... nun-chini-pani .....
Jeevan jal/shakti jal ..... cow/buffalo milk or canned milk .....
water with feeding during some part of the day .... plain water (boiled/not).....
any other fluid (specify) ..... nothing .....

Treatment sought for children with Diarrhea:

1. Where did you take your child for treatment?
   Nowhere and no treatment ..... nowhere but home treatment ..... sub/health post ....
   primary health center ..... hospital ..... village health worker .....
   female community health volunteer .....private clinic/nursing home .....
   medical shop/pharmacy ..... dhami/jhakri ..... Aurvedic center .....
   other (specify) ....
2. Of the list above, whom did you consult first?.....

Water/Sanitation & Environmental Conditions

Drinking water

1. What is the main source of drinking water for members of your household?

Piped - in dwelling ... public tap ... Well/spring/kuwa
pond/river/stream/lake .... Other (specify) .....

2. How long does it take to get there, get water and come back?
   No of hours ..... no of minutes ..... water on premises ..... don't know .....

Use of latrines

1. Do you have your own toilet? Yes / No 2. Do children use the toilet? Yes / No
3. Do children usually wash their hands before meal and after defecation? Yes / No

Food Safety Conditions (Observe if possible)

1. Do the members of your household usually cover Water Vessel? Yes/ No
2. Do the members of your household usually cover Cooked Food? Yes/ No
3. Do you boil drinking water? Yes / No

Appendix B

FOOD AVAILABILITY FORM
Patarasi VDC

FOOD	Months in Nepali Calendar											
CEREAL GRAINS	BA	JE	AR	SH	BH	AS	KA	MR	PO	MG	FA	CH
Barley			y									
Rice							y					
Corn						y	y					
Millet						y						
Buckwheat						y						
Wheat				y								
Junelo												
Amaranth						y						
Foytail millet					y							
ROOTS/TUBERS												
Potato					y	y	y					
Sweet Potato					y	y						
Colocasia						y	y					
Ghartarul						y	y					
Giththa												
Rani Bhyaakur												
Beetroot												
Carrot			y	y								
Turnip			y	y								
FATS												
Butter				y	y							
Rapeseed Oil			y		y							
Sesame Oil			y									
Hydrogenated Oil	y		y									

Note: Months are indicated by initials. y = food available

FOOD	Months in Nepali Calendar											
PULSES	BA	JE	AR	SH	BH	AS	KA	MR	PO	MG	FA	CH
Dal Simi						y	y					
Blackgram												
Cowpea (*Bodi*)												
Soybeans						y	y					
Peas												
Horsegram												
Lentil												
Broadbeans												
SEED NUTS												
Walnuts					y	y						
Sesame												
Silaam												
Omum (*Jwaano*)	y		y									
Amaranth												
Peanuts							y					
Linseed												
NON-VEGETABLE												
Goat meat		y	y	y								
Chicken meat		y	y									
Eggs		y	y		y		y					
Cow milk			y	y	y	y						
Buffalo milk				y	y	y						
Buffalo meat		y	y	y			y	y				
Fish		y	y									
Crabs												

FOOD	Months in Nepali Calendar											
VEGETABLES	BA	JE	AR	SH	BH	AS	KA	MR	PO	MG	FA	CH
Eggplant				y	y							
Bitter gourd												
Pumpkin					y	y	y					
Okra												
Radish				y	y							
Carrot				y	y							
Cauliflower				y	y							
Mushrooms	y											y
Green beans				y	y							
Cucumber				y	y							
Green peas					y							
Snake gourd												
Ridge gourd												
Turnip			y									
Bottle gourd												
FRUITS												
Apricot			y									
Persimmon												
Apple				y	y							
Amala												
Orange												
Papaya												
Banana												
Plum			y									
Peach				y	y							
Lemon												
Guava												
Lime												
Pomegranate												

FOOD	Months in Nepali Calendar											
GREEN LEAVES	BA	JE	AR	SH	BH	AS	KA	MR	PO	MG	FA	CH
Mustard leaves												
Rape leaves	y											
Dill leaves												
Radish leaves			y	y								
Pumpkin vine				y	y							
Nettles	y	y										
Ferns		y										
Bauhinia												
Onion/Garlic			y									
Amaranth leaves												
Bethe saag	y											
Colocasia			y									
Sweet potato leaves												
Mint												
Watercress												
Spinach												
Fenugreek												
Cabbage					y	y						
Lettuce												
MISCELLANEOUS												
Gundruk												
Masyaura												
Sugar				y	y							
Alcohol		y	y	y			y	y				
Honey	y	y			y	y	y					

Appendix C

FOOD AVAILABILITY FORM
Chhumchaur VDC

FOOD	Months in Nepali Calendar											
CEREAL GRAINS	BA	JE	AR	SH	BH	AS	KA	MR	PO	MG	FA	CH
Barley			o	o	o							
Rice *	o	b	b	b	b	b	o	o	o	o	o	o
Corn	o	o	b	b	b	b	o	o	o	o	o	o
Millet	o	o	b	b	b	b	o	o	o	o	o	o
Buckwheat	b	b	b	b	o	o	o	b	b	b	b	b
Wheat	b	b	b	o	o	o	b	b	b	b	b	b
Junelo							o	o				
Amaranth					o	o						
Foytail millet	b	b	b	b	b	o	o	b	b	b	b	b
ROOTS/TUBERS												
Potato	b	b	b	o	o	o	o	o	o	o	o	b
Sweet Potato							o					
Colocasia					o	o						
Ghartarul												
Giththa												
Rani Bhyaakur												
Beetroot												
Carrot					o							
Turnip					o	o						
FATS												
Butter	o	b	b	b	b	b	b	b	b	b	b	b
Rapeseed Oil	b	b	b	o	b	b	b	b	b	b	b	b
Sesame Oil												
Hydrogenated Oil	b	b	b	b	b	b	b	b	b	b	b	b

Note: Months are indicated by initials. (o = own, b = bought)

FOOD	Months in Nepali Calendar											
PULSES	BA	JE	AR	SH	BH	AS	KA	MR	PO	MG	FA	CH
Dal Simi	b	b	b	b	b	b	o	o	o	o	o	b
Blackgram	b	b	b	b	b	b	b	b	b	b	b	b
Cowpea (*Bodi*)												
Soybeans	b	b	b	b	b	b	o	o	b	b	b	b
Peas	b	b	b	b	b	o	b	b	b	b	b	b
Horsegram												
Lentil												
Broadbeans												
SEED NUTS												
Walnuts	b	b	b	o	o	b	b	b	b	b	b	b
Sesame												
Silaam												
Omum (*Jwaano*)	b	b	b	b	b	b	b	b	b	b	b	b
Amaranth												
Peanuts												
Linseed	b	b	o	b	b	b	b	b	b	b	b	b
NON-VEGETABLE												
Goat meat	b	b	b	b	b	b	b	b	b	b	b	b
Chicken meat	b	b	b	b	b	b	b	b	b	o	b	b
Eggs	b	b	b	b	b	b	b	b	b	o	b	b
Cow milk	o	o	o	o	o	o	b	b	b	b	b	b
Buffalo milk	o	o	o	o	o	o	b	b	b	b	b	b
Buffalo meat												
Fish												
Crabs												

FOOD	Months in Nepali Calendar											
VEGETABLES	BA	JE	AR	SH	BH	AS	KA	MR	PO	MG	FA	CH
Eggplant				o	o							
Bitter gourd												
Pumpkin				o	o	o	o	o	o	o		
Okra				o								
Radish				o	o	o						
Carrot						o						
Cauliflower					o	o						
Mushrooms				o	o							
Green beans				o	o							
Cucumber				o	o							
Green peas				o								
Snake gourd					o							
Ridge gourd												
Turnip					o	o						
Bottle gourd					o	o						
FRUITS												
Apricot				o								
Persimmon												
Apple				o	o	o	b	b	b	b	b	
Amala												
Orange												
Papaya												
Banana												
Plum				o	o							
Peach					o	o						
Lemon												
Guava												
Lime												
Pomegranate												

FOOD	Months in Nepali Calendar											
GREEN LEAVES	BA	JE	AR	SH	BH	AS	KA	MR	PO	MG	FA	CH
Mustard leaves			o	o	o							
Rape leaves			o									
Dill leaves												
Radish leaves				o	o							
Pumpkin vine				o	o							
Nettles												
Ferns		o	o									
Bauhinia												
Onion/Garlic	o	o	o	o	o	o						
Amaranth leaves												
Bethe saag#			o	o								
Colocasia			o	o	o	o						
Sweet potato leaves			o									
Mint												
Watercress												
Spinach			o	o	o	o						
Fenugreek												
Cabbage				o	o	o						
Lettuce												
MISCELLANEOUS												
Gundruk+				o	o	o	o	o	o	o		
Masyaura												
Sugar	b	b	b	b	b	b	b	b	b	b	b	b
Alcohol												
Honey	b	b	b	b	b	b	o	b	b	b	b	b

Appendix D

FOOD AVAILABILITY FORM
Guthichaur VDC

FOOD	Months in Nepali Calendar											
CEREAL GRAINS	BA	JE	AR	SH	BH	AS	KA	MR	PO	MG	FA	CH
Barley				o	o	o						
Rice	b	b	b	b	b	b	o	o	o	b	b	b
Corn	o	o	b	b	b	b	o	o	o	o	o	o
Millet	b	b	b	b	b	b	b	b	o	o	o	o
Buckwheat					o	o	o					
Wheat	o	o	o	o	o	o	o	o	o	o	o	o
Junelo							o	o	o			
Amaranth						o						
Foytail millet	b	b	b	b	b	o	o	o	o	b	b	b
Chinu					o	o	o	o	o	o	o	
ROOTS/TUBERS												
Potato	b	b	o	o	o	o	o	o	o	o	o	o
Sweet Potato												
Colocasia					o	o						
Ghartarul												
Giththa												
Rani Bhyaakur												
Beetroot												
Carrot				o	o	o						
Turnip					o	o						
FATS												
Butter	o	o	o									
Rapeseed Oil	b	b	b	b	b	b	b	b	b	b	b	b
Sesame Oil												
Hydrogenated Oil	b	b	b	b	b	b	b	b	b	b	b	b

Note: Months are indicated by initials. (o = own, b = bought, s = sold)

FOOD	Months in Nepali Calendar											
PULSES	BA	JE	AR	SH	BH	AS	KA	MR	PO	MG	FA	CH
Dal Simi	o	b	b	b	b	o	o	o	o	o	o	o
Blackgram	b	b	b	b	b	b	b	b	b	b	b	b
Cowpea (*Bodi*)	b	b	b	b	b	b	b	b	b	b	b	b
Soybeans	b	b	b	b	b	b	o	b	b	b	b	b
Peas												
Horsegram												
Lentil												
Broadbeans												
SEED NUTS												
Walnuts				o	o	o						
Sesame												
Silaam												
Omum (*Jwaano*)	b	b	b	b	b	b	b	b	b	b	b	b
Amaranth												
Peanuts												
Linseed												
NON-VEGETABLE												
Goat meat	b	b	b	b	b	o	o	b	b	b	b	b
Chicken meat												
Eggs			o						o			o
Cow milk	o	o	o	o	o	o						
Buffalo milk												
Buffalo meat												
Fish												
Crabs												

FOOD	Months in Nepali Calendar											
VEGETABLES	BA	JE	AR	SH	BH	AS	KA	MR	PO	MG	FA	CH
Eggplant				o	o							
Bitter gourd												
Pumpkin				o	o	o	o	o	o	o	o	o
Okra												
Radish				o	o	o						
Carrot												
Cauliflower				o	o	o						
Mushrooms			o	o	o							
Green beans				o	o							
Cucumber				o	o	o						
Green peas												
Snake gourd												
Ridge gourd												
Turnip												
Bottle gourd				o	o	o						
FRUITS												
Apricot				o								
Persimmon												
Apple				os	os	os	os					
Amala												
Orange												
Papaya												
Banana												
Plum												
Peach				o	o	o						
Lemon												
Guava												
Lime												
Pomegranate												

FOOD	Months in Nepali Calendar											
GREEN LEAVES	BA	JE	AR	SH	BH	AS	KA	MR	PO	MG	FA	CH
Mustard leaves			o	o	o							
Rape leaves			o									
Dill leaves												
Radish leaves				o	o	o						
Pumpkin vine				o	o							
Nettles												
Ferns		o	o									
Bauhinia												
Onion/Garlic							o					
Amaranth leaves												
Bethe saag				o	o							
Colocasia					o	o	o					
Sweet potato leaves												
Mint												
Watercress												
Spinach												
Fenugreek												
Cabbage				o	o	o						
Lettuce												
MISCELLANEOUS												
Gundruk						o	o	o	o			
Masyaura												
Sugar	b	b	b	b	b	b	b	b	b	b	b	b
Alcohol	b	b	b	b	b	o	o	o	o	b	b	b
Honey		o					o	s				