A BASELINE SURVEY REPORT

NUTRITIONAL STATUS OF THE CHILDREN UNDER FIVE YEARS AND WOMEN OF REPRODUCTIVE AGE IN THE AREAS COVERED BY NAULEKATUWAL, NEPA AND PADUKA VILLAGE DEVELOPMENT COMMITTEES IN DAILEKH

Prepared by

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May 2001

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DAILEKH

(AS MEASURED IN NOVEMBER 2000)

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPNDICES

ACRONYMS

AHW	: Auxiliary Health Workers
ANM	: Auxiliary Nurse Midwife
CDO	: Chief District Officer
CNP	: Community Nutrition Project
DHO	: District Health Office
EPI	: Expanded Program of Immunization
FCHV(s)	: Female Community Health Volunteer(s)
GM	: Growth Monitoring
HMG	: His Majesty's Government
HP	: Health Post
HW	: Health Worker
INGO	: International Non-Governmental Organization
MCHW	: Maternal & Child Health Worker
MOH	: Ministry of Health
NGO	: Non-Governmental Organization
ORS	: Oral Rehydration Solution
SHP	: Sub-Health Post
VHW	: Village Health Worker
VDC(s)	:Village Development Committee(s)
UMN	: United Missions to Nepal
UNICEF	: United Nations Children's Fund
WHO	: World Health Organization

ACKNOWLEDGEMENTS

I would like to extend my appreciation to Dullu NFE programme, Dailekh for their co-operation in this survey. Sincere thanks goes to NFE programme staff and members of the survey teams for conducting the interviews. I am grateful to Mr. Ashish Sinha for his help in computer programming and for his help throughout the study. A special acknowledgment goes to Dr. Dick Harding, Senior Health Consultant for reviewing the draft and providing invaluable suggestions to improve the report. My sincere thanks to Mrs. Deirdre Zimmerman, project support officer, UMN Nutrition Programme for going over the draft and providing suggestions. My special gratitude to all interviewees and mothers of the VDCs for sharing with their knowledge and experiences. Last but not least, I would like to extend my appreciation to Mrs. Roshani Shrestha, Director for her suggestions and all the staff, Nutrition Programme, United Mission to Nepal for their constant support that made it possible for the survey to be carried out.

Executive Summary

Purpose

The purpose of the study was to obtain baseline information on the nutritional status of the area covered by the three VDCs Naulekatuwal, Nepa and Paduka in Dailekh to provide a guideline for UMN Nutrition Programme and to provide useful reference for other agencies who are interested in findings of nutrition research.

Methodology

The sample for the survey was drawn by the random method. Three sites- Naulekatuwal, Nepa and Paduka were the target VDCs included in the survey. Cluster sampling technique was used for the survey. A total of 15 clusters (each with 7 households) were taken as sample at three sites in November 2000. A household was included in the survey if a mother with at least one child under five years of age was present in the household at the time of the survey.

The household data for the Survey were collected from
- 105 households
- 105 mother having at least one child under 5 age
- 159 children under five years

Three different tools (mentioned below) were used in the survey. Survey equipments used- Unicef electronic scales, Salter scales, Height measuring stick, Mid Upper Arm Circumference tapes and iodine test kits.

Tools used in the survey
- Household questionnaire with anthropometry
- Food availability form
- Interview questionnaire (Key Person's & Shopkeeper's)

Major Findings

The main findings of the survey are briefly mentioned here.

- 89 % of households identified themselves with agriculture as their major occupation. Only 11 % of households were using modern farming techniques to improve productivity.

- 25 percent of the households surveyed didn't have enough food for whole year. Chaitra, Shrawan and Falgun was reported to be the most hard hit months of food shortage.

- 82 % of the households had kitchen garden in the area.

- 33 % of households admitted that their children did not wash their hands before meal while 22 % did not wash their hands after defaecation.

- 99 % of households consumed Dhikke (crystal) salt and 92 % of households had 0-7 ppm of Iodine in the salt they consumed.

- According to Z-score classification, 60 % of children under five were undernourished (moderate and severe), 6.3 % were suffering from wasting and 70.4 % were stunted.

- Wasting and stunting were prevalent among the children of Brahmin and Chettri community as well as to those of occupational castes in the area.

- The rate of underweight, wasting and stunting gradually increased among children of 13-24 months age to children among 49-60 months age.

- 31 % of under five children had diarrhoea and 60 % of children had an episode of Acute Respiratory Infection in the last two weeks prior to survey.

- More than one third of the households neither took the sick children anywhere for treatment nor treated them at home. Almost 15 % of them consulted traditional healers.

- Only 74 % of households had immunized their children.

- 41 % of households did not fed colostrum to their infants.

- 13 % of children were given supplementary food before reaching 5 months, while more than 13 % of them received supplementary food only after 7 months or older.

- 20 % of mothers were undernourished having moderate and mild thinness as analyzed by Body Mass Index. More than 50 % mothers were at the risk of having poor nutritional status while more than 20 % had poor nutritional status according to MUAC measurement analysis.

- 61 % of the mothers were illiterate.

- 74 % of mothers were less than 19 years of age at her first pregnancy.

- 81 % of mothers didn't have antenatal check up during pregnancy.

- 67 % of mothers smoked and 7 % consumed alcohol during pregnancy.

Summary of Main Recommendation

- Special attention should be given to the health and nutritional status of the mothers and children of all the caste community in the area.

- Knowledge and skill-based training should be provided to mothers on the importance of antenatal check up, harm of smoking especially during pregnancy, importance of colostrum, consumption of green leafy vegetables and fruits during pregnancy and lactation. Mothers should be informed of benifits of birth spacing (family planing) and less number of child. Mothers from all the caste community should be involved in the nutrition trainings.

- Five months as the optimum age for introducing supplementary food should be promoted in all the communities. Mothers and main carer of children should be informed about the advantages of extra food at five months and the types and frequency of feeding to the children in a day. The children of 6-60 months should be provided with balanced feeding of supplementary food especially Super Flour Porridge (sarbottam pithoko lito). Mothers should be encouraged to feed Vit. A rich food along with other homemade food to their childen during illness. Regular growth monitoring of under five children should be done.

- The communities should be made aware of use of latrine, washing of hands after defecation, type of drinking water and domestic food safety practices, which have indirect influence on nutritional status.

- It is important to develop strategies to handle hard hit months of food shortage. Skill based (e.g. practical demonstration) training should be given to the household mothers on storage and preservation of seasonal foods for off-seasons. Utilization of forest foods should also be promoted.

- The members of households should be informed about the need of iodine in human physiology and hence the importance of iodized salt in our food. The consumption of iodized packet salt should be promoted in the community. CNP can take initiative to contact Salt Trading Corporation and the local shopkeepers to make iodized salt available in the area.

Chapter 1: Introduction

Based upon the report of initial Focus Group Nutrition Study (November 1999), the United Mission to Nepal (UMN) Nutrition Programme implemented a Community Nutrition Project (CNP) in three Village Development Committees (VDCs- Naulekatuwal, Nepa and Paduka) in Dailekh district since November 2000 in collaboration with UMN Dullu Non-Formal Education (NFE) Project. A Baseline Survey was carried out to assess the nutritional status of children under five and women of reproductive age group in the three target VDCs in November 2000.

1.1 District's Background

Dailekh district is situated in Bheri zone in the Mid-western development region of Nepal. Dailekh bazaar is the district head quarter of the district. With Kalikot district in the north, Surkhet and Achham district in the south, Jajarkot and Surkhet districts in the east, and Achham district in the west, Dailekh covers an area of 1,502 sq. km. The district accommodates subtropical, mild-temperate and cool-temperate climates and lies between an elevation of 544 to 4,168 meters (National Research Associates, 1999).

The district is divided into 56 Village Development Committees including the recently declared Narayan municipality. According to the 1991 census, Dailekh district had a total population of 1,87,400, and, the population projection for the year 1998 was estimated to be 2,03,679. The total households in the district were 33,922 in 1991 and 36,869 households were projected for the year1998. The literacy rate of 6 years and above was 31.4 percent in the year 1991. The population density was 124.8 per sq. km. in 1991. (Nepal District Profile, 1999)

Children under five years (including infants) accounted for 19.7 percent (30,406 children and 6,423 infants) of the total population for 1991 (cited in Dailekh Feasibility Report 1996). The 1991 census report also showed that there were 39,381 married women (21 percent of the total population) of reproductive age between 15-49 years.

Dullu bazaar is located 65 kms north of Surkhet and about 10 kms west of the district headquarters. Although there are two motorized roads connected to Dullu, one the Surkhet-Jumla highway linking up to Tallo Dungeshsor and the other the Surkhet-Dailekh road linking up to Chupra bazaar, Dailekh still lacks basic infrastructure. The district had 19,962 metric ton of food deficit, despite the 20,004 mt. of total edible crops it produced for the year 1995/1996 (NRA, 1996)

Naulekatuwal, Nepa and Paduka VDCs included in the survey are closely located to the political boundaries west of Dullu bazaar (Map of Dailekh, Annex 6). These VDCs have somewhat similar socio-economic characteristics. The average household size is uniform in these VDCs. According to the NRA, 1996, the major ethnic/ caste groups residing in these VDCs are Brahmin, Chettri, Thakuri and occupational castes (Kami, Sarki and Damai). Rice, maize, wheat and millet are the major crops grown in these VDCs.

1.2 Nutrition situation based on previous reports

It is cited in the report of Unicef 1998 that malnutrition is implicated in more than half of all child deaths compromising their physical and mental development and helping perpetuate poverty. More widespread than many suspect- one out of every three children affected – malnutrition lowers the productivity and abilities of the entire society in Nepal.

Protein energy malnutrition and micronutrient deficiencies are the main problem of undernutrition. Malnutrition increases the risk of infection and severity of most diseases. In turn, diseases particularly diarrhoea and ARI increase the risk of malnutrition. As a result of this synergism, malnutrition contributes to about 60 per cent of young child deaths in South Asia (WHO, 1996).

Malnutrition can start from the inception of life. If an expectant mother is not fed well, the baby to be born will not develop to the extent it should resulting in low birth weight. One to two thirds of all babies in the south Asia are born with low birth weight (WHO 1996). Low birth weights indicates that mother was malnourished during her own infancy, childhood, adolescence and pregnancy.

Physically and mentally, the health of manpower is indispensable for the overall development of a country, as healthy children are pillars of the country. However, Nepal Multiple Indicator Surveillance 1997 reveals that 53 per cent of the children of the country are at present under various stages of malnutrition. NMIS-1997 states "Population growth, lack of food, poverty, lack of health and basic facility, lack of education and public awareness, lack of income-generating employment etc have resulted in deteriorating nutrition condition and people hence are suffering from various types of malnutrition in Nepal."

According to the National Planning commission, the per capita calorie consumption requirement is 2,340 cal/person/day in the hills and mountains, based on WHO guidelines adjusted for climate and household composition. The percentage of households consuming less than recommended levels of food is highest in the rural hills, 47% (NPCS 1998).

The proportion of income spent on food is a good indicator of poverty and of food insecurity. In rural areas, food expenditures remain over 60% of total expenditures (cited in CIET International, 1997).

According to the 'Nepal Economic Policies for Sustainable Development' prepared by Asian Development Bank, the amount of food per capita has been declining in Nepal. An increasing number of districts are experiencing food deficits. The gap between food requirements and consumption is increasing. More people are restricted by their economic circumstances to consuming only food that is required for survival. The land availability for food grain production in Nepal is limited by the topohography. Population growth is increasing unabated and giving rise to serious shortages of food. Food shortage becomes acute during the months before harvest in October in most parts of the country.

A recent report by Unicef 2001, shows that there were 47 percent of underweight (moderate and severe), 12 percent of underweight (severe), 7 percent of wasting (moderate and severe) and 54 percent of stunted children under-5 in Nepal for the year 1999. Only 55 percent of households are consuming iodized salt and the rest are consuming non-iodized salt. This is the main reason behind the higher incident rate of iodine deficiency disorders in Nepal.

83 % of children are exclusively breastfed (0-3 months) while 63 % children are breastfed with complementary food (6-9 months). 88 percent were still breastfeeding at 20-23 months (Unicef 2001).

According to the Unicef 2001 report, the total population of under five in Nepal is 23,385,000. The under five mortality rate is 104 per 1,000 live births. Infant (under 1) mortality rate is 75 per 1,000 live births. The annual number of births is 786,000 while annual number of under five deaths is 82,000.

These statements hold a serious challenge for individuals and organizations working in the field of health and especially nutrition. These statistics will serve as the basis for understanding baseline information on nutrition status of the target area.

1.3 Purpose of the study

The purpose of the study was to obtain baseline information on the nutritional status of the area covered by the three VDCs Naulekatuwal, Nepa and Paduka in Dailekh to provide a guideline for UMN Nutrition Programme and to provide useful reference for other agencies who are interested in findings of nutrition research.

Specific Objectives

- 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.

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

Chapter 2: Methodology

2.A Sample Selection

2.1 Selection of VDCs

UMN Nutrition Programme started a Community Nutrition Programme in Dailekh in collaboration with Non-Formal Education Programme in three VDCs. The baseline survey was thus confined to the three VDCs, Naulekatuwal, Nepa and Paduka.

2.2 Sampling technique

As adopted by UMN Nutrition Programme, cluster-sampling technique was used for the survey. This technique allows a small number of the total population to be sampled and was considered to be appropriate for several reasons (Pelto et al, 1989). This technique allows a small number of the total population to be sampled, reducing the cost associated with the survey. A cluster survey is easy to align with the existing ward divisions of the VDC (taking a ward as a cluster). Taking wards as clusters also excluded possible validity problems on data available for these VDCs.

2.3 Selection of Sample

A total of 15 clusters (wards) were taken as sample for the three target VDCs. Each cluster required seven randomly selected households that had children under 5 present at the time of the survey. Thus the minimum households required for the sample was 105 (Table 2.1). A random selection procedure following the sampling model of WHO (1998) was followed. This was done by rotating a stick in the center of a group of households.

The survey areas were allocated to the three survey groups. The ward nos. 1 to 9 of specific VDCs were written on equal sized pieces of papers which were folded and put in a bag. The bag was shuffled and one of the members of the three survey groups was 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 paper was picked randomly until the number reached fifteen.

Table 2.1: Randomly selected wards by VDCs in sample

Name of the VDCs	Selected Wards	Total no of wards
Naulekatuwal	3, 4, 6	3
Nepa	1, 4, 6, 7, 8, 9	6
Paduka	2, 3, 4, 5, 6, 8	6
Total		15

Locations of the selected wards are shown in the map of Dailekh in Appendix 6 of this report.

2.B Methods of Data Collection

2.4 The survey team

Three survey teams each consisting of three members were formed. Each survey team had one team leader (NFE facilitator), one assistant (Community Nutrition Programme assistant) and one supervisor (either a center-based nutrition staff or CNP Incharge). Each team had at least one female member. All of the members were trained in a daylong survey orientation at Dullu NFE Office. A pilot test was carried out, to check the effectiveness of tools and to train the survey team as well. The writer of the report supervised the survey and monitored the overall team to provide technical support on issues pertaining to the survey. (Picture of survey team, Appendix 5)

2.5 Survey equipment

The tools used in the survey are reproduced in Appendix 1-4. They include:

- a household questionnaire
- food availability form
- key person interview forms

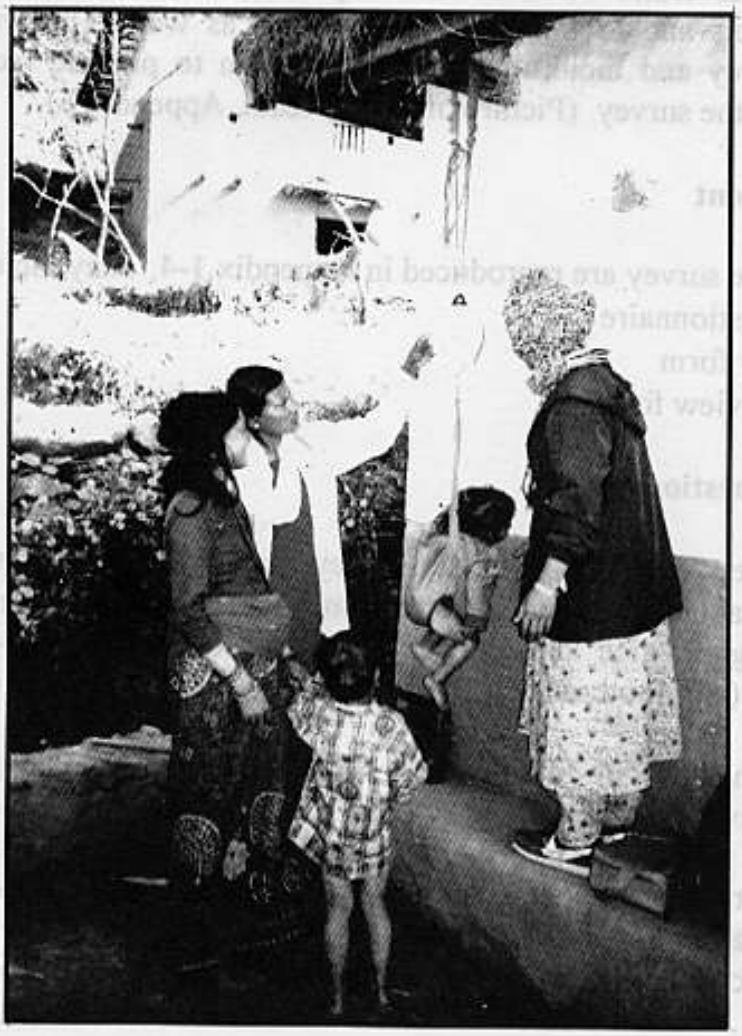
2.5.1 Household questionnaire

The principle survey instrument for the survey was a household questionnaire which included questions about household information, literacy, health and nutritional status of the mother, feeding practice and anthropometry for children under-5 years and other related information (e.g. food security, health & sanitation, food safety etc.) (Appendix 1).

Before administering the questionnaire, a brief introduction of the survey purpose and survey team was given and household's permission was asked on conducting the survey, especially to talk with the mother. At the time of administering the household questionnaire, the interviewers weighed and measured children and mothers for different anthropometric parameters. Each group was supplied with necessary survey equipment including Electronic weighing scale, Salter scale, measuring tape (glued on stick), MUAC tape and iodine kit.

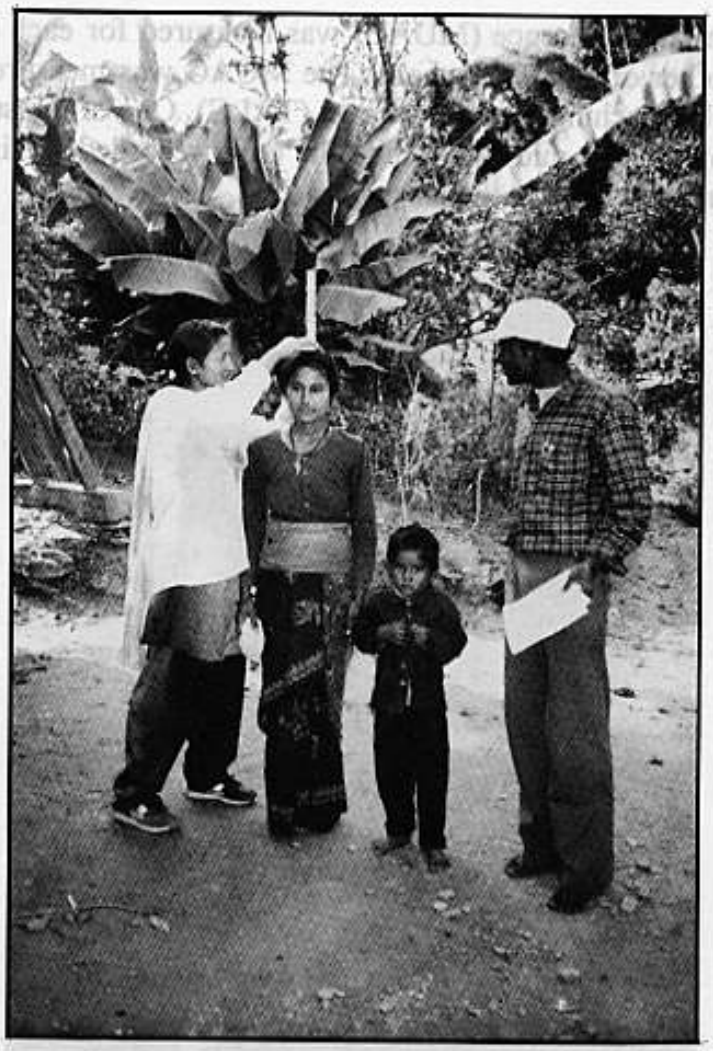
To avoid errors in age, children's age were recorded by asking mothers their child's birth date. The age was then calculated in months by subtracting the date of birth from the date of survey.

Salter scale, weigh-tronix model 235 6S (approved by Unicef) were used to weigh of children. All weights were taken in kilograms. The scale was hung with the help of a rope from a roof or pillar. The children were placed in a plastic pants with the help of mother. The reading was taken when the pointer was steady and pointing to a definite weight.



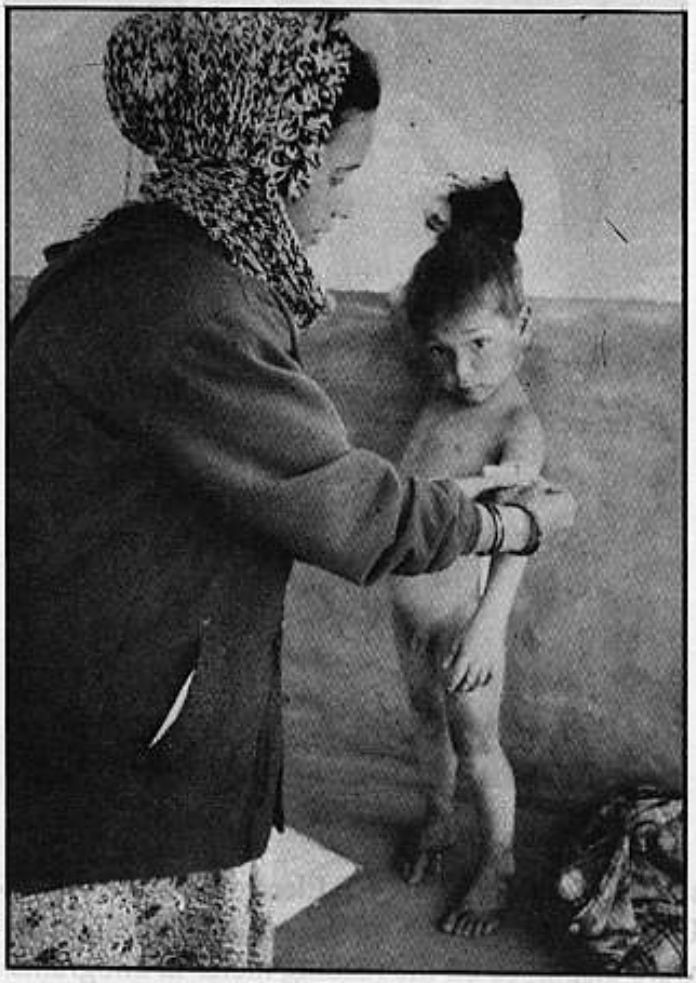
A measuring tape (as used by tailors) was used to measure the height of mothers and children. The measuring tape was glued on a specially made straight stick for the convenience of measuring height. Subjects were asked to stand barefoot on flat ground against a straight wall where possible. A flat clipboard was placed on the top of the subject's head perpendicular to the wall and the height was measured using the measuring stick.

For very young age children who needed support to stand up, height measurement was taken by asking the mothers to have their child lie flat on the ground, with legs straight. The surveyor then took the 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.

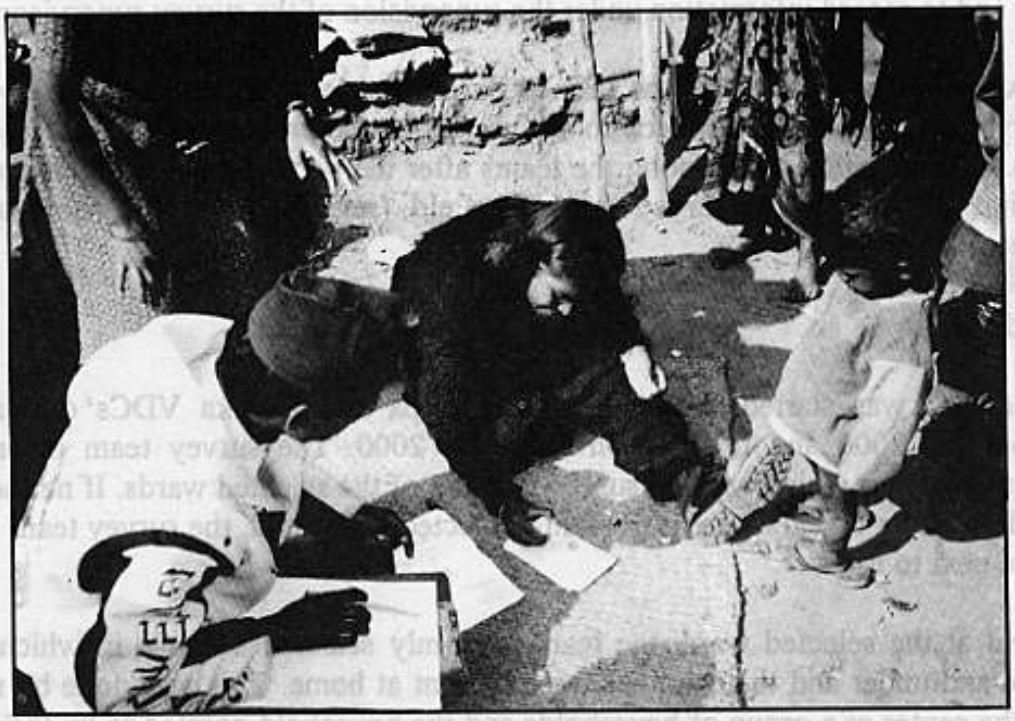


Mother's weight was taken using the UNICEF Electronic Scale 890 (Seca, UNI scale), run by solarpower. The UNI scale was placed on flat ground. The mothers were asked to stand on it. Their weights were displayed on the reading meter in kilograms.

The mid upper arm circumference (MUAC) was measured for each child between 13-60 months and the mother of each household. The MUAC was measured using an insertion tape manufactured by teaching aids at low cost (TALC). One of the 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 Iodine test solution was put on the salt and the color change was compared with the color chart on the kit and the level of iodine was recorded accordingly.



2.5.2 Food availability form

A food availability form (Appendix 2a,2b & 2c)) was completed with the help of a working member of the VDCs (i.e. VDC chairman, secretary etc) by each survey team. The form was designed to gather information on types of seasonal foods available in each of the VDCs.

2.5.3 Key person interview

For each of the VDCs, a local key person (e.g. health post, sub-health post incharge, VDC chairman, NFE Director etc.) was visited and interviewed using the key person's interview tool (Appendix 3) for further information related to nutrition. A shopkeeper's interview questionnaire (Appendix 4) was also used in the survey to gather information from local shopkeepers regarding iodized salt.

2.C Orientation, pilot study and field work

2.6 Orientation

A daylong orientation was conducted for all the surveyors on Nov. 12, 2000 before starting the survey. They were trained in the use of the instruments in anthropometry, techniques of conducting surveys, appropriate interview and probing techniques, sampling technique and nutritional concepts to be used in the survey.

2.7 Pilot study

A pilot study was held in the latter part of the orientation day. This study was conducted near Shanti bazaar in Dullu. The surveyors conducted the tests on different households in three groups according to the survey teams. Each group was allowed to interview the mothers and to record information under the supervision of the survey supervisor.

The survey skill of each team was refined during the test. The survey supervisor gave necessary suggestions and feedback to the groups on the problems they had faced during the tests. A short interaction among the teams after the pilot test helped them to make up their mind for the actual survey work in field (regarding the interview skills and techniques).

2.8 Field work

The fieldwork was started in Naulekatuwal, Nepa and Paduka VDCs of Dailekh on November 13, 2000 and finished on Nov. 18, 2000. The survey team in each VDC decided themselves which ward to survey first out of the selected wards. If neither mother nor children under 5 years were present in a selected household, the survey team moved to the house next to it.

On arrival at the selected ward, the team randomly selected a house in which children aged five and under and their mother were present at home. This was done by rotating a stick in the center of a group of households and the household pointed to by the stick was selected as the first household. They started the survey in that household. After finishing the interview in the first household, the team moved to the next nearest household until the quota (7 households) for each cluster was surveyed.

At the end of each day, the team supervisors to checked the questionnaires completed that day for errors, miscalculations or blank responses. The survey supervisor visited all three groups in their work sites and was informed about the progress of each group. After completing the work, all the teams came to Dullu NFE programme, Dullu. The survey supervisor rechecked all the questionnaires and the survey equipment was collected back.

2.D Analysis

Data coding and entry began after the fieldwork programme. Data entry began in February and data entry and analysis of quantitative data were completed by the end of April 2001.

Analysis was performed using the Epi-Info package (version 6), the public domain computer package that assists with questionnaire creation, data entry and data analysis.

Chapter 3: Findings I

Socio-Demographic Information

3.1 Ethnic Identity

Among the 105 households in the survey, 49.5 percent belonged to Chhetri community, 31.4 percent belonged to Occupational caste and the rest belonged to Brahmin community (5.7 percent), Thakuri community (4.8 percent) and others i.e. Yogi/ Puri/ Giri (8.6 percent) (Table 3.1).

Table 3.1: Caste/ ethnic identity of households

Caste	Count	Percent
Brahmin	6	5.7
Chettri	52	49.5
Thakuri	5	4.8
Occupational caste	33	31.4
Others (Yogi/ Puri/Giri)	9	8.6
Total	105	100

3.2 Household Occupation

The majority of households (88.5 percent) identified agriculture as their major occupation (Table 3.2) followed by making handmade products (mostly dalits) and labour.

Table 3.2: Occupation of households in three VDCs

Occupation	Count	Percent
Agriculture	93	88.5
Agriculture & Dalit product	4	3.8
Labour	3	2.9
Agriculture & Labour	3	2.9
Business	2	1.9
Total	105	100

3.3 Household composition

As shown in Table 3.3, 68 percent of households were made of extended families. A significant proportion (40 percent) of households surveyed consisted of five to six members (members sharing the same kitchen). 25 percent of households had four or less and 25 percent had seven to eight members.

Table 3.3: Type of family and numbers of Household members sharing a same kitchen

Characteristics	Count	Percent
Type of Family		
Nuclear	37	35.2
Extended	68	64.8
Household size (members)		
Four or less	25	23.8
Five to Six	42	40
Seven to Eight	25	23.8
Nine or more	13	12.4
Total	105	100

3.4 Household possession

Land holdings and livestock holdings of the households are interpreted in this study as an indication of household's socio-economic status, which directly or indirectly influence nutritional status of a population.

The majority of households (45.7 percent) in the study had 1 to10 pathis of land followed by 28.6 percent of households who had 11 to 20 pathis land (Table 3.4).

Table 3.4: Land holdings of households in pathi

Land, Pathi*	Count	Percent
1-10	48	45.7
11-20	30	28.6
21-30	19	18.1
More than 30	8	7.6
Total	105	100

* note: one pathi of seed is equivalent to one ropani land

Table 3.5 shows that 38.5 percent of households kept 1 to 5 livestock while 33.6 percent of households had 6-10 livestock and 26 percent had 11 to 20 livestock. Many households kept oxes, cows, buffaloes and chickens.

Table 3.5: Livestock kept by households

Characteristics	Count	Percent
No of livestock		
1-5	40	38.5
6-10	35	33.6
11-20	27	26
20 or more	2	1.9
Total household	104	100
Type of Livestock		
Ox	93	26.8
Cow	65	18.7
Buffalo	63	18.1
Chicken	62	17.9
Goat	51	14.7
Pig	11	3..2
Sheep	1	0..3
Other	1	0..3
Total	347	*

* note: total percent adds up to more than hundred due to multiple responses.

3.5 Household Income Source

It was found in the study that agriculture was the main source of income for 94 percent of households in Dailekh. Other sources of income were minimal. 41 percent of households cited labour work as an additional source of income followed by animal sale, service (government and private) and handmade (dalit) product sale (Table 3.6).

Table 3.6: Sources of income of households.

Income Source	Count	Percent
Main Income		
Agriculture	99	94.2
Agriculture & Dalit product	2	1.9
Labour	2	1.9
Dalit Product sale	1	1
Business	1	1
Additional Income		
Labour	43	41
Animal Sale	19	18.1
Service	10	9.5
Dalit Product sale	10	9.5
Agriculture	3	2.8
Teacher	2	1.9
Shopkeeper	2	1.9
Animal sale & Labour	2	1.9
Penson	1	1
Vegetable farming	1	1
None	12	11.4
Total	105	100

The survey indicates that 60 percent of the households had at least one member working outside Dailekh district, mostly in India and in the Terai (Table 3.7). Nearly half of those who left were gone for seven months to a full year. Most of the members who had left their home were engaged in labour work (80.7 percent). It is expected that the earnings from these works is a contributing factor for the economical condition of a family and hence is related to the nutritional status of the area.

Table 3.7: Members of Household working outside Dailekh.

Characteristics	Count	Percent
Work outside Dailekh		
Yes	60	57.1
No	45	42.9
Total	105	100
Number of person working outside Dailekh		
1 person	57	95
2 persons	2	3.3
3 persons	1	1.7
Duration of working outside Dailekh		
1-6 months	31	51.7
7-12 months	29	48.3
Type of work done outside Dailekh		
Labour	49	81.7
Job	6	10
Animal sale	2	3.3
Hotel	1	1.7
Job & Hotel	1	1.7
Study	1	1.7
Total	60	100

3.6 Information related to Mothers included in the survey

3.6.1 Mothers' age

The majority of mothers surveyed (71 percent) were aged between 20 to 34 years (Table 3.8). Only 6 percent were under 19 years old, while 8 percent were over 40 years old.

Table 3.8: Age of mothers included in the survey.

Age, years	Count	Percent
19 or under	6	5.7
20-24	28	26.7
25-29	25	23.8
30-34	22	21
35-39	16	15.2
40 or over	8	7.6
Total	105	100

3.6.2 Mothers' education

Most of the mothers involved in the survey were found to be illiterate (61 percent, Table 3.9). 30 percent of the mothers were literate in NFE classes. Only 8 percent of them had received formal education (classes 1-8).

Table 3.9: Level of education of mothers

Education	Count	Percent
Illiterate	64	61
Literate (NFE)	32	30.4
Class 1-4	5	4.8
Class 5-8	4	3.8
Total	105	100

3.6.3 Mothers' occupation

The majority of mothers (69 percent) identified themselves with agriculture as their major occupation. Almost 29 percent of mothers were cited as housewife in the study (Table 3.10).

Table 3.10: Occupation of mothers in the area

Mother's occupation	Count	Percent
Agriculture	72	68.5
Housewife	30	28.5
Service	1	1
Dalit product	1	1
Labour	1	1
Total	105	100

3.6.4 Contribution of mothers to household economy

In reply to the question whether mothers are involved in any income generating activity, only 20 percent of the mothers reported to be involved in such activity (Table 3.11). Of those mothers involved in such activity, 57 percent had savings and credit as a source of income followed by livestock raising (24 percent).

Table 3.11: Involvement of mothers in income generating activity.

Mother's income	Count	Percent
Yes	21	20
No	84	80
Total	105	100
Mother's Source of Income		
Savings & Credit	12	57.2
Livestock raising	5	23.8
Savings and cradit & livestock raising	4	19
Total	21	100

3.6.5 Mothers' participation in training

It was found in the study that very few mothers (12 percent) had have any kind of training. The mothers had received training related to handmade skill e.g. sewing, bamboo products (15.4 percent), agriculture (15.4 percent), NFE facilitator training and family planning training (Table 3.12).

Table 3.12: Participation of mothers in training

Charecteristics	Count	Percent
Did you received any training?		
Yes	13	12.4
No	92	87.6
Total	105	100
Kind of training received		
Handmade skill	2	15.4
Agriculture	2	15.4
NFE facilitator	2	15.4
Family planing & reproduction	2	15.4
Leadership	1	7.7
Health	1	7.7
Leadership & gender	1	7.7
Gender & NFE facilitator	1	7.7
Leadership, Gender & Agriculture	1	7.7
Total	13	100

3.7 Food Security

This section is concerned with the assessment of the food security of households in the survey. In this section, status and period of shortage, mode of food procurement during shortage and presence of kitchen garden are considered as indicators of food security.

3.7.1 Household food shortage

Almost 75 percent respondents reported that they didn't have enough food throughout the whole year (Table 3.13).

Table 3.13: Status of Food Shortage in Dailekh

Response	Count	Percent
Enough	27	25.7
Not enough	78	74.3
Total	105	100

Table 3.14 shows that Chaitra (91 percent of households), Shrawan (89.7 percent of the household) and Falgun (82.1 percent) were the most food deficit months in Dailekh.

Table 3.14: Shortage of food by months in Dailekh

Months	Count	Percent
Baisakh	6	7.7
Jestha	8	10.3
Asadh	34	43.6
Shrawan	70	89.7
Bhadra	25	32
Asoj	5	6.4
Kartik	5	6.4
Mangsir	6	7.7
Poush	10	12.8
Magh	23	29.5
Falgun	64	82.1
Chaitra	71	91
Total households	78	*

* note: total percent accounts to more than hundred due to multiple responses

3.7.2 Mode of food procurement during shortage

Almost all respondents indicated buying as the mode of food procurement during the food shortage period in Dailekh. Very few households reported borrowing food during shortage (Table 3.15).

Households procured food from different sources as shown in Table 3.15. Most of people bought food from Dungeshwor, Chupra or Surkhet, the nearby market place from Dullu. The rest of the people bought food from local market (bazaar/ shop) and village people.

Table 3.15: Ways and source of Food Procurement in Dailekh

Food procurement	Count	Percent
Ways		
Buy	70	90
Buy and Borrow	8	10
Total	78	100
Source of Buying		
Dungeshwor/Chupra/Surkhet	24	34.3
Local market (bazaar/shop)	19	27.1
Village people and village shop	14	20
Village people	8	11.4
Village people and Dungeshwor/Chupra/Surkhet	7	10
Food corporation	3	4.3
Local market and Food corporation	3	4.3
Total	70	*
Source of Borrowing		
Village people	3	37.5
VDC chairperson	3	37.5
Relative	2	25
Total	8	100

* note: total percent accounts to more than hundred due to multiple responses

3.8 Farming technique

Of the households in the survey, 89 percent were found to have applied local farming techniques devoid of use of any modern agricultural input (Table 3.16). Only 11 percent of the households reported to using fertilizers, irrigation and improved seeds as modern techniques to improve productivity.

The majority of households reported that they grew seeds themselves for farming as well as kitchen garden. A few of them obtained improved seeds from Mission office (NFE programme, Dullu), Agriculture office and other nearby markets (Dailekh, Dungeshor or Nepalgunj).

Table 3.16: Methods used in Farming or Kitchen gardening in Dailekh

Types	Count	Percent
Local method	93	88.6
Improved method	12	11.4
Total	105	100

3.9 Food availability

The availability of different kinds of foods e.g. cereal grains, roots and tubers, fats, pulses, seeds and nuts, non vegetable, vegetables, fruits, green leaves etc. were noticed in the surveyed areas. It can be seen from the list in Annex 2a, 2b and 2c that a varity of food commodities were found in the area seasonally.

Chapter 3: Findings II

Mothers' Information

This section deals with mothers' nutritional status analyzed by Mid-upper arm circumference and body mass index, pregnancy information and various other information (e.g. age, occupation, literacy etc.) of mothers in the sample. These factors are correlated with the nutritional status and caring practices of both mother and children.

3.10 Mother's nutritional status by MUAC

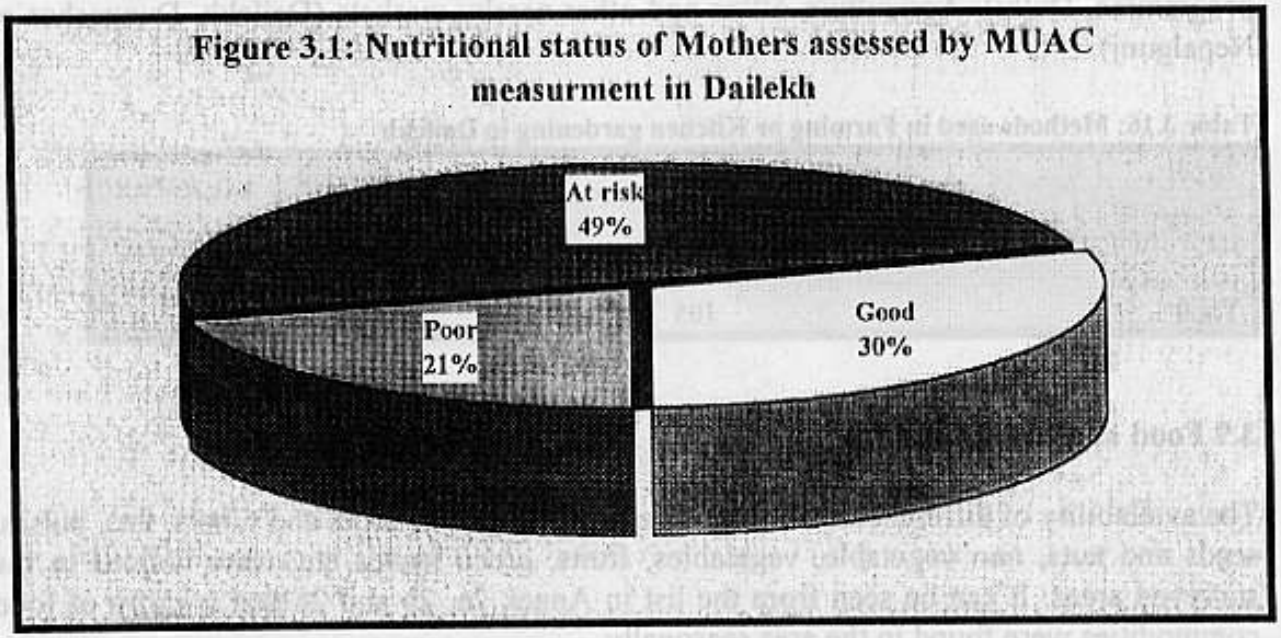
MUAC of the mothers was measured in order to understand their nutritional status. Standards for the MUAC test are based on WHO, USAID and PAHO (Pan-American health organization) standards. According to the standard, MUAC greater than 235mm are categorized as good nutritional status, MUAC between 211 and 235 mm are at risk nutritional status and MUAC less than 211mm are poor nutritional status.

The nutritional status of mothers as measured by their MUAC indicated almost 50 percent at risk of malnutrition and 21 percent having poor nutritional status. Only 30 percent of the mothers had good nutritional status (Table 3.17 and Figure 3.1).

Table 3.17: Nutritional status of mothers assessed by MUAC measurement

Nutritional status of Mothers	Count	Percent
Poor (<211mm)	22	21
At risk (211mm-235mm)	52	49.5
Good (>235mm)	31	29.5
Total	105	100

Figure 3.1: Nutritional status of Mothers assessed by MUAC measurment in Dailekh



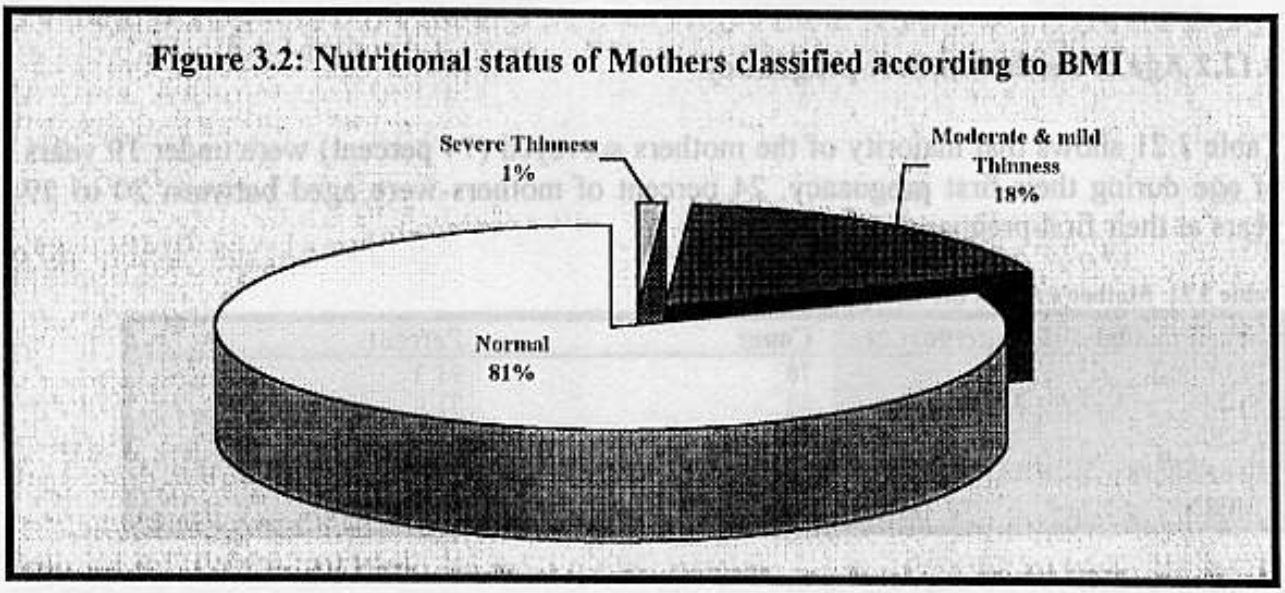
3.11 Mother's nutritional status by BMI

The body mass index BMI of mothers in the sample was calculated and classified following the categories defined for people for developing countries (Nepal Micronutrient Status Survey 1998). The BMI was calculated as an individual's weight (in kg) divided by square of her height (in meters). Based on WHO recent set of guidelines, the nutritional status of women in the survey was classified into severe thinness (<16.0 BMI), moderate and mild thinness (BMI 16.0-18.49) and normal (BMI >18.5).

The results in Table 3.18 and Figure 3.2 show that majority of mothers (85 percent) were normal. 18 percent mothers were having moderate and mild thinness and one percent of them was found to have severely malnourished according to their BMI.

Table 3.18: Nutritional status of mothers classified according to BMI

BMI, Kg/m^2	Count	Percent
Below 16 (Severe Thinness)	1	1
16-18.49 (Moderate & mild Thinness)	19	18
>18.5 (Normal)	85	81
Total	105	100



3.12 Pregnancy Information

The survey also produced information on past pregnancies of mothers in the sample.

3.12.1 Pregnancy rate

Table 3.19 shows that 31 percent of mothers had two to three pregnancies and 21 percent had four to five pregnancies to date. About 8 percent of mothers claimed to have become pregnant more than nine times to date. Among all the pregnancies, only 6 percent of them had reported to have had at least one still birth incident (Table 3.20).

Table 3.19: Past pregnancy rate

Number of Pregnancies	Count	Percent
One	19	18.1
Two to three	33	31.4
Four to five	22	21
Six to seven	12	11.4
Eight to nine	11	10.5
More than nine	8	7.6
Total	105	100

Table 3.20: Stillbirth occurrences

Number of children	Count	Percent
Male	95	51
Female	80	43
Stillbirth	11	6
Total	186	100
No of stillbirths		
Once	5	45.5
Twice	5	45.5
Thrice	1	9
Total	11	100

3.12.2 Age of mother at first pregnancy

Table 3.21 shows that majority of the mothers surveyed (74 percent) were under 19 years of age during their first pregnancy. 24 percent of mothers were aged between 20 to 29 years at their first pregnancy.

Table 3.21: Mother's Age at her first pregnancy

Age of mother at first pregnancy	Count	Percent
19 or under	78	74.3
20-24	23	21.9
25-29	3	2.8
30 or above	1	1
Total	105	100

3.12.3 Antenatal check up

A majority of mothers (81 percent) did not have an antenatal check up during pregnancy. Very few of them (19 percent) had have this facility in the area. Most (85 percent) consulted the sub-health post for their antenatal check up.(Table 3.22)

Table 3.22: Trend of Antenatal check up done by pregnant in Dailekh

Characteristics	Count	Percent
Antenatal check-up		
Yes	20	19
No	85	81
Total	105	100
Place of antenatal check up		
Health post	1	5
Sub-health post	17	85
Medical store	2	10
Total	20	100

3.12.4 Poor pregnancy behavior

67 percent of mothers admitted to have smoked cigarettes during pregnancy and 7 percent of mothers consuming alcohol during that period (Table 3.23).

Table 3.23: Habits during pregnancy

Habits during pregnancy	Count	Percent
Smoking		
Yes	70	66.7
No	35	33.3
Alcohol consumption		
Yes	7	6.7
No	98	93.3
Total	105	100

3.12.5 Attendants during delivery

More than half (58.8 percent) of all mothers reported having 'relatives' present at the time of delivery. Only 2 percent and 15 percent of mothers had a trained TBA and an untrained TBA respectively present during childbirth (Table 3.24). Three percent had an MCHW present at the time of delivery. Nearly 15 percent of mothers said they had nobody attending them during pregnancy.

Table 3.24: Person who attended during delivery period

Persons	Count	Percent
Relative	77	58.8
Untrained Traditional Birth Attendants	20	15.3
Neighbor	6	4.6
Maternal child health workers	4	3
Trained Traditional Birth Attendants (TBA)	3	2.3
Other	2	1.5
No one	19	14.5
Total	131	*

*note: total percent adds to more than hundred due to multiple responses

Chapter 3: Findings III

Children's Information

This section details the results of the survey related to children's health and nutritional status in Dailekh. Information on other factors (e.g. Immunization, mortality, feeding behaviours and illness) affecting the nutritional status of children in the area are also presented in this section.

3.13 Nutritional status of children

Anthropometric Measurments: The statistics concerning anthropometric measurments (height, weight and MUAC) of children obtained from the survey are presented in this section. The classification used in this study (Z-score and MUAC) were selected based upon the recommendations made by the UMN Nutrition Programme. All the references used are based on the growth reference curves developed by the National Center for Health Statistics (NCHS), an internationally accepted standard for nutritional surveys.

Standard deviation (Z-score) classification: The study used z-score analysis to classify the children's nutritional status. The Z-score system expresses the anthropometric value as a number of standard deviations or Z scores below or above the reference mean or median value. It has the statistical property of being normally distributed, thus allowing a meaningful average and standard deviation for a population to be calculated. A fixed Z-score interval implies a fixed height or weight difference for children of a given age. Z-score cut-offs based on NCHS reference curves and as recommended by WHO (WHO technical report series 854, 1995) stated below-

Z-scores (cut-offs)
Severe : proportion greater than -3.0 standard deviations
Moderate : proportion between -2.0 to -3.0 standard deviations
Moderate and severe : proportion greater than -2.0 standard deviations

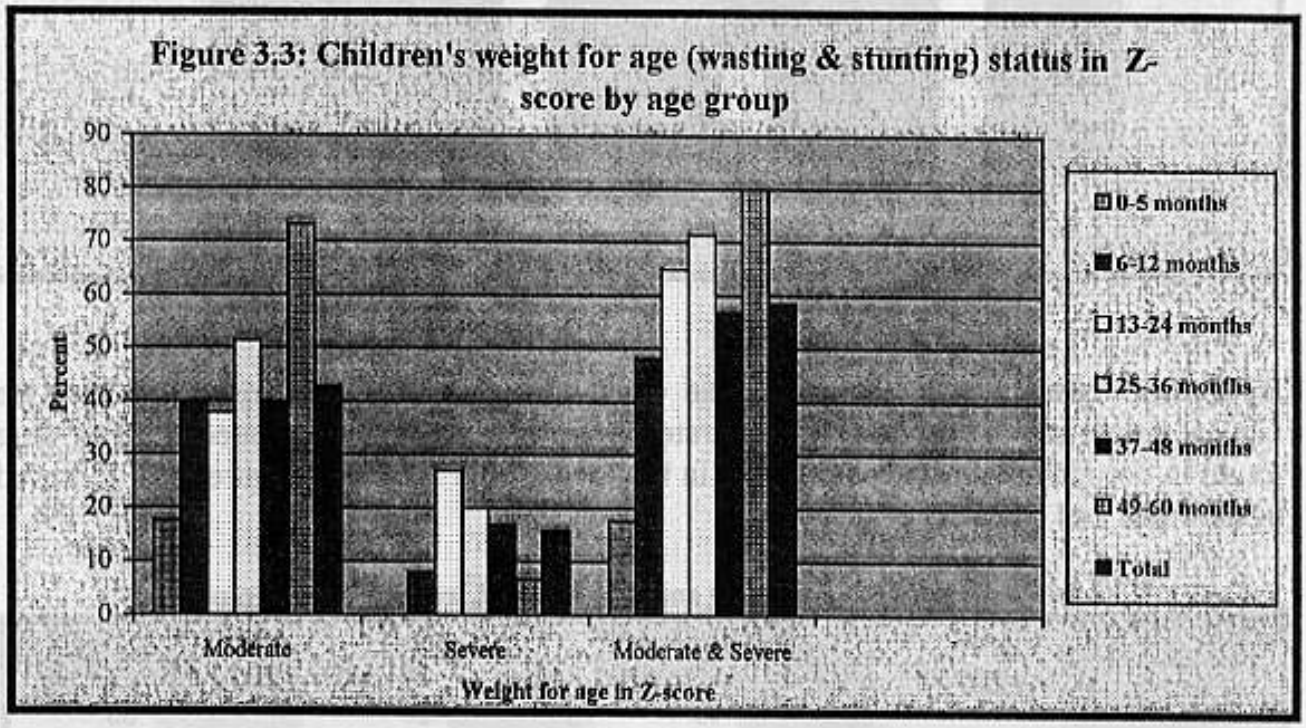
Z-scores were calculated for weight for height (wasting), height for age (stunting) and weight for age (wasting and stunting) by age, sex and ethnic group in this study. The weight for height (wasting) in Z-score is stated as acute malnutrition in this report. Similarly, height for age (stunting) is stated as chronic malnutrition and weight for height (wasting and stunting) as general malnutrition (underweight).

3.13.1 General malnutrition (Wasting and Stunting) status (z-score)

By Age group: Analysis shows that close to 60 percent of all children under five years were in the category of moderately or severly "wasted and stunted" in the survey, with nearly 16 percent severe (Table 3.25 and Figure 3.3). The incidence of wasted and stunted cases increased with age of children and was highest in group aged 49-60 months.

Table 3.25: Children weight for age status (wasting and stunting) by age group

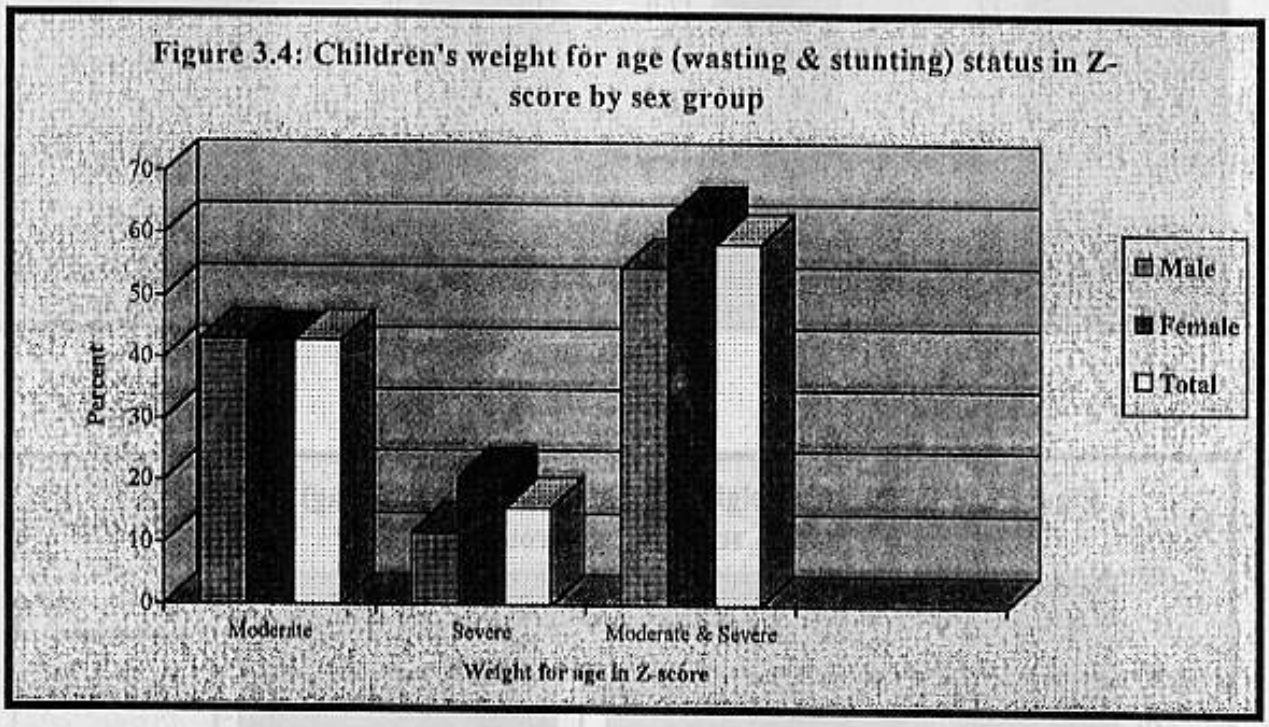
Age (Months)	Number examined	Moderate		Severe		Moderate & Severe	
		Count	Percent	Count	Percent	Count	Percent
0-5	17	3	17.6	0	0	3	17.6
6-12	25	10	40	2	8	12	48
13-24	37	14	37.8	10	27	24	64.8
25-36	35	18	51.4	7	20	25	71.4
37-48	30	12	40	5	16.7	17	56.7
49-60	15	11	73.3	1	6.7	12	80
Total 0-12	42	13	30.9	2	4.8	15	35.7
Total 13-60	117	55	47	23	19.7	78	66.7
Total	159	68	42.8	25	15.7	93	58.5



By Sex group: It can be seen from the Table 3.26 and Figure 3.4 that the percentage of wasting and stunting was somewhat higher in female children than in male children. Almost 21 percent of the female children were severely wasted and stunted.

Table 3.26: Children's weight for age (wasting and stunting) in Z score by sex group

Sex of children	*Number examined*	*Moderate*		*Severe*		*Moderate & Severe*	
		Count	*Percent*	*Count*	*Percent*	*Count*	*Percent*
Male	86	37	43	10	11.6	47	54.6
Female	73	31	42.5	15	20.5	46	63
Total	159	68	42.8	25	15.7	93	58.5

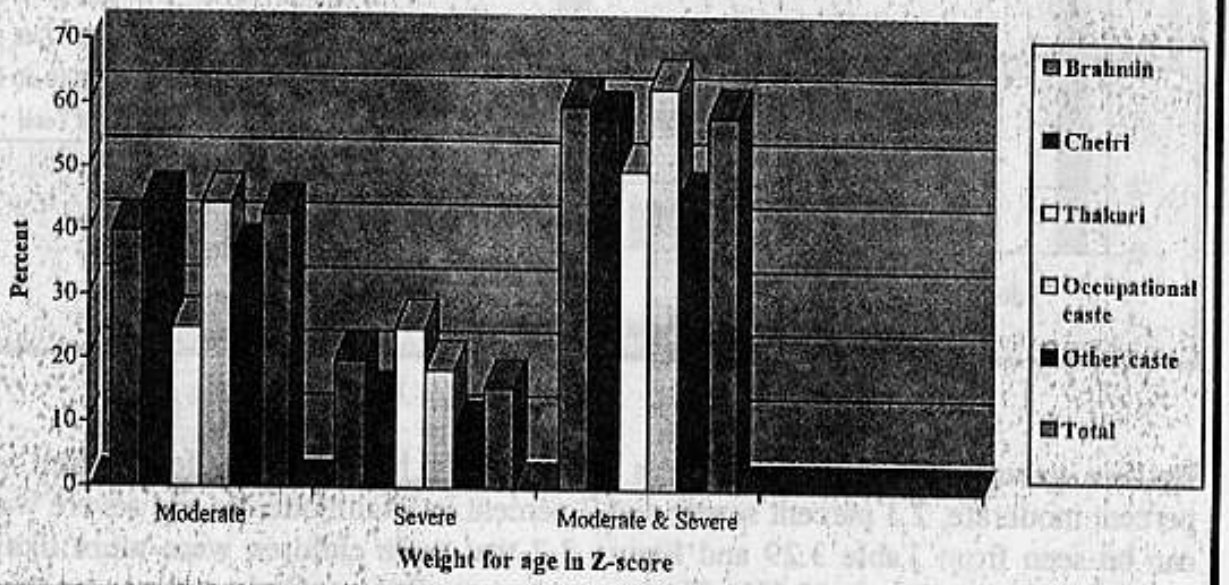


By Ethnic/ caste group: Results of the weight for age by ethnic group indicates the highest proportion (63 percent) of moderately or severly wasted and stunted children were found in occupational caste community in the area (Table 3.27 and Figure 3.5), followed by Brahmin and Chhetri.

Table 3.27:Children's weight for age (wasting and stunting) in Z score by ethnic group

Caste	*Number examined*	*Moderate*		*Severe*		*Moderate & Severe*	
		Count	*Percent*	*Count*	*Percent*	*Count*	*Percent*
Brahmin	5	2	40	1	20	3	60
Chettri	81	36	44.4	11	13.6	47	58
Thakuri	8	2	25	2	25	4	50
Occupational	54	24	44.5	10	18.5	34	63
Other (yogi)	11	4	36.4	1	9	5	45.5
Total	159	68	42.8	25	15.7	93	58.5

Figure 3.5: Children's weight for age (wasting & sunting) status in Z-score by ethnic/ caste group

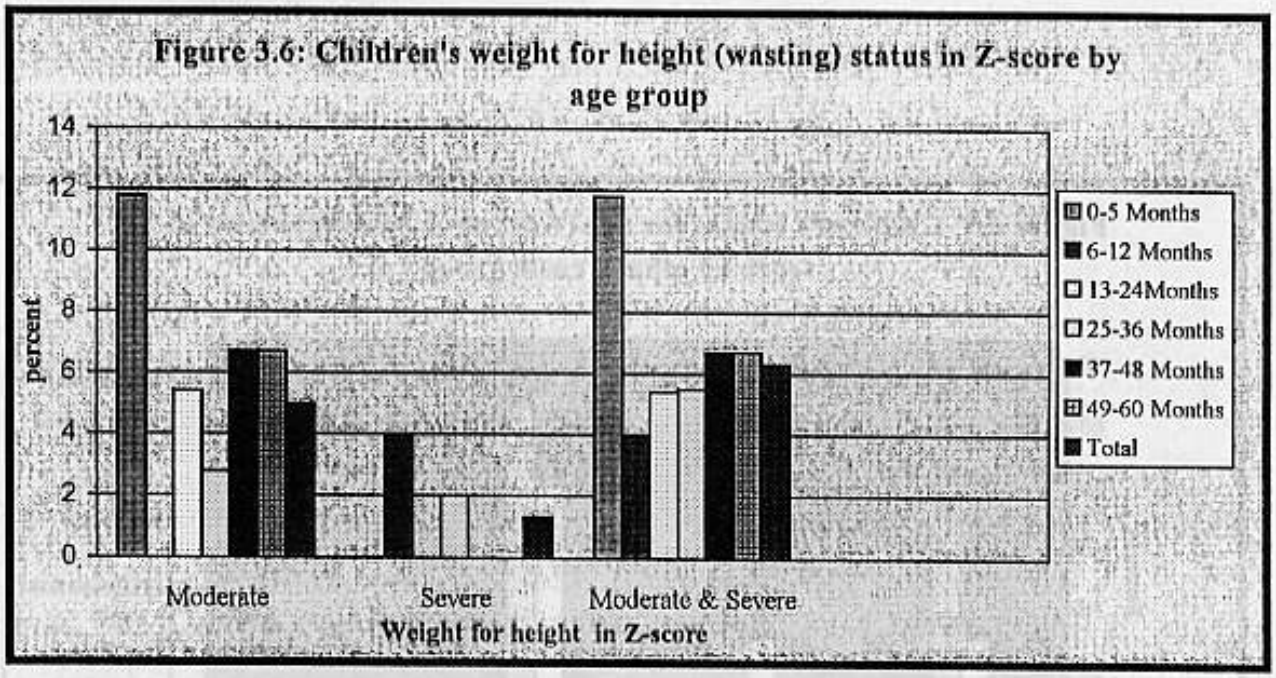


3.13.2 Acute malnutrition (z-scores)

By Age group: Table 3.28 and Figure 3.6 show the incidence of acute malnutrition by age group in the region. The overall wasting or acute malnutrition (weight for height) rate for children under five year was 6.3 percent. The most vlunerable age group was 0-5 months having 11.8 percent of moderate and severe malnourished children in the area.

Table 3.28: Children's weight for height status (wasting) in Z-scores by age groups

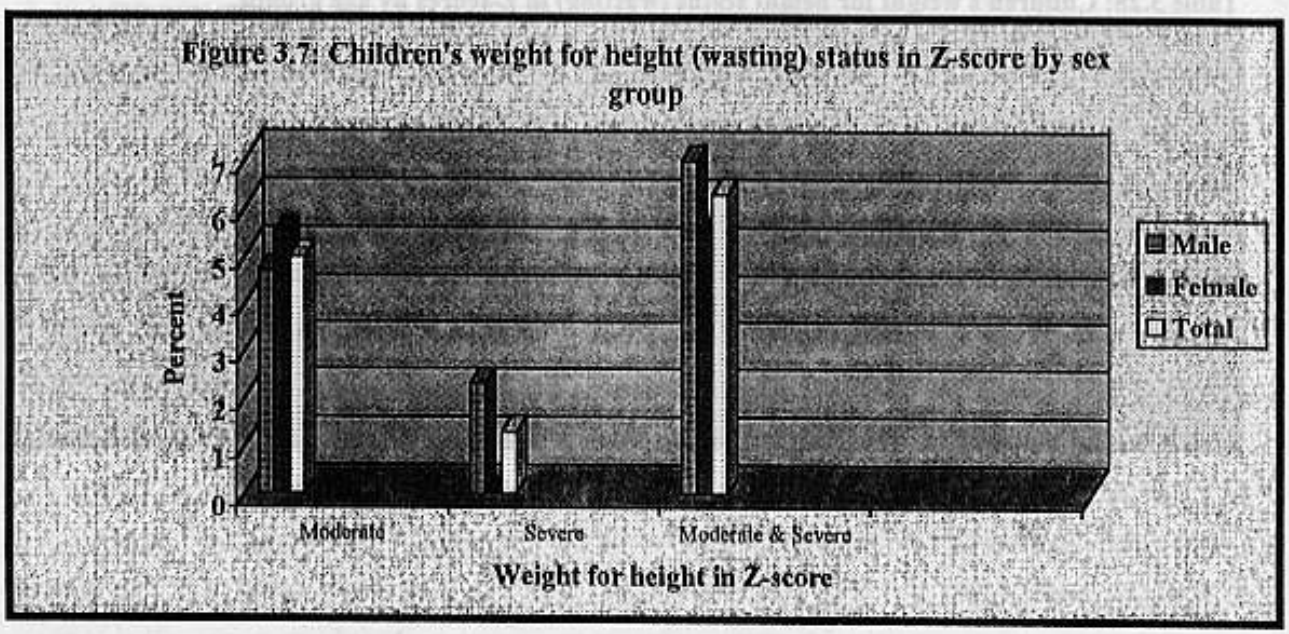
Age (Months)	*Number* examined	Moderate		Severe		Moderate & Severe	
		Count	Percent	Count	Percent	Count	Percent
0-5	17	2	11.8	0	0	2	11.8
6-12	25	0	0	1	4	1	4
13-24	37	2	5.4	0	0	2	5.4
25-36	35	1	2.8	1	2.8	2	5.5
37-48	30	2	6.7	0	0	2	6.7
49-60	15	1	6.7	0	0	1	6.7
Total 0-12	42	2	4.8	1	2.4	3	7.2
Total 13-60	117	6	5.1	1	0.9	7	6
Total	159	8	5	2	1.3	10	6.3



By Sex group: Risk of wasting was seen slightly heigher in male children with 4.7 percent moderate, 2.3 percent severe and 7 percent in total moderate and severe wasting. It can be seen from Table 3.29 and Figure 3.7 that male children were more likely to be wasted (7%) than female (5.5%). Figures are too small to conclude more.

Table 3.29: Children's weight for height status (wasting) in Z-score by sex group

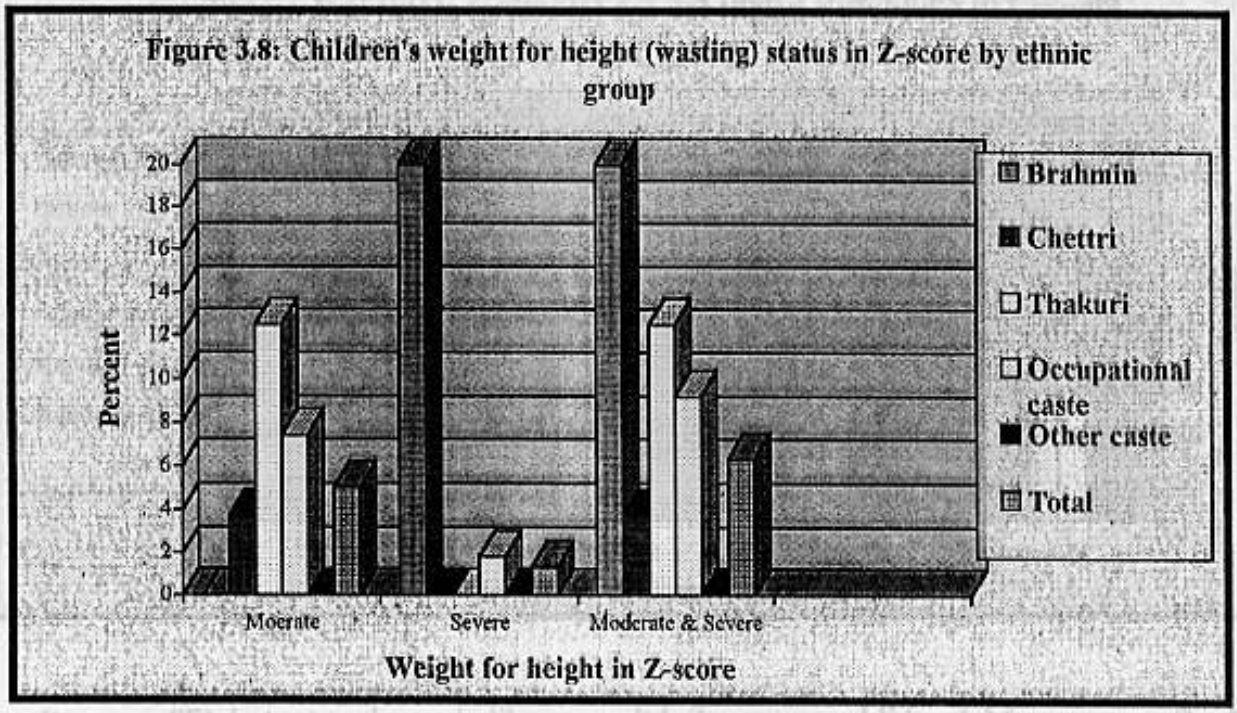
Sex of children	*Number examined*	*Moderate*		*Severe*		*Moderate & Severe*	
		Count	*Percent*	*Count*	*Percent*	*Count*	*Percent*
Male	86	4	4.7	2	2.3	6	7
Female	73	4	5.5	0	0	4	5.5
Total	159	8	5	2	1.3	10	6.3



By Ethnic/caste group: Slightly more of the wasting cases (20 percent) were found in the Brahmin community, followed by Thakuri (12.5 percent) and Occupational caste (9.2 percent). It was found minimal in Chettri community (3.7 %).(Table 3.30 and Figure 3.8)

Table 3.30: Children's weight for height status (wasting) in Z-scores by ethnic group

Caste	*Number examined*	*Moderate*		*Severe*		*Moderate & Severe*	
		Count	*Percent*	*Count*	*Percent*	*Count*	*Percent*
Brahmin	5	0	0	1	20	1	20
Chettri	81	3	3.7	0	0	3	3.7
Thakuri	8	1	12.5	0	0	1	12.5
Occupational	54	4	7.4	1	1.8	5	9.2
Other (yogi)	11	0	0	0	0	0	0
Total	159	8	5	2	1.3	10	6.3

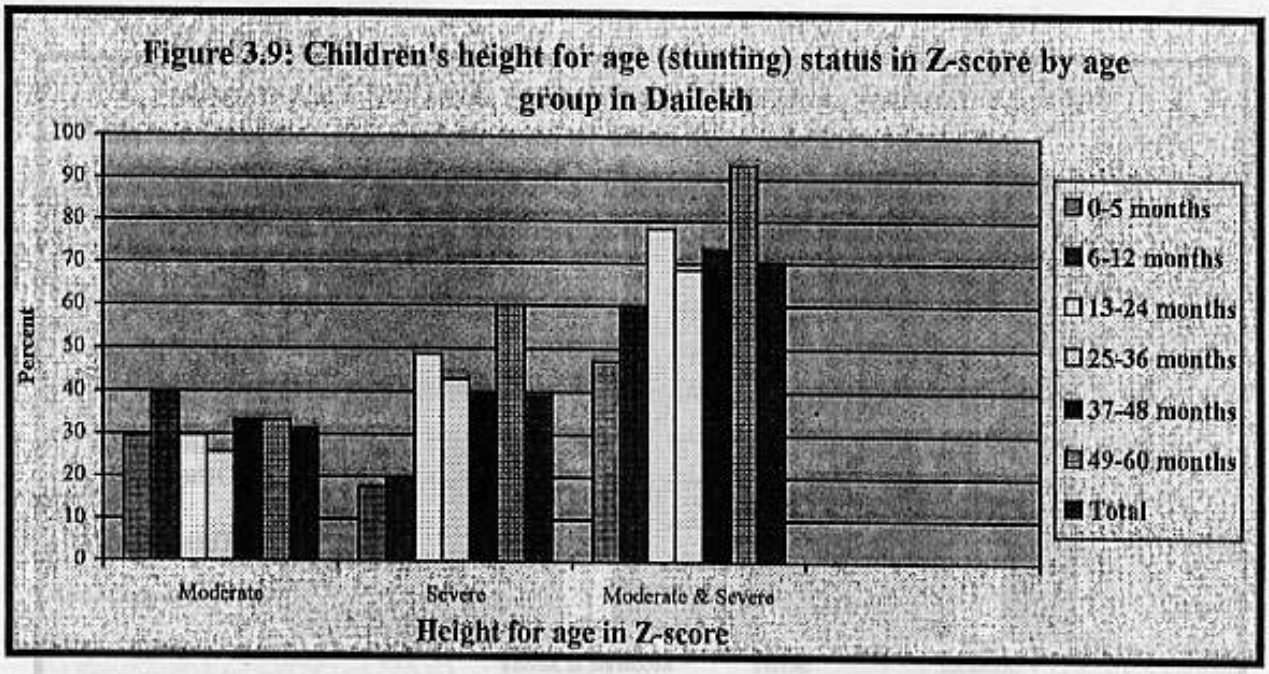


3.13.3 Chronic malnutrition (Z-score)

By Age group: As can be seen from the Table 3.31 and Figure 3.9, the overall stunting or chronic malnutrition rate for children under five years were 70.4 percent with almost 40 percent severely stunted. Among the children in the survey, the rate of stunting rose steadily and was highest among children 13-24 months of age (80%) and children aged 49-60 months (94 %).

Table 3.31: Children height for age status (stunting) in Z-score by age group

Age (Months)	Number examined	Moderate		Severe		Moderate & Severe	
		Count	Percent	Count	Percent	Count	Percent
0-5	17	5	29.4	3	17.6	8	47
6-12	25	10	40	5	20	15	60
13-24	37	11	29.7	18	48.6	29	78.3
25-36	35	9	25.7	15	42.9	24	68.6
37-48	30	10	33.3	12	40	22	73.3
49-60	15	5	33.3	9	60	14	93.3
Total 0-12	42	15	35.7	8	19	23	54.7
Total 13-60	117	35	30	54	46.1	89	76.1
Total	159	50	31.4	62	39	112	70.4



By Sex group: Male children were slightly more likely to be stunted (72 percent) or severely stunted (42 percent) than female children (69 percent and 36 percent respectively) (Table 3.32 and Figure 3.10). More or less both male and female had a high level of stunting.

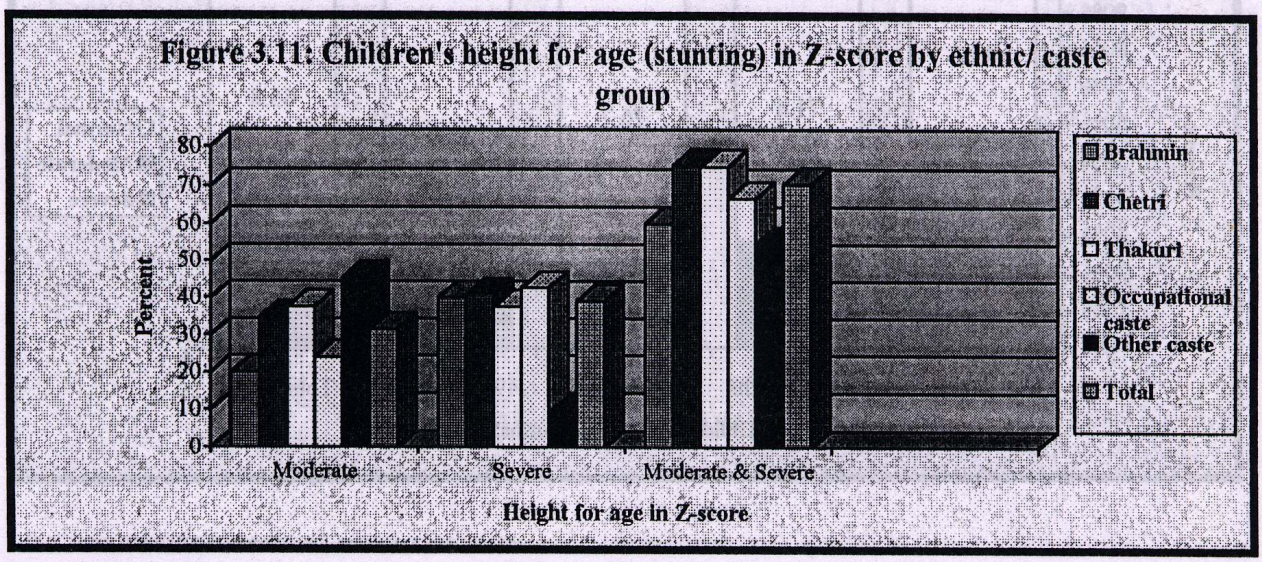
Table 3.32: Children's height for age (stunting) in Z-score by sex group

Sex of children	*Number examined*	*Moderate*		*Severe*		*Moderate & Severe*	
		Count	*Percent*	*Count*	*Percent*	*Count*	*Percent*
Male	86	26	30.2	36	41.9	62	72.1
Female	73	24	32.9	26	35.6	50	68.5
Total	159	50	31.4	62	39	112	70.4

By Ethnic/ caste group: Result in Table 3.33 and Figure 3.11, shows that children belonging to Chhetri ethnic/ caste community were most vulnerable to stunting with 75.3 percent of moderate and severe stunting, followed by Thakuri (75 percent) and occupational caste (66.7 percent). Although overall rate of stunting was heigh in Chhetri and Thakuri community, high rates of severe stunting were seen in Occupational caste group with more than 42 percent.

Table 3.33: Children's height for age (stunting) in Z score by ethnic/ caste group

Caste	*Number examined*	*Moderate*		*Severe*		*Moderate & Severe*	
		Count	*Percent*	*Count*	*Percent*	*Count*	*Percent*
Brahmin	5	1	20	2	40	3	60
Chettri	81	28	34.6	33	40.7	61	75.3
Thakuri	8	3	37.5	3	37.5	6	75
Occupational	54	13	24	23	42.6	36	66.7
Other (yogi)	11	5	45.4	1	9.1	6	54.5
Total	159	50	31.4	62	39	112	70.4



3.14 MUAC Classification of nutritional status

Mid Upper Arm Circumference(MUAC) was used as an alternative index of nutritional status and is useful for rapidly screening for severely malnourished children in an area. In this study, MUAC was measured for children aged 13-60 months and the following MUAC cut-off points have been used in this report.

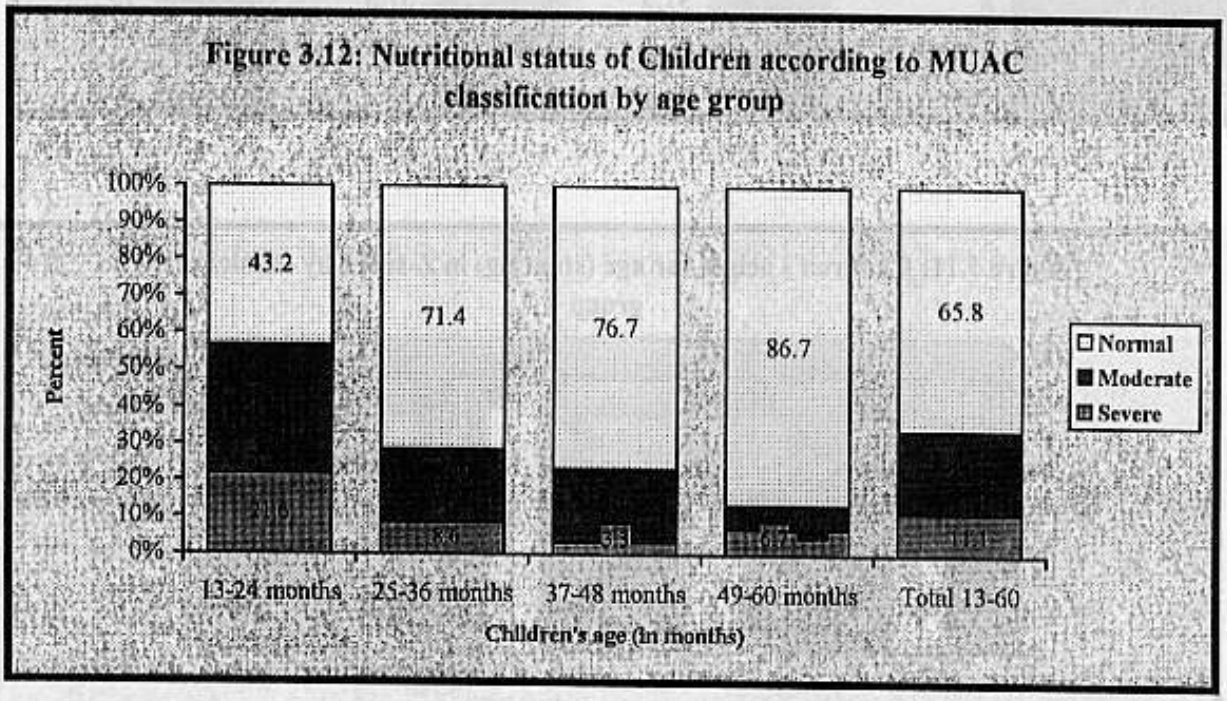
MUAC cut offs

Normal : *greater than 135mm.*
Moderately undernourished : *between 125 and 135mm*
Severely undernuurished : *less than 125mm.*

Among children of 13-60 months (1-5 years), MUAC measurement showed that slightly more than 11 % and 23 % were severely and moderately malnourished respectively. The heighest proportion of severely malnourished children was found in children of 13-24 months age. (Table 3.34 and Figure 3.12).

Table 3.34: MUAC classification of children's nutritional status, by age groups

Age (Month)	Number examined	Severe (lessthan 125mm)		Moderate (125-135 mm)		Normal (more than135mm)	
		Count	Percent	Count	Percent	Count	Percent
13-24	37	8	21.6	13	35.1	16	43.2
25-36	35	3	8.6	7	20	25	71.4
37-48	30	1	3.3	6	20	23	76.7
49-60	15	1	6.7	1	6.7	13	86.7
Total 13-60	117	13	11.1	27	23	77	65.8



3.15 Children Mortality Information

As can be seen from the Table 3.35, altogether 54 child deaths were recorded as mentioned by mothers in the survey. Of the total deaths, just over half (53.7 percent) were male while 46 percent were female. The age of 1-5 months were found to be most vulnerable for both the sexes of children.

Table 3.35: Age at which children died by sex group as indicated by mothers

Age of death, in months	Sex			
	Male	Percent	Female	Percent
Less than 1 month	5	17.2	5	20
1-5 months	17	58.6	11	44
6-12 months	4	13.8	5	20
13-24 months	1	3.4	1	4
25-60 months	2	7	3	12
Total (54 deaths)	29	53.7	25	46.3

The highest proportion of child deaths were due to unspecific "other reasons" (evil eye, traditional belief etc., 44.4 percent), followed by stillbirths (16.6 percent) and deaths caused by malnutrition (15 percent) (Table 3.36). It is noteworthy that most (more than 50 percent) of the deaths caused by malnutrition had occurred in children of 25-60 months of age.

Table 3.36: Causes of death of Children in the area

Age of death, month	Cause of death											
	Malnutrition		Diarrhoea		ARI		Measles		Stillbirth		Others	
	count	%	count	%	count	%	count	%	count	%	count	%
Less than 1 month	0	0	0	0	0	0	0	0	9	100	1	4.2
1-5 months	1	12.5	2	28.6	6	100	0	0	-	-	19	79.1
6-12 months	2	25	4	57.1	0	0	0	0	-	-	3	12.5
13-24 months	1	12.5	1	14.3	0	0	0	0	-	-	0	0
25-60 months	4	50	0	0	0	0	0	0	-	-	1	4.2
Total (54 deaths)	8	15	7	13	6	11	0	0	9	16.6	24	44.4

Chapter 3: Findings IV

Additional Information Related to Children

3.16 Immunization coverage

A majority of households (74 percent) had immunized their children. Mothers were asked to show the vaccination card of her children. Some household didn't have any vaccination card at the time of survey, however some mothers were quite sure of their children being immunized and their responses were recorded as "yes". 94 percent of vaccinated children had received BCG, DPT and OPV (oral polio vaccine). Only 58 percent of vaccinated children had received measles vaccine (Table 3.37).

Table 3.37: Reported immunization coverage of children

Charecteristic	Count	Percent
Immunization		
Yes	78	74.3
No	27	25.7
Total	105	100
Type of Immunization		
BCG	74	94.9
DPT	74	94.9
OPV	73	93.6
Measles	45	57.7
Total	78	*

* note: total percent adds more than hundred due to multiple responses

3.17 Reported Feeding Behavior for children

3.17.1 Infant feeding practices

Among the children under five months old, only 59 percent had been given colostrum (Table 3.38).

Table 3.38: Do colostrum is given to the child?

Colostrum	Count	Percent
Yes	10	58.8
No	7	41.2
Total	17	100

3.17.2 Child feeding practices (6-24 month old)

Of the 105 households participating in the survey, 61 had children aged 6-24 months old. Their responses on child feeding follow. The ages at which supplementary foods were given to the child are shown in the Table 3.39. A majority of households (49 percent)

reported starting supplementary food at 6 months of age. However, 13 percent of children were given supplementary food before reaching 5 months and 13 percent of those children received supplementary food at the age of 7 months or older. The recommended age at which supplementary food should be introduced to an infant is 5 months according to the HMG Health Services nutrition guidelines.

Table 3.39: Age at which supplementry food given to children

Age (in month)	Count	Percent
Less than 5 month	8	13.1
5 month	14	23
6 month	30	49.2
7-10 month	8	13.1
Haven't started	1	1.6
Total	61	100

Among the mothers having children aged 6-24 months, 99 percent of the mothers reported that they were still (even after 24 months) breast feeding their child while some of them breast feed until next pregnancy (Table 3.40). Most of the children (82 percent) were reported to have been breastfed 2-3 times a day. Only 13 percent of them were breastfed 4-5 times per day.

Table 3.40: Length of Breast-feeding along with supplementary food in children aged 6-24 months

Length of Breast-feeding in month	Count	Percent
Still feeding	60	98.4
Until next pregnancy	1	1.6
Total	61	100
Times		
Once	1	4.6
2-3 times	46	81.8
4-5 times	13	13.6
Total	61	100

The Table 3.41 shows that locally available foods were normally fed as supplementary food. Rice and bread were mostly used to feed the children of 6-24 month age. Other food consumed as supplementary are listed in the table.

Table 3.41: Supplementary food given to the children of 6-24 month age

Food	Count	Percent
Rice	56	91.8
Bread (Roti)	49	80.3
Vegetable/Green leafy vegetable	47	77
Cow / buffalo milk	32	52.4
Legumes/ Pulse (Daal)	27	44.3
Rice + dahl porridge (Jaulo)	7	11.5
Cereal Porridge (Lito)	5	8.2
Fruit	4	6.5
Potato	1	1.6
Oil/ clarified butter	1	1.6
Total respondent	61	*

* note: total percent adds more than hundred due to multiple responses

3.17.3 Foods preferred by mothers for children

In reply to the question what you would like to give your child if available, most mothers replied that they would like, if available, to give milk, meat, clarified butter, fish etc as listed in Table 3.42. 9-11 percent of the mothers preferred biscuits, bottled vitamins, noodles, Horlicks, sweets, chocolate etc to feed their children instead of locally available foods. Very few of them (15 %) mentioned giving lito (porridge) to their child.

Table 3.42: Foods mother would like to give to their children.

Food material	Count	Percent
Buffalo milk	63	60
Meat	43	41
Clarified butter	40	38
Fish	36	34.3
Green leafy vegetable	25	23.8
Curd	21	20
Fruits	20	19
Biscuits	18	17.1
Rice and pulse (Daal bhaat)	15	14.3
Porridge (Lito)	15	14.3
Milk and rice	13	12.4
Honey	11	10.5
Bottled vitamins	11	10.5
Legumes	10	9.5
Vegetables	9	8.6
Noodles	9	8.6
Egg	7	6.6
Horlicks	6	5.7
Bread (Roti)	5	4.8
Sweets	4	3.8
Jaulo	4	3.8
Sugar	4	3.8
Chocolate	3	2.8
khajabhat (rice fried in clarified butter/ oil)	2	1.9
Potekhir (rice pudding)	1	1
Coconut	1	1
Total households	105	*

* note: total percent adds more than hundred due to multiple responses

Mothers in the study were asked about their perception of their children's present nutritional status pertaining to their physical status. When mothers were asked whether their children looked nourished, more than 78 percent respondents indicated that their children were under nourished or malnourished (Table 3.43).

Table 3.43: Mother's perception of children's nutritional status

Nutritional status	Count	Percent
Nourished	13	21.3
Malnourished	48	78.7
Total	61	100

3.18 'Main carer' who feeds the child

Households were asked who fed the child if the mother was not available. The result shows that the father or a male relative (e.g. grandfather, brother) fed almost 30 percent of

the household children. Female relatives (grand mother, sister, other female member) fed 71 percent of children. (Table 3.44)

Table 3.44: Who feeds the child other than mother?

Person	Count	Percent
Male relatives	46	29
Father	28	17.6
Grandfather	7	4.4
Brother	11	7
Female relatives	95	71
Grand mother	43	27
Sister	24	15.1
Other Female member	28	17.6
None	18	11.3
Total	159	100

3.19 Illness

This section details ARI and diarrhoeal incident of children less than five years. Prevalence of these diseases was evaluated by asking mothers whether their children had been ill with cough and cold or diarrhoea in two weeks proceeding the survey. The symptoms of these diseases were also asked to confirm the incident.

3.19.1 Acute respiratory Infection (ARI)

As shown in Table 3.45, 46 percent of household mothers in the survey reported to have at least one child suffering from acute respiratory infection within last two weeks. The most common symptom recognized by mothers in the survey was blocked and runny nose, followed by cough, fever, difficult breathing and fast breathing in their child. A few of them had shown a symptom of chest indrawing and trouble swallowing.

Table 3.45: Incidence and symptoms of ARI in children as reported by mothers

	Count	Percent
Response		
Yes	59	56.2
No	46	43.8
Total	105	100
Symptom		
Blocked /Runny nose	50	84.7
Cough	46	78
Fever	44	74.6
Difficult breathing	23	39
Fast breathing	16	27.1
Chest indrawing	15	25.4
Trouble Swallowing	12	20.3
Other	10	17
Don't know	1	1.7
Total Households	59	*

* note: total percent adds to more than hundred due to multiple responses

31 percent of the households replied that they took the children nowhere but treated them at home with traditional medicines. 29 percent of them neither reported to have any treatment at home nor to have taken the sufferer anywhere for treatment. Only 25 percent had sought the help of health post or sub-health post. 15 percent of them visited traditional healers for treatment (Table 3.46).

Table 3.46: Treatment sought for ARI

Source	Count	Percent
Nowhere but home treatment	18	30.5
Nowhere and no treatment	17	28.8
Health post / Sub-health post	15	25.4
Medical shop/pharmacy	9	15.2
Traditional healers	9	15.2
Private clinic	5	8.5
Hospital	1	1.7
Other	6	10.2
Total household	59	*

* note : total adds to more than hundred due to multiple responses

3.19.2 Diarrhoea

31 percent of mothers reported to have at least one child suffering from diarrhoea within last two weeks at the time of survey (winter season). 50 percent of the most recent episodes of diarrhoea lasted 6-15 days, followed by 5days. 28 percent of them were said to have had diarrhoea with blood. (Table 3.47)

Table 3.47: Diarrhoeal Incident as reported by mothers

Response	Count	Percent
Yes	32	30.5
No	73	69.5
Total	105	100
Period of diarrhoeal incident in children		
5 days	11	34.4
6-15 days	16	50
16-20 days	2	6.3
21-30 days	2	6.3
Above 30 days	1	3.1
Diarrhoea with Blood		
Yes	9	28.1
No	21	65.6
Don't know	2	6.3
Total	32	100

Continuing feeding (together with giving increased fluids) a child during an episode of diarrhoea is important for a child with diarrhoea. If feeding is not continued this can result to acute malnutrition in children due to the increased metabolic requirements and poor absorption from the gut at this time. A list of foods given to children during diarrhoeal incident is presented in Table 3.48.

Table 3.48: Food given during diarrhoea

Food given	Count	Percent
Breast milk	28	87.5
Cow milk/ Buffalo milk	16	50
Unboiled water while feeding	16	50
Cereal based gruel	13	40.6
Bean pulses soup	5	15.6
Oral rehydration solution	5	15.6
Green leafy vegetables	5	15.6
Yogurt	1	3.1
Fruits	1	3.1
Nun chini pani	1	3.1
Other	7	21.9
Total Households	32	*

*note: total percent adds up to more than hundred due to multiple responses.

44 percent of the respondents reported that they neither took the suffering children anywhere for treatment nor treated them at home. 22 percent gave home treatment only. 25 percent mothers consulted at SHP or HP for the treatment of children suffering from diarrhoea. Some of them had sought the help of traditional healers (Table 3.49).

Table 3.49: Treatment sought for diarrhoea

Source	Count	Percent
Nowhere and no treatment	14	43.8
Health post / Sub-health post	8	25
Nowhere but home treatment	7	22
Traditional healer	4	12.5
Medical shop/pharmacy	2	6.2
Private clinic	1	3.1
Other	4	12.5
Total household	32	*

* note: total percent adds up to more than hundred due to multiple responses.

Chapter 3: Findings V

Information Related to Nutrition

3.20 Iodine content in household salt

It is a well-known fact that Iodine Deficiency Disorders are the result of insufficient consumption of iodine in the diet. Consumption of salt containing low levels of iodine results in poor nutritional status. Therefore, iodine content of salt in this report is a factor of health status. Results of the survey indicate that 99 percent of household use Dhikke salt (crystal salt) in their food preparations. Only 1 percent used the khasro salt (coarse salt). Most of the households (92 percent) were found to use salt with iodine content less than 7 ppm. (Table 3.50, Figure 3.13 and 3.14)

Table 3.50: Level of Iodine in types of salt found in Dailekh

Salt	Count	Percent
Type of salt		
Dhikke	104	99
Khasro	1	1
Iodine content		
0 ppm	52	49.5
7 ppm	45	42.9
15 ppm	6	5.7
30 ppm	2	1.9
Total	105	100

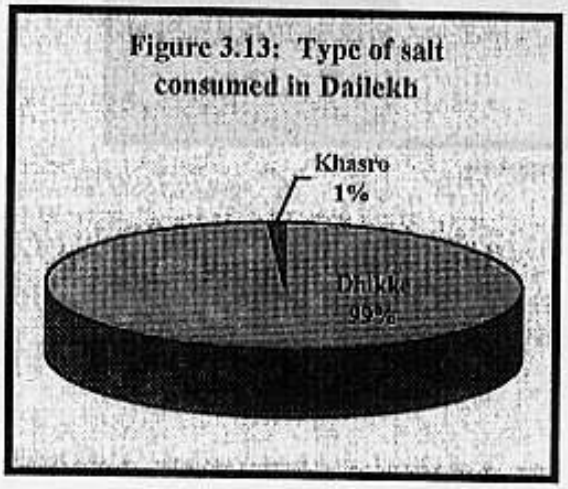


Figure 3.13: Type of salt consumed in Dailekh

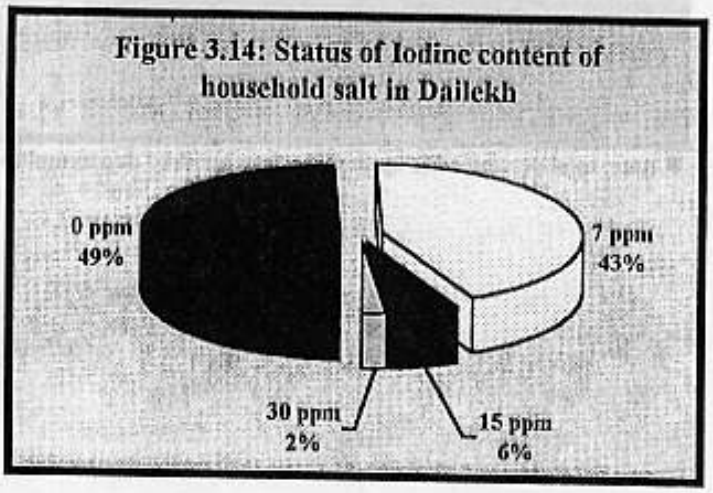


Figure 3.14: Status of Iodine content of household salt in Dailekh

3.21 Interview with shopkeepers on Iodized salt

An interview with local shopkeepers was conducted in the survey areas using a questionnaire format given in Annex 4. According to the results, most of the shopkeepers said that they did not know about the iodized salts and about the benefits of it. Very few of them said that they had heard about the iodized salt on the radio. It was observed that almost all the shopkeepers were selling the dhikke (crystal) salts.

The shopkeepers reported that the dhikke salt, which they sold, was usually brought either from Dungeshwer bazaar, Surkhet, Dullu bazaar or Chupra bazaar. All of them indicated that there was no authorized salt dealer in the region to provide adequately iodized salt. None of the shops had iodized packet salt.

3.22 Status of Kitchen Garden in Dailekh

During survey it was observed that most (82 percent) of the households had kitchen garden in the area (Table 3.51). Seasonal green leafy vegetables or fruits were grown in kitchen garden in the area.

Table 3.51: Do you have Kitchen Garden?

Response	Count	Percent
Yes	86	81.9
No	19	18.1
Total	105	100

3.23 Hygiene and sanitation practices

3.23.1 Drinking water

Almost half of the households included in the sample had a public tap as their source of drinking water, while other sources of water indicated by the respondents were ponds (kuwa), springs (mul), river and wells. For a majority of mothers, it took 15 to 30 minutes to fetch water from their nearest source. A few of the households required more than an hour to fetch water. Only 3 percent had a drinking water facility on their premises (Table 3.52).

Table 3.52: Water source and time required to fetch water

Characteristics	Count	Percent
Source of water		
Public tap	52	49.5
Kuwa (pond)	30	28.5
Mul (springs)	17	16.2
Own tap	3	2.9
Khola (river)	2	1.9
Well	1	1
Time required to fetch water		
Water on premises	3	2.9
1-15 minutes	59	56.2
16-30 minutes	28	26.6
31minutes-1hour	14	13.3
More than one hour	1	1
Total	105	100

3.23.2 Use of toilets

82 percent of households did not have a toilet facility in their house and 85 percent of the children were reported not using toilet for defecation (Table 3.53). This sort of practice is an indicator of improper and unhygienic disposal of waste in the area and may have an impact on the health status of the people.

Table 3.53: Toilet use by household and their children

Characteristics	Count	Percent
Toilets facility		
Yes	19	18.1
No	86	81.9
Children use toilet		
Yes	16	15.2
No	89	84.8
Total	105	100

3.23.3 Washing hands

In reply to the question about hygiene practices of children, 67 percent of households reported that their children wash hands before eating, while 33 percent did not wash their hands before meal. 22 percent of households admitted that their children did not wash their hands after defecation (Table 3.54). Among the children who used to wash hands, it is not known whether hand was properly washed.

Table 3.54: Do children wash hands before eating and after defecation?

Practice	Count	Percent
Hand wash before meal		
Yes	70	66.7
No	35	33.3
Hand wash after defecation		
Yes	82	78.1
No	23	21.9
Total	105	100

3.23.4 Boiling water

It was noticed in the study that there was no practice of drinking boiled water as more than 98 percent of the respondents said that they do not boil water for drinking (Table 3.55).

Table 3.55: Do you boil water in your household?

Boil	Count	Percent
Yes	2	1.9
No	103	98.1
Total	105	100

3.24 Food Safety

Covering water vessels and food and leftovers is an important domestic food safety practice from the sanitation point of view. Many households' leftover foods are eaten later or next day. If not kept properly dust and flies pollute the food and water and have direct impact on health. Table 3.56 shows that 50 percent of households left drinking water uncovered in their houses. Eighty five percent of the households indicated that they covered their cooked foods.

Table 3.56: Practice to cover drinking water and food

Practice	Count	Percent
Water vessel covered		
Yes	52	49.5
No	53	50.5
Food and leftovers covered		
Yes	88	83.8
No	17	16.2
Total	105	100

Chapter 3: Findings VI

Key Persons Interview

A total of eight key persons including VDC chairman, NGO/INGO staff and health workers were interviewed in the survey areas using the questionnaire given in Annex 3. The survey Supervisor conducted interviews during and at the end of the survey. The interview gives a synopsis on the situation of area at the time of survey. The purpose of the interview was:

- to gather some additional information related to the health and nutrition aspect.
- to list the information collected so as to compare these at the time of impact evaluation of the CNP programme.

Interviewees included in the survey: Director NFE programme, 3 VDC Chairmen, 2 Sub-Health post incharges, Community Health and Environment Forum President, FORWARD coordinator.

3.25 Outcomes of Key persons Interview

- There was no nutrition-related programme in the survey area till date.
- No research or survey related to nutrition had been conducted by any organization in the area.
- No one had received any training on nutrition except the sub health post incharge.
- Very few of them had heard about supper porridge (sarbottam pitho).
- A small amount of work had been done by some organizations (e.g. UMN Dullu NFE programme) to improve the nutritional status of the community.
- Interviewees reported that most of people did not feed green leafy vegetables and fruits to children, pregnant and lactating women and during illness. Most of the foods such as green leafy vegetables and fruits were prohibited because they think that these foods have an adverse effect on the group.
- Some NGOs (e.g.Community Health and Environment Forum, FORWARD) in the area were very interested in integrating nutrition program with their program.
- All of them showed a positive attitude and welcomed the UMN Nutrition programme in the area.

3.26 Suggestions of local key persons for future programme

- It would be more effective if VDC members, teachers, students and other intellectual persons are included for the nutrition training. They suggested that training should be conducted for different levels and groups of the community.

- Soon after launching Community Nutrition Project, the staff should build up rapport with the working community and they should be made to feel it is their own programme.

- Growth monitoring should be done at a certain place and date in coordination with sub- health post. Sub-health posts had suggested for a deworming campaign in the area with the help of UMN. The staff should establish effective co-ordination and communication with health institutions and other related disciplines.

- A work schedule should be provided to the key persons also.

- The strategies should be made in the district at micro level. Work with poor and marginalized should be promoted and emphasized.

- The staff should be polite and the programme should be transparent to the community.

Chapter 4: Discussion

4.1 Analysis of findings

The survey brings out important health and nutritional issues related to the mothers and children under five in the study area.

4.1.1 On Children's nutritional status:

The findings of the survey show that there were 60 % of under nutrition (moderate and severe), 6.3 % of wasting (moderate and severe) and 70.4 % of stunted children under- 5 in Dailekh. It is worth noting that the statistics found in Dailekh are significantly higher in comparison to the national nutritional statistics (Unicef Report 2001) which showed 47 % underweight, 7 % wasting and 54 % of stunted children under five year in Nepal for the year 1999. This scenario calls for immediate attention of the programme to focus extensively on the children's nutritional status.

The magnitude of underweight, wasting and stunting was found varying by age, sex and ethnic/ caste group in the region.

Ethnic/ caste group: Among the 0-5 year children surveyed, the highest proportion (63%) of moderately or severely underweight children were found in occupational caste community, followed by Brahmin (60 %) and Chettri (58 %). The differences these percentages are not significant, therefore, it can be concluded that the rate of underweight was roughly equal over all caste. Being underweight for one's age can mean that a child is stunted or wasted or both stunted and wasted.

The hieghest percent (20 %) of wasted children were found in Brahmin community followed by Thakuri (12.5 %) and occupational caste (9.2 %). Wasting represents the failure to receive adequate nutrition during the period immediately before the survey. It may be the result of recent episode of illness or acute food shortage. It is however, significant to note that the survey was carried out in winter, which according to the finding was not the food deficit month in Dailekh.

The children belonging to Chettri and Thakuri community were most vulnerable to stunting with 75 percent of moderate and severe stunting, followed by occupational caste (66.7%). Stunting of a child's growth may be the result of a failure to receive adequate nutrition over a long period of time or of the effects of recurrent or chronic illness. This represents a measure of outcome of under-nutrition in a population over a long period, and does not vary appreciably with the season of data collection.

Regardless of the traditional thought that lower caste children are more likely to suffer malnutrition, the so-called upper caste children (Brahmin, Chettri) were also found to have severe forms of stunting or wasting in the area. Therefore, an equal attention to the children's of all the caste community is a must regarding the nutrition in the area.

Sex group: Male children were slightly more likely to be stunted (72%) and wasted (7%) in Dailekh. In contrast to the stunting and wasting alone the under weight (stunting and wasting) rate was higher in female children (63%) than male (54.6%). Probably sex difference in this context is of little significance. However, reflection of report emphasizes on the importance of equal food distribution and nutritional care on male and female children in the area.

Age group: It is important to mention that the rate of underweight (stunting and wasting) was gradually increased from 65% among children 13-24 months of age to 80% among children aged 49-60 months: similarly the rate of stunting increased sharply from nearly 80% among children 13-24 months of age to 94% among children aged 49-60 months.

The wasting rate was found highest for age group 0-5 months and lowest for 6-12 months of age. This might have resulted due to low birth weight incidence in the area. This was also justified by WHO which stated that one to two third of all babies in the South Asia are born with low birth weight. The low birth incident analysis was beyond the limit of this particular survey. The other reason could be 41 % mothers did not fed colostrum to their childen, 13 % of children had early weaning and high mortality was found in this group in the survey.

These statistical facts point to the need for attention to adequate and balanced feeding to children of growing age. Exclusive and adequate breast feeding and proper supplementary feeding after 5 months of age are equally important in this regard to improve the nutritional status.

Chronic malnutrition (stunting) progressively increases with age. Pneumonia and diarrhoea were common in the study. Poor growth in older children may be due to poor feeding during illness and lack of catch-up growth. This point must also be adressed in the area.

4.1.2 On Mother's nutritional status

The Body Mass Index (BMI) shows that almost 20 percent of mothers were undernourished in the region. According to the WHO, a prevalence of over 20 % with a BMI less than 18.5 constitutes a serious public health problem and highlights the important need to ensure that the nutritional requirements of women, especially mothers are satisfied. Nationally, the prevalence of thinness (BMI < 18.5) is 24.7 (NMSS 1998). The prevalence of thinness in Dailekh seemed to be lower in comparision to national statistics. However efforts aimed to improve the nutritional status of pregnant women could be expected to have a pronounced impact not only on maternal well-being, but also for the health of the newborn and young child.

More than 50 percent of the women were at risk of having poor nutritional status as measured by mid-upper arms circumference (MUAC) while more than 20 percent had poor nutritional status. This signifies a need for special attention to be given to the mother's health and nutritional status.

The results from the study highlight that many women are breast feeding for long periods, have many pregnancies and have their first child before 19 years. These factors are likely to be contributing to maternal malnutrition.

4.1.3 On Iodine content of salt

The use of adequately iodized salt was found to be minimal (2 %). Most of the shops in the survey area did not have any iodized packet salt and almost all households in the survey were found to consume Dhikke (crystal) salt (99%) having inadequate amount of iodine content (0-7 ppm, 92 %). This is likely to be causing the iodine deficiency disorders in the area. 17 % of stillbirth and poor growth were found in infants in the area. These facts indicate that there may be higher incidence of nutritional disorders in long run.

4.1.4 Factors responsible for the poor nutritional status in Dailekh

- The mortality rate of 46 % children under-5 years was recorded in the survey. In under 6 month olds (highest risk group), stillbirth and acute respiratory infection were the main causes of death in the area. Malnutrition was a significant cause of death in older children in the study. Emphasis should be given to prevent the causes of mortality in the area.

- More than half of under 5 children had diarrhoea in last two weeks. More than half of the households know that they should give children with diarrhoea more fluid to drink than usual. Nearly 60 percent of children under five had an episode to respiratory infection (ARI) in the last two weeks. It is important to be noted that diarrhea, cough and colds and other infections adversely affect the growth process of a child, and have increased risk of malnutrition. Key persons said that green leafy vegetables and fruits were not fed to the children and mothers (especially pregnant and lactating) and also during illness. This indicates the need to focus on the vitamin A rich foods in the area.

- It is noticed that the more than one third of the households did not seek any treatment for their children at the time of illness especially ARI and Dairrhoea. Only a small proportion of them were taken to a health facility, while more than 13 percent sought the help of traditional healers. This custom of consulting traditional healers or not seeking any treatment may be risky on the part of children. It was found that the mothers did not know the symptoms of diarrhoea.

- The survey indicated that most of the mothers got pregnant before reaching 18 years and had more than four children. More than 80 % of mothers did not have any antenatal check up or health care during childbirth. Early age pregnancy and lack of health care are some of the reason behind such a high rate of malnutrition in the survey area. Early marriages leading to early pregnancies interfere with the pubertal growth of the women and result in poor nutritional status (Adhikari and Krantz, 1997, p.22).

- Nearly 68 percent of the mothers admitted smoking during pregnancy. Around 6 percent of mothers had stillbirth incident in the region. Smoking or drinking alcohol

during pregnancy affects the foetus adversely. It has been estimated that the birth weight of infants whose mothers smoke heavily during pregnancy is 170 to 200 gms less than the average birth weight (Adhikari and Krantz, 1997). It may also harm the long term physical growth and intellectual development of the child.

- The survey showed that most of the mothers (61 %) were illiterate and had never participated in any kind of training. This could be one of the important factors responsible for the poor nutrition of the children and mother as well in the region. 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. A child of an illiterate mother has an increased risk of both stunting and wasting (NMIS, 1997).

- The pattern of breast feeding to the children was found to be somewhat satisfactory. However, the trend of not giving colostrum was disappointing. Almost 41 percent of mothers in the study said that they either threw away the colostrum or fed it to another child contributing to high rates of pneumonia. Nationally just over a third (36 %) of children had the colostrum thrown away rather than fed to them. It is generally recommended to breast fed exclusively up to five months of age (MOH Recommendation, 1997). However the survey showed that only 23 % of the children were exclusively breastfed to five months of age. 13 percent of the children were given solid food before reaching 5 months. Probably this is one of causing factor for diarrhoea in the area.

  On the other hand, some mothers continued exclusive breast feeding beyond six months: 13% were still being exclusively breast fed at 7-10 months and about 2 % at more than 10 months. The children who had the colostrum thrown away at their birth are at increased risk of being malnourished (mainly at increased risk of being wasted) and children who are fed solid food relatively later are more likely to be stunted or wasted and feeding solids early increases risk of diarrhoea (NMIS 1997).

- It is significant to note that most of the children were given supplementary food only after 6 months. 15 % of households were tended to give readymade foods e.g. Horlicks, biscuits, noodles, bottled vitamins, chocolate etc. to their children. Very few of them were found to use Super flour Porridge as supplementary food. Usually no special food was prepared for children. Such feeding behaviours could adversely affect the health and nutrition of children in the survey area.

- Usually the mothers were responsible for feeding young children. When a mother is not available, a grandmother, sister or other female relatives mostly takes over. Children who were fed by father or other male relatives when mother is not at home were about 30 percent. The children who are fed by the father or other male relative when mother is not available have a higher risk of malnutrition than those who are always fed by the mother or other female relatives do. The effect is mainly confined to stunting, with little effect for wasting (NPCS, 1997).

- Almost 75 percent of the households reported food shortage and Falgun, Chaitra and Shrawan were the main month of food shortage (82-91 percent of shortage). Of those households suffering food shortage, most of them reported more than four months of food shortage per year. Food deficit results in a lower consumption of calories, hence resulting poor nutritional status. Thus, responsibility lies on the programme to develop strategies to handle the hard hit months. This is an important factor concerning food security.
- Although the majority of households owned kitchen garden, use of improved agricultural input was found to be minimal.
- The study showed that the survey area lacked awareness of basic health and sanitation issues. This could be one of the major contributing factors for the poor nutritional status in the survey area.
- It is worth noting that the nutritional scenario in Dailekh is reasonably poor in comparision to the country statistics (Unicef, 2001) as cited in this report (Chapter 1). This signifies that malnutrition is prevalent among under 5 children in the area due to many factors as mentioned above. This scenario calls for immediate attention of the programme to focus extensively on the children's nutritional status and mother's nutritional status. Effective programmes should be implemented so that momentum does not shift towards more severe forms of malnutrition in the region.

Chapter 5: Recommendations

Recommendations based on the issues found in the study:

For Mothers

- Special attention should be given to the health and nutritional status of the mothers. Knowledge and skill-based training should be provided to mothers on the importance of antenatal check up and on the harm of smoking especially during pregnancy. Mothers should be informed of benifits of birth spacing. Birth attendance by trained TBA or health professionals should be promoted. Effort of Health Post or SHP would significantly be fruitful in this regard.

- Knowledge based training on the issues related to nutrition should be provided to household mothers by using simple, easy to understand tools. An integrated approach of Nutrition programme and NFE programme will help to increase their literacy as well as nutritional knowledge.

- Importance of proper nutrition in pregnancy and lactation should be emphasized in all the community. Consumption of adequately iodized packet salt should be promoted to prevent stillbirths and other iodine difficiency disorders.

- Mothers in the area should be encouraged to eat Vitamin-A rich foods (e.g green leafy vegetables, fruits etc.) especially during pregnancy and lactation.

For Children

- The children from all caste and ethnic community should be equally monitored about nutrition and health situation regardless of upper (such as Brahmin, Chettri) or lower caste (e.g. occupational caste).

- A regular Growth Monitoring system may help to show the improvement in children's nutritional status. The growth monitoring can be done effectively in coordination with HMG Health services i.e. health posts and sub-health posts.

- The importance of colostrum, exclusive breast-feeding and duration of breast-feeding should be emphasized.

- Five months as the optimum age for introducing supplementary food should be promoted in all the communities. Mothers and main carer of children should be informed about the advantages of extra food at five months and the types and frequency of feeding to the children in a day. The children of 6-60 months should be provided with balanced feeding of supplementary food.

- Vitamin A should receive special attention due to the low levels of measels vaccination and high levels of ARI and dirrhoea in the area. Emphasis should be given to feeding children with locally available vitamin A sources (including green leafy vegetables, fruits) and especially to feeding during illness.

- Super Flour Porridge (sarbottam pithoko lito) along with other homemade foods should be introduced to the children at the weaning age. Mothers should be encouraged to prepare sarbottam pitho themselves which can be done through practical demonstration and by highlighting the nutritional advantage of it.

- The behavior of giving readymade foods e.g. noodles, Horlicks, biscuits, bottled vitamins etc. to the children must be discouraged. Awareness should be raised of various locally available foods instead. The fact that city foods are nutritionally not as valuable as locally available foods should be taught in the community.

For Households

- It is important to develop strategies to handle hard hit months of food shortage. Skill based (e.g. practical demonstration) training should be given to the household mothers on storage and preservation of seasonal foods for off-seasons. Utilization of forest foods should also be promoted.

- The community could be encouraged in improved kitchen gardening. They should be educated to plant nutrient-rich fruits and vegetables. Community Nutrition Programme can co-ordinate with Agriculture Office in the district to train and demonstrate the use of modern agricultural techniques and the ways of improving yield. The seed distribution and advocacy provided by the Dullu NFE programme could be an extra benefit to the community.

- The communities should be made aware of use of latrine, washing of hands after defecation, type of drinking water and domestic food safety practices, which have indirect influence on nutritional status.

- The members of households should be informed about the need of iodine in human physiology and hence the importance of iodized salt in our food. The consumption of iodized packet salt should be promoted in the community. CNP can take initiative to contact Salt Trading Corporation and the local shopkeepers to make iodized salt available in the area. Appropriate message can easily be conveyed in the community through students. Therefore, IDD classes taken at different schools will help in making the people aware.

- The community should be informed about the advantages of health facility over the traditional methods of treatment. Furthermore, community should be aware of signs and symptoms and prevention of different childhood illness and importance of vaccinations.

- The suggestion of local key persons stated in the Finding V of Chapter 3 should also be kept in view while planning the nutritional strategies for the community in the area.
- The objective of eradicating malnutrition remains as great a challenge today as in the past. Regular growth monitoring of children under five, followed by educational sessions in the area could be effective steps to monitor and improve the nutritional status and to increase awareness on nutrition issues as well. Full commitment and effective action by concerned programmes are needed to overcome the challenges in the region. Some form of coordination with all concerned Government, Non-Government, International Non-Government organizations, Vitamin-A Programme and the local community will bear fruitful results in the field of nutrition in Dailekh.

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Appendix 1

Form No. .....
Interviewer's Name .....

Nutrition Survey Form

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

A. Household Information

Occupation of Householder .....
Total members living in Household .....
Extended/Single family .... Land owned (Pathi): .....
Household's main source of income ..... Additional income .....
House Member work outside (Dailekh)? Yes No
If yes, how many persons: [.....] How many Months in a year: [.....] What work [.....]

Salt (Dhikke Coarse Powder) Iodine Content (in ppm): 0 7 15 30

B. Mother's Health & Nutritional Status

1. Mother's name: Age[.....] Occupation [.....] Education: [.....]
2. **Mother's MUAC: [.....] Height: [.....] Weight: [.....]**
3. Are you involved in any Income Generation program? Yes No
   If yes, mention in detail [.....]
4. Have you been taken part in any training? Yes No
   If yes, which training [.....]
5. Age at first pregnancy (years): [.....]
6. Number of past pregnancies? : [.....] Boy [.....] Girl [.....] Stillbirth [.....]

7. Child Mortality Information

Age	Sex	Cause(s) of death	Symbol
			A = Malnutrition
			B = Diarrhoea
			C = Pneumonia
			D = Measles
			E = Dead child birth
			F = Other

8. Number of living children: [.....] Boy [.....] Girl [.....]
9. Did you smoke during your last pregnancy? Yes No
10. Did you take alcohol during your last pregnancy? Yes No
11. Did you visit HP/ SHP/ Hospital/ Medical for Antenatal checkup? Yes No
12. Who attended (helped) you in your delivery? (Tick any)
    Trained TBA Untrained TBA FCHV VHW MCHW
    Neighbors Relatives Nobody Others[.....]

C. Children's Information:

Vaccination (For last children only)

1. Is your child being vaccinating or vaccinated? Yes No
2. Which vaccine? BCG DPT 1 2 3 OPV 1 2 3 Measles

Feeding Behavior

3. About the child (infants) 0-5 months of age:

Age	Sex	Still Breast fed or not	How soon BF after birth	Fed Colos-trum?	When do you think to give your child anything extra than Breast Feeding?

4. About children 6-24 months of age

Age	Sex	How long breast feed	Age at which supp. Food given	Child less than 1 yr.		Child above 1 yr.		Do your child seem nourish?
				Times	What food	Tmes	What food	

5. Children's (under 5 years of age) Nutritional Status

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

6. When the mother is not available at home, who usually feeds the child?
   Male member (Father/ Grand father/ Brother)
   Female member (Grand mother/ Sister/ Female relative) Others...
7. If available, what foods would you prefer to give to your child? [.....]

D. Food Situation:

1. Are you and your householder able to provide enough food for all throughout the year? Yes
   If not, which months are difficult for you to provide food? (Tick any)

B	J	A	S	BH	AJ	K	M	P	MA	F	C

2. How do you manage to provide food in these difficult months?
   Buy [.....] what food [.....] from where [.....]
   Borrow [.....] what food[.....] from where[.....]

E. Water/Sanitation & Environmental Conditions:

Drinking water

1. What is the main source of drinking water for members of your household? Dwelling
   Public tap Well Kuwa Spring Pond Stream River Lake Others.....
2. How long does it take to get there, get water and come back?
   Water on premises [.....] Hours [.....] Minutes [.....]
3. Do children usually wash their hand before meal? Yes No

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 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

F. Kitchen Garden and Livestock

1. Do you have a kitchen garden? (Observe) Yes No
3. If yes, what do you grow in the garden (months)?

Month	Vegetables	Green leaves	Fruits	Month	Vegetables	Green leaves	Fruits
B				K			
J				M			
A				P			
S				M			
B				F			
A				C			

3. Where do you get your seeds? [.....]
4. Which agricultural inputs do you use in your field?
   Local Improved Chemical fertilizer Others.....
5. Total no. of livestock owned (Tick and mention the numbers also):
   Buffalo..... Cow..... Ox..... Goats..... Sheep..... Chicken..... Horses....
   Pig..... Duck..... Pigeon..... Others.....

G. 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 were ill?
   Coughing Blocked nose Running nose Fever Breathing fast Difficulty breathing
   Trouble eating & drinking Chest in-drawing Don't know Other (specify).....

Treatment sought for children with ARI:

3. Where did you take your child for treatment?
   Nowhere and no treatment Nowhere but home treatment Health post
   Subhealth post Primary health center Hospital VHW MCHW Private clinic
   Medical shop Dhami/Jhakri Ayurvedic center Other (specify).....
4. Of the list above, whom did you consult first? [.....]

Diarrhea

1. Has your child had diarrhea in the last 2 weeks? Yes No
   If yes, for how many days? [.....]
2. Was there blood in stool during diarrhoea? Yes No
3. During diarrhea, did you give the child anything to drink?
   Breast milk yogurt Cereal based gruel or soups Fruit juice Bean pulse soup
   Nun-chini-pani Jeevan jal/shakti jal Vegetable soup Cow milk Buffalo milk
   Canned milk Water with feeding Water (boiled/unboiled) Other fluid (specify) Nothing

Treatment sought for children with Diarrhea:

4. Where did you take your child for treatment?
   Nowhere and no treatment Nowhere but home treatment Health post
   Sub-health post Primary health center Hospital VHW MCHW Private clinic
   Medical shop Dhami/Jhakri Aurvedic center Other (specify).....
5. Of the list above, whom did you consult first? [.....]

Appendix 2a

FOOD AVAILABILITY FORM

(Place a Tick mark in month's column)

Naulekatwal

FOODS	MONTHS												FOODS	MONTHS										
	B	J	A	S	B	A	K	M	P	M	F	C		B	J	A	S	B	A	K	M	P	M	F	C
CEREAL GRAINS																								
Barley												✓	Rice								✓				
Corn					✓								Millet							✓					
Buckwheat							✓						Wheat	✓											
Junelo							✓						Amaranth							✓					
Foytail millet																									
ROOTS AND TUBERS																								
Potato											✓		sweetpotato									✓	✓		
Colocasia							✓						Ghartarul									✓	✓		
Gittha	✓	✓	✓				✓	✓	✓	✓	✓	✓	Ranibhykur	✓	✓						✓	✓	✓	✓	✓
Beetroot													Carrot								✓	✓			
turnip								✓																	
FATS																								
Butter	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Rapseed oil	✓									✓	✓	✓
Seseme oil							✓						Hydrogenated oil			✓									
PULSES																								
Dalsimi			✓										Blackgram						✓	✓					
Cowpea					✓								Soybean							✓					
Peas	✓											✓	Horsegram						✓	✓					
Lentil												✓	Broadbeans												✓
SEEDS AND NUTS																								
Walnuts							✓	✓					Sesame												
Silaam						✓							Omum (Jwano)												
Amranth							✓						Peanuts												
Linseed																									
NON-VEGETABLE																								
Goat meat				✓	✓	✓							Chicken	✓	✓					✓	✓	✓	✓	✓	
Egg	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Cow milk	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Buff. Milk	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Fish						✓	✓					
Buff meat							✓	✓	✓	✓	✓		Pork						✓	✓	✓	✓	✓	✓	

B = Baishakh, J = Jestha, A = Ashadh, S = Shrawan, B = Bhadra, A = Asoj, K = Kartic,
M =Mungsir, P = Paush, M = Magh, F = Falgun

Food availability form, Naulekatwal

FOODS	MONTHS												FOODS	MONTHS										
	B	J	A	S	B	A	K	M	P	M	F	C		B	J	A	S	B	A	K	M	P	M	F	C
VEGETABLES																								
Eggplant			✓	✓									Bittergourd						✓	✓					
Pumpkin			✓	✓	✓	✓	✓						Okra				✓								
Radish								✓					Carrot						✓	✓					
Cauliflower	✓						✓	✓					Mushrooms			✓	✓								
Greenbeans							✓						Cucumber						✓	✓					
Greenpeas											✓		Snakegourd			✓	✓								
Ridgegourd					✓								Turnip							✓					
Bottlegourd						✓																			
FRUITS																								
Apricot													Apple											
Persimmon					✓								Amla								✓			
Orange							✓						Papaya	✓	✓									
Banana	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Plum		✓									
Peach			✓										Lemon								✓			
Guava						✓							Lime						✓	✓				
Pomegranate			✓										Mango			✓								
GREEN LEAVES																								
Butter							✓						Rape leaf							✓	✓	✓		
Dill leaf								✓	✓	✓	✓		Radish leaf							✓	✓			
Pumpkin vine			✓	✓	✓	✓	✓						Nettles	✓	✓					✓	✓	✓	✓	✓	✓
Ferns			✓	✓									Koiralo	✓											
Onion/Garlic											✓		Amaranthleaf	✓	✓	✓									
Bethe saag							✓						Colocasia			✓									
Sweet potato													Mint	✓	✓										
Watercress			✓	✓									Spinach								✓			
Fenugreek	✓											✓	Cabbage	✓							✓			
Lettuce													Kuturkee			✓	✓							
MISCELLANEOUS																								
Gundruk	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Masyaura							✓	✓			
Sugar													Alcohal	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Honey																								

Appendix 2b

FOOD AVAILABILITY FORM

(Place a Tick mark in month's column)

Nepa

FOODS	MONTHS												FOODS	MONTHS										
	B	J	A	S	B	A	K	M	P	M	F	C		B	J	A	S	B	A	K	M	P	M	F	C
CEREAL GRAINS																								
Barley	✓												Rice								✓				
Corn						✓							Millet							✓					
Buckwheat													Wheat	✓											
Junelo													Amaranth												
Foytail millet																									
ROOTS AND TUBERS																									
Potato											✓		sweetpotato									✓			
Colocasia							✓						Ghartarul									✓			
Gittha									✓				Ranibhykur												
Beetroot													Carrot												
turnip									✓				Raddish							✓					
FATS																									
Butter				✓									Rapseed oil												✓
Seseme oil						✓							Hydrogenated oil					✓							
PULSES																									
Dalsimi													Blackgram												
Cowpea					✓								Soybean												
Peas	✓												Horsegram												
Lentil												✓	Broadbeans												
SEEDS AND NUTS																									
Walnuts					✓								Sesame						✓						
Silaam								✓					Omum (Jwano)												
Amranth													Peanuts							✓					
Linseed																									
NON-VEGETABLE																									
Goat meat						✓							Chicken	✓											
Egg	✓												Cow milk											✓	
Buff. Milk				✓									Fish		✓										
Buff meat						✓							Pork												

Food availability form, Nepa

FOODS	MONTHS												FOODS	MONTHS										
	B	J	A	S	B	A	K	M	P	M	F	C		B	J	A	S	B	A	K	M	P	M	F	C
VEGETABLES																								
Eggplant					✓								Bittergourd						✓						
Pumpkin					✓								Okra					✓							
Radish						✓							Carrot							✓					
Cauliflower									✓				Mushrooms				✓								
Greenbeans					✓								Cucumber					✓							
Greenpeas											✓		Snakegourd				✓								
Ridgegourd					✓								Turnip												
Bottlegourd					✓																				
FRUITS																								
Apricot													Apple												
Persimmon					✓								Amla							✓					
Orange								✓					Papaya	✓											
Banana		✓											Plum	✓											
Peach					✓								Lemon												✓
Guava						✓							Lime								✓				
Pomegranate			✓										Mango												
GREEN LEAVES																								
Mustard leaf							✓						Rape leaf								✓				
Dill leaf													Radish leaf								✓				
Pumpkin vine				✓									Nettles								✓				
Ferns				✓									Koiralo												✓
Onion/Garlic											✓		Amaranthleaf												
Bethe saag							✓						Colocasia					✓							
Sweet potato													Mint						✓						
Watercress						✓							Spinach										✓		
Fenugreek									✓				Cabbage								✓				
Lettuce													Kuthurke												
MISCELLANEOUS																								
Gundruk	✓												Masyaura						✓						
Sugar						✓							Alcohal	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Honey						✓																			

Appendix 2c

FOOD AVAILABILITY FORM

(Place a Tick mark in month's coulmn)

Paduka

FOODS	MONTHS												FOODS	MONTHS											
	B	J	A	S	B	A	K	M	P	M	F	C		B	J	A	S	B	A	K	M	P	M	F	C
CEREAL GRAINS																									
Barley												✓	Rice								✓				
Corn					✓								Millet							✓					
Buckwheat													Wheat	✓											
Junelo													Amaranth												
Foytail millet													Marse						✓						
ROOTS AND TUBERS																									
Potato											✓		sweetpotato									✓			
Colocasia						✓							Ghartarul										✓		
Gittha		✓											Ranibhykur												
Beetroot													Carrot								✓				
turnip									✓																
FATS																									
Butter				✓									Rapseed oil											✓	
Seseme oil							✓						Hydrogenated oil												
PULSES																									
Dalsimi													Blackgram							✓					
Cowpea					✓								Soybean					✓							
Peas												✓	Horsegram							✓					
Lentil												✓	Broadbeans											✓	
SEEDS AND NUTS																									
Walnuts					✓								Sesame							✓					
Silaam							✓						Omum (Jwano)											✓	
Amranth						✓							Peanuts							✓					
Linseed																									
NON-VEGETABLE																									
Goat meat							✓						Chicken							✓					
Egg	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	Cow milk				✓								
Buff. Milk				✓									Fish				✓	✓							
Buff meat					✓								Pork				✓	✓	✓						

Food availability form, Paduka

FOODS	MONTHS												FOODS	MONTHS										
	B	J	A	S	B	A	K	M	P	M	F	C		B	J	A	S	B	A	K	M	P	M	F	C
VEGETABLES																								
Eggplant					✓								Bittergourd				✓							
Pumpkin					✓								Okra					✓	✓					
Radish								✓					Carrot									✓		
Cauliflower									✓				Mushrooms				✓							
Greenbeans				✓									Cucumber				✓							
Greenpeas											✓		Snakegourd			✓								
Ridgegourd				✓									Turnip									✓		
Bottlegourd						✓																		
FRUITS																								
Apricot													Apple											
Persimmon						✓							Amla							✓				
Orange								✓					Papaya	✓										✓
Banana							✓						Plum											
Peach					✓								Lemon							✓				
Guava						✓							Lime							✓				
Pomegranate					✓								Mango											
GREEN LEAVES																								
Mustard leaf									✓				Rape leaf							✓				
Dill leaf													Radish leaf							✓				
Pumpkin vine			✓	✓	✓	✓							Nettles								✓			
Ferns			✓										Koiralo										✓	
Onion/Garlic											✓		Amaranthleaf						✓					
Bethe saag										✓			Colocasia								✓			
Sweet potato													Mint	✓			✓	✓	✓	✓	✓	✓	✓	✓
Watercress											✓		Spinach									✓	✓	
Fenugreek								✓					Cabbage							✓			✓	
Lettuce													Kutlurke										✓	
MISCELLANEOUS																								
Gundruk									✓		✓		Masyaura								✓			
Sugar							✓						Alcohol	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Honey						✓																		

Appendix 3

Interview Questionnaire

(For Health workers/ VDCs/ NGO/ INGO/ NFE Prog.)

Date:
VDC: Place:
Interviewee's Name:
Designation/ Rank:
Organization
Address:

1. Type of organization (health post / sub health post/ NGO/ INGO/ VDC/ UMN-NFE)
   *Mission/goal:
   *Work approach:
   *Work duration:
   *Target area of your organization:
   *Target population (group):

2. Have you received any training on nutrition while working in Dailekh ? Yes[ ] No[ ]
3. If yes,

What training	No. of days	Where	Organized by whom

4. What are the most important things you learned from the training?

5. Did you teach others the things you learned? Yes[ ] No[ ]

To whom	Where	To how many

6. Till now, is there any nutrition related program working in this VDC?

7. Are any nutrition-related activities being conducted in your working area?

Activities	Place	Duration	Organizer
1.			
2.			
3.			
4.			
5.			

8. What type of impact do you feel has been had on the community through these activities?

9. Is there any plan by this organization to improve the nutritional status of the community?

10. What are the positive and negative nutrition beliefs of the community you have faced during your work?

11. In your opinion, how soon after birth should breastfeeding be started?

12. What is your opinion about feeding Green Leafy Vegetables and Fruits to the children, pregnant and lactating and during illness?

Group	Opinion
Children 0-5 year	
Pregnant	
Lactating	
During illness	

13. Have you heard about Sarbottam Pitho? Yes[ ] No[ ]
If yes, how do you prepare it? {.....}

14. Is there any nutrition research/survey work etc. being conducted by your organization?

15. Do you think integration of any work (activity) can be made with the UMN's Nutrition Program in future?

6. Any other comments and suggestions for UMN's Nutrition Program in the future?
(If necessary use the back page)

Interviewer:

Appendix 4

Local Shopkeeper's Interview-Questionnaire

1. From where do you bring the salt kept for selling?

2. What is the type of salt kept for selling? (Check and observe the salt for iodine content with iodine test kit)

3. What do you know about the iodized salt?

4. Where did you get the information? (Ask the question if known about Question no. 3)

VDC:
Place:
Interviewer:

Appendix 5

Picture of Survey Team

Appendix 6

Map of Dailekh

Source: District Agricultural Development Office, Dailekh