SMART Nutrition Survey Report
Bajura District, Nepal
September 2022

Sudur Pashchim Province Government

Ministry of Social Development

Health Directorate, Doti

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Acknowledgement

I am delighted to present the final report of the SMART Nutrition Survey that was conducted in Bajura District of Sudur Pashchim province. The survey was carried out to find the nutritional status of children aged 6 to 59 months.

Anthropometric measurements of the children were taken during the survey, along with additional questionnaires covering the socioeconomic status of the household, food security, sanitation, feeding practices, child morbidity, etc.

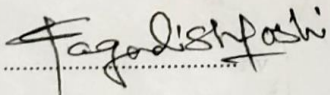
The survey results on wasting, stunting, and underweight status of children are presented at local level, along with the associated causes of malnutrition.

I hope that this report will be useful to policymakers, planners, and researchers in the Bajura district for new interventions and planning in the nutrition sector.

I'd like to express my gratitude to everyone who took part in the SMART Nutrition survey for their valuable time and responses. Similarly, we appreciate the support of all Bajura District Local Level Governments in deploying supervisors and enumerators for data collection and survey supervision.

I would also like to thank UNICEF for their financial and technical assistance, which enabled us to conduct this survey.

Special thanks to Dharmanand Giri-PHD, Prakash Chandra Joshi-UNICEF, Minraj Joshi-PHD, Dr. Sanjay Rijal-UNICEF, Gyanendra Dawadi-PPPC, Mahesh Chand-HO Bajura, Rugum Bahadur Thapa-HO, Bajura, and the entire technical team for their contributions to the survey's design, implementation, and analysis: This survey would not have been possible without their tireless efforts.



Dr. Jagadish Joshi
Director
Province Health Directorate, Doti.

" स्वस्थ, सबल, भेदभावरहित समाज, गुणस्तरीय स्वास्थ्य सेवा सुदूरपश्चिम प्रदेशको अवाज "

Contents

Abbreviations

ARI	Acute Respiratory Infection
CI	Confidence interval
EHCS	Essential Health Care Services
ENA	Emergency Nutrition Assessment
FCHVs	Female Community Health Volunteers
FSL	Food Security and Livelihood
GAM	Global Acute Malnutrition
HAZ	Height for Age
HH	Household
HO	Health Office
HP	Health Post
IYCF	Infant and Young Child Feeding Practice
MAM	Moderate Acute Malnutrition
MSNP	Multi-Sector Nutrition Plan
MUAC	Mid-upper Arm Circumference
NDHS	Nepal Demographic and Health Survey
NUTEC	Nutrition Technical Committee
PHCC	Primary Health Care Centers
SAM	Severe Acute Malnutrition
SD	Standard Deviation
SMART	Standardized Monitoring and Assessment of Relief and Transition
SMART	Standardized Monitoring and Assessment in Relief and Transition
U5	Under five
UN	United Nations
UNICEF	United Nations Children Fund
WASH	Water, Sanitation and Hygiene
WAZ	Weight for Age
WHO	World Health Organization
WHZ	Weight for Height

Executive summary

The objective of this survey was to assess the nutritional status of children aged 6-59 months and women of reproductive age 15-49 years. According to the NDHS 2022 stunting is 28.4 percent, wasting is 5.1% and underweight is 13.9 percent in Sudur Pashchim Province. Bajura is one of the districts hit the hardest by malnutrition in the country. According to data available at the DHO, Bajura, in the fiscal year 2021-22, a total of 1,086 children suffered from severe acute malnutrition and were admitted to the district's OTC and nutrition rehabilitation homes. Swamikartik Khapar Rural Municipality alone has 194 cases of severe acute malnutrition among the nine local units.

Standardized Monitoring and Assessment in Relief and Transition (SMART) nutrition survey was conducted between 17-26/09/2022 in Bajura District. SMART methodology was used to assess nutrition status among children aged 6-59 months and to assess health and maternal malnutrition, the study was based on the primary sources of information for which information was collected from children aged 6-59 months and their mother using structured survey questionnaire. Children aged 6-59 months and women of reproductive age (15-49 years) were included in the study. ENA 2020 software (version Jan 2020) chose 35 clusters at random for SMART (by assigning probability proportional to population size PPS). Then, 15 HH were chosen at random (simple or systematic random sampling) from each cluster to be visited. In total, 450 HH were visited with no refusal cases. From the 450 HH, there were 23 women of reproductive age and 467 children aged 6 to 59 months, with 242 boys (51.8%) and 225 girls (48.2%) included in this survey.

The data was collected by eleven teams, each consisting of one supervisor and two enumerators. The final report analyses and interprets the nutritional status of children under the age of five, the nutritional status of women aged 15 to 49, pregnant and lactating women, and the key indicators of Infant and Young Child Feeding (IYCF). The survey/assessment findings revealed the current state of nutrition as well as other factors such as food security, food diversity, child morbidity, and WASH. The nutritional status of children aged 6-59 months remains deplorable.

Results

In a survey of 467 children, the overall magnitude of malnutrition was found to be 48.8%, 8.6%, and 30.6% stunting, wasting and underweight respectively. GAM is 8.6 % (6.3 - 11.5 95% C.I.) and SAM is 1.1 % (0.5 - 2.5 95% C.I.).

Prevalence of malnutrition among 6 to 59 months old children of Bajura district.

Nutritional indicator	Per cent
Length/height for age (stunting) WHO	48.8
Weight for height(wasting)WHO	8.6
Weight for age(underweight)WHO	30.6

Furthermore, 14.8% of children were found to be severely stunted, while 34% children were moderately stunted. Out of 30.6% of underweight children, 4.7% were severely underweight and 25.9% were moderately underweight. Among the 8.6% wasted children, 1.1% children were severely wasted, while 7.5% were moderately wasted. The prevalence of wasting was found higher in boys (9.5%) than in Girls (7.6%), indicating that wasting is more prevalent in boys and less prevalent in girls.

Gender wise distribution of wasting, stunting and underweight:

	Characteristics	Boy (%)	Girl (%)	All (%)
WHZ	Severely wasted (<-3)	0.8	1.3	1.1
	Moderately wasted (>-3&<-2)	8.7	6.2	7.5
	Normal	90.5	92.4	91.4
HAZ	Severely stunted (<-3)	12.8	16.9	14.8
	Moderately stunted (>-3&<-2)	35.5	32.4	34.0
	Normal	51.7	50.7	51.2
WAZ	Severely underweight (<-3)	4.1	5.3	4.7
	Moderately underweight (>-3&<-2)	26	25.8	25.9
	Normal	69.8	68.9	69.4

The surveyed data shows that there is a specific pocket area/cluster where there is a high concentration of wasted and stunted children. Likewise, among the wasted children, 48 percentage were stunted and 30.6 percent underweight. The children who are suffering from multiple types of malnutrition are WHZ 8.6% and MUAC 12.3% percent. Likewise, 9.5% of boys and 7.6% of girls are in Prevalence of Global Malnutrition.

Conclusion

The nutrition status of children aged 6-59 months in Bajura district has to be seriously considered. The prevalence of stunting is higher in girls (49.3%), in comparison of boys (48.3%) and 36.0%, children are stunted in the age group of 54-59 months, which is highest.

By gender, wasting is higher in boys (9.5%) in comparison to girls (7.6%) but severity is higher in girls (1.3%) Under weight is more problematic in girls (31.1%) in comparison of boys (30.2%). The

underweight is seen increasing with age group, which is highest in 54 to 59 months age group i.e. (6.8%).

In conclusion, the overall nutrition status in Bajura continues to be concerning, unstable and needs scale up of high impact nutrition interventions to meet the increasing needs, especially integrated malnutrition prevention interventions focusing on the first 1000 days of life, strengthening early detection and referral for acute malnutrition among women and children, and providing quality and timely treatment of all forms of malnutrition. Thus, financial investment is critical to ensuring the availability of relevant human resources, a core pipeline for nutrition and strategic partnerships for service delivery at scale.

The prevalence of global acute malnutrition is poor as per the WHO acute malnutrition threshold of (5-9%) which indicates a poor nutrition situation. Thus, there is a need to scale up malnutrition treatment programs (SC, OTP & TSFP) in order to reduce the high rate of acute malnutrition. According to the survey findings, underweight and stunting are major concerns. Both underweight and stunting rates in Bajura were classified as very high (>40 for stunting, >30 for underweight) as per the WHO thresholds. It is crucial that measures are put in place urgently in order to tackle the high underweight and stunting rates. In this regard, activities should increasingly focus on underweight and stunting reduction and prevention, alongside interventions that are implemented to reduce acute malnutrition. From a health perspective, morbidity is a concern with more than two-fifths (41.5%) of the children reportedly suffering from various illnesses in the two weeks preceding the survey. Morbidity is a major contributing factor to both acute and chronic malnutrition. Health interventions should be implemented swiftly to treat and prevent childhood morbidity. Health education and awareness raising are needed in order to encourage mothers and caregivers to use the available health services. Infant and young child feeding practices in the survey area are below accepted standards, thus putting under five children at an increased risk of morbidity and malnutrition. This calls for the promotion of infant and young child feeding behaviours as well as expanding and strengthening existing IYCF programs.

SMART SURVEY BAJURA

1. Introduction

1.1 Background

Bajura is among 9 districts of Sudurpaschim Province. The district with Martadi as its district headquarters, covers an area of 2188km^2 (845sq. mi) and consists of a total population of 1,38,998 (males 67,608 and females 71,390) with 63.53/km^2. Population density (preliminary report of census 2021). Bajura is one of the most remote districts in the province, with the majority of villages only accessible by foot.

Acute malnutrition remains a public health problem in several parts of Nepal. Climate disasters are disrupting subsistence agriculture in western Nepal, where malnutrition and infant mortality are already high. We have a complex geography and fertile land in Bajura. In addition, there has been drought for the past seven to eight years, the rainfall is irregular, and arrangement of irrigation facilities is difficult due to the landscape. The food crisis is severe. This is due to low human development, high levels of illiteracy, wide disparities in wealth, poor sanitation, prevalent diarrhea and other illnesses, environmental enteropathies, inadequate maternal, infant and young child feeding (M-IYCF) behaviors and high levels of food insecurity, which together lead to high rates of malnutrition.

Nutrition programs are implemented under the umbrella of MSNP in this district. Nutrition specific and sensitive interventions are being implemented by the engagement of 7 sectors at all local levels. Altogether there are 25 OTCs to manage severe acute malnutrition. Moreover, there is a Nutrition Rehabilitation Home (NRH) in District Hospital, Martadi, Bajura to manage complicated severe acute malnourished children. Since there is no municipal as well as district level information on the nutrition status of children aged 6-59 months, a provincial nutrition department referred to advocates and a plan for nutrition interventions. The findings of the survey/ assessment showed the current situation of nutrition and other factors: food security, food diversity and WASH. The nutritional status of children aged 6-59 months is still in poor condition. According to the NDHS 2022 stunting is 28.4 percent, wasting is 5.1% and underweight is 13.9 percentage in this province.

1.2 Survey Objectives

The objective of the survey is to assess the nutritional status among children aged 6-59 months in Bajura district of Nepal.

Specific objectives:

1. To assess the prevalence of acute malnutrition among children aged 6-59 months in Bajura district.
2. To assess the prevalence of stunting among children aged 6-59 months in Bajura district.
3. To assess the prevalence of underweight among children aged 6-59 months in Bajura district.
4. To analyse the factors associated with malnutrition among children aged 6-59 months in Bajura district.
5. To build the capacity of Health Workers to manage the SMART survey

1.3 Definitions and Inclusion Criteria

Household: Household is defined as a group of people who live together and share a common cooking kitchen.

Children: All children in the selected households aged from 6-59 months were included in the survey. Where possible, age is validated with a recorded birth date on the immunization card or birth registration card or any other valid documents. If the birth date was not available and the exact age was not recalled by the caretaker, a local calendar of events (see appendix 3) for the last five years was used to help find the most accurate age for the child. If an accurate age was not able to be determined, an estimation of age based on height was done using a wooden stick marked with 65 cm and 110 cm. Children measuring between 65 cm and 110 cm were assumed to be in the target age group and were included in the sample.

Weight: Children were weighed with/without clothes. If a child was measured with clothes, then 'y' and if without clothes, then 'n' was recorded in the questionnaire. Weight was measured to the nearest 100 grams using SECA scale. Scales were checked for accuracy before and after each day's measurements using standard weight (2 kg). Scales were placed on a flat surface and calibrated to zero before each measurement. For younger children who cannot stand alone and those children who did not cooperate, indirect weighing techniques were used to measure the weight of the children. In an indirect weighing technique, mothers/caretakers' weight was taken first on a SECA scale followed by them holding the baby to get the exact weight of the baby.

Height: Children's height was measured to the nearest 0.1 cm. Children aged less than 24 months were measured lying down on a horizontal measuring board. Children aged 24 months, or more were measured standing up. If this protocol could not be followed (i.e., disabled, or sick child aged 24 or more months but unable to stand), the child was measured in the alternative manner with a note in the questionnaire.

Oedema: Children were assessed for oedema by a field team member applying a three second moderate thumb pressure to the anterior surface of both feet. If, after the pressure was released, depression remained on each foot, the child was recorded as having oedema.

Mid Upper Arm Circumference (MUAC): MUAC was measured at the mid-point of the left upper arm and measured in millimeters.

2. Methodology

The survey was carried out in September 2022, using standard SMART methodology. For sampling, the survey used a two-staged cluster sampling strategy. The survey data was collected in the Bajura district from September 17 to September 26, 2022. A ward or segment of ward was defined as a cluster in the first stage because the ward is the smallest administrative unit in the district. At the second stage, the basic sampling unit for the survey was determined to be the household. All eligible children present in the selected households were included and anthropometrically measured. The study relied on primary sources of data, which were gathered from children aged 6-59 months and their mothers using a structured survey questionnaire. The research was carried out in collaboration with the Provincial Health Directorate of Sudur Pashchim Province.

2.1 Sample Size

The sample size was calculated using the Emergency Nutrition Assessment (ENA) for SMART, version 2011 (updated 09 July 2015). The prevalence of wasting considered as Global Acute Malnutrition (GAM) in Sudurpaschim Province was used to estimate the minimum sample size requirement. According to the NDHS 2022, stunting in this province is 28.4 percent, wasting is 5.1%, and underweight is 13.9 percent. Assuming a desired precision of 5% and a design effect of 1.7, the district's minimum sample size is 450 children under the age of five, and the survey covered 467 children from the survey area, implying that 3.7% (17) children were over targeted, and 5% (23) households did not respond. Bajura district has a total of 23,891 households.

2.2 Sampling Procedure: Selecting Clusters

This SMART Survey used a quantitative approach to collect the desired information. The method of the study was primarily cross-sectional with descriptive analysis of key variables. The total population of children aged 6-59 months in Bajura was taken from HMIS FY 2078/79 targets and

then verified with local level governments and Health Office Bajura. The survey was conducted using a two-staged cluster sample design. The first stage of sampling identified the wards (clusters) within each district following the probability proportional to size (PPS) method. In the second stage, households within the selected clusters were identified to collect information from eligible respondents.

2.3 Sampling Procedure: Selecting Households and Children

A ward in the Rural Municipality/Municipality of the local structure was treated as a cluster in this survey. For this purpose, a list of wards with household counts from the (preliminary) population census 2021 was used as a sampling frame for the cluster selection. A random selection of 35 wards (clusters) from Bajura district was drawn. 30 clusters were used for the study and the remaining 5 clusters were kept as Reserve Cluster (RC). If the Assistant Researcher was unable to visit any cluster, that cluster was replaced by the RC. For selecting the 30 clusters in the district, all RMCPs/MCPs of the district were listed separately in alphabetical order by ward. The population in each ward was cumulated. From this cumulative list, all 30 clusters were selected with Probability Proportional to Size (PPS) principles. Fifteen households were selected from each cluster using systematic random sampling procedures with 450 households with under 5 children.

2.4 Identifying Eligible Households and Respondents

The field team first identified and met the formal and non-formal leaders of the sampled cluster (ward) to seek their support and cooperation. With the help of the ward level key informants, they prepared a social map of the sampled ward showing major public places and settlements. The purpose of doing this was to locate the settlements within the ward and to familiarize the survey team with the geography of the ward, for the smooth implementation of the data collection procedure. With the help of key informants, the field team prepared a list of households as sample clusters. From this, 15 households were selected by applying a systematic random sampling procedure, i.e. by using a random start and a pre-determined sampling interval.

The screening questionnaire was used to determine the eligible respondent i.e. under 5 year's children and 15-49 years' women having children less than 5 years of age. The screening questionnaire was administered to the head or knowledgeable person in the household. If anyone in the respondent's category, such as a woman aged 15-49 has less than 5 years old children, interviewers administered respective questionnaires to the respondents. all children less than 5 years of age were all enrolled for the study. In instances where a household had no eligible respondent, the interview ended without administering any of the tools and no replacement was made for such households.

2.5 Questionnaire, Training and Supervision

The field team first identified and met the formal and non-formal leaders of the sampled cluster (ward) to seek their support and cooperation. With the help of the ward level key informants, they prepared a social map of the sampled ward showing major public places and settlements. The purpose of doing this was to locate the settlements within the ward and to familiarize the survey team with the geography of the ward, for the smooth implementation of the data collection procedure. With the help of key informants, the field team prepared a list of households as sample clusters. From this, 15 households were selected by applying a systematic random sampling procedure, i.e., by using a random start and a pre-determined sampling interval.

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The study was conducted under the overall supervision and constant guidance of the core team members. Prior to field mobilization, the field staff were given extensive 5-day training from 9-13 September 2022. Training topics included description of UNICEF specific support in flood-affected areas of the country, study objectives, short presentations, role-play, and field practices. The last day of training was dedicated to performing standardization of Research Assistant to assess their reliability and validity on SMART survey. In addition, all field staff were also given training on maintaining consistency in the questionnaires and field management. Field staff training was managed by the Provincial Health Directorate (PHD), Sudurpaschim province with technical and financial support from UNICEF.

To familiarize the field staff to the questionnaire, a paper-based questionnaire was used during the training, which was subsequently followed by discussions and practices. Field practice was carried out in Balmandir School, Martadi, Bajura. The field practice served as a trial for the enumerators where they could apply the learning from the training in a real-world setting. In addition, a standardization test for anthropometric measurements (height and weight) was also done to see the consistency and validity of height, weight and MUAC measurements of children and women taken by team members.

A total of 22 Research Assistant (RA) and 6 supervisors were mobilized to the field for data collection. There were 11 teams consisting of 2 interviewers in each team. One team covered 1-4 clusters. To ensure the data collection work and quality of data, the core team members regularly monitored the data collection activity throughout the survey and communicated with all the teams in case of any problem encountered. In addition, frequent telephonic communication with the field teams was also maintained to monitor the data collection activity. Data collection procedure was conducted from 17-26 September 2022.

2.6 Administration of the Study Tools

Information was collected through face-to-face interviews with the mothers of under five children.

Anthropometric measures of children aged 6-59 months were taken. Four basic parameters, namely the age, gender, height (or length) and weight of the children were recorded using a standard checklist.

A measuring board was used to measure the length/height of children. Children below 2 years were measured in a supine position (lying down) while those over 2 years were measured standing up. Weights of the children were measured using the SECA scale. Weight was measured to the nearest 100g (0.1 kg) and height to the nearest 0.1 cm; and measuring equipment was standardized every day before its current use to check for calibration. For assessing MUAC, children aged 6-59 months were included. The presence of bilateral pitting oedema, which is considered a critical determinant of acute malnutrition, was also observed in this survey. Key IYCF indicators for children below 24 months of age were estimated from the households where children among these groups were available.

2.7 Data Analysis

The anthropometric data was analyzed with the help of ENA for SMART, Z score of height-for-age, weight-for-age and weight-for-height was calculated and the curve was made. Then the data obtained by WHO classification of malnutrition as well as qualitative data was transcribed and coded by assigning labels to various categories and entered into SPSS V 25. The chi-square test and regression analysis test were applied to test the association between nutritional status and its associated factors. The overall quality of the data was assessed across 9 categories: 1) missing/flagged data, 2) sex ratio, 3) age distribution, 4) digit preference for height, 5) digit preference for weight, 6) standard deviation (WHZ), 7) skewness, 8) kurtosis (WHZ), and 9) Poisson distribution (WHZ<-2). SMART flags were set to exclude outliers from the anthropometric analysis. Boundaries for exclusion were set at +/- 3 standard deviations from the observed Weight for

Height Z-Score mean. The daily plausibility report review enabled re-checking of data entry for any children with a SMART flag.

Information was collected using a paper-based structured questionnaire. The data collection package was designed and developed in WHO standard and implemented by UNICEF in close consultation with the PHD Sudurpaschim. Data received from all study sites was compiled and transferred to excel and was thoroughly rechecked by an expert team. Then the cleaned data set was transferred to SPSS for output generation. The cleaned data was analyzed using simple frequency tables. Information was presented in the form of tables and graphs and described as per the objectives of the study. In addition, ENA smart and WHO anthropologists were also used to analyze the anthropometry results and to find out the overall quality of the data that was collected. Weight and length of children was utilized to compute age and sex specific z-scores of weight for age (WAZ), weight for length (WHZ) and length for age (HAZ) using the ENA for SMART software. Underweight, wasting and stunting are defined as WAZ£ 2 SD, WHZ£ 2 SD and HAZ £ 2 SD respectively as per WHO standards 2005.

[1] ENA for SMART, developed by Dr. Juergen Erhardit in cooperation with Prof. Michael Golden, October 2007.

2.7.1 Nutrition Indices and Classifications

Nutritional indices and its definition used for the analysis of anthropometry (children aged 6-59m)		
Indicator		Definition/Criteria
Acute Malnutrition	Global Acute Malnutrition	WHZ<-2 and /or Oedema
	Moderate Acute Malnutrition	WHZ<-2 and ≥-3
	Severe Acute Malnutrition	WHZ<-3 and/or oedema
Stunting	Total Stunting	HAZ<-2
	Moderate stunting	HAZ<-2 and ≥-3
	Severe stunting	HAZ<-3
Underweight	Total Underweight	WAZ<-2
	Moderate Underweight	WAZ<-2 and ≥-3
	Severe Underweight	WAZ<-3
Acute Malnutrition by MUAC	Global Acute Malnutrition	<12.5 cm and /or oedema
	Moderate Acute Malnutrition	≥11.5 cm and <12.5 cm
	Severe Acute Malnutrition	<11.5 cm and/or oedema

Classification of severity of malnutrition in the community, based on the prevalence of wasting and mean weight-for-height Z-score, for children under 5 years of age		
Classification of severity	Prevalence of GAM (% <-2SD)	Mean weight for height Z-score
Acceptable	< 5%	> -0.40
Poor	5-9%	-0.40 to 0.69
Serious	10-14%	-0.70 to -0.99
Critical	≥ 15%	≤ -1.00

Classification of severity of malnutrition in the community, based on the prevalence of wasting and mean weight-for-height Z-score, for children under 5 years of age		
Severity level	Low height-for-age (stunting)	Low weight-for-age (underweight)
Low	< 20%	< 10%
Medium	20-29%	10-19%
High	30-39%	20-29%
Very High	≥ 40%	≥ 30%

3. Results

Socioeconomic characteristics of the sampled population:

LLGs/details		Badhimalika	Budhiganga	Budhinanda	Gaumul	Himali	Jagannath	K. Chhededaha	Swamikartik	Triveni	**Total**
Classification of Cast	Dalit	21	33	20	4	5	7	16	15	21	**142**
	Kshetri/ Brahman	30	33	29	33	30	34	44	22	52	**307**
	Other	0	1	3	0	0	2	3	6	3	**18**
	Total	**51**	**67**	**52**	**37**	**35**	**43**	**63**	**43**	**76**	**467**
Gender of Child	Male	25	38	28	22	19	27	25	25	38	**247**
	Female	26	29	24	15	16	16	38	18	38	**220**
	Total	51	67	52	37	35	43	63	43	76	**467**
Sources of Income	Agriculture	42	45	44	33	33	36	48	34	67	**382**
	Animal sell	1	0	1	1	0	1	2	1	0	**7**
	Jyaladari	0	0	5	0	1	2	0	1	0	**9**
	Remittance	3	17	1	0	0	2	1	1	7	**32**
	Trade	1	1	1	2	0	0	4	2	1	**12**
	Supportive programs	1	0	0	0	0	0	0	0	0	**1**
	Service	3	4	0	1	0	2	8	4	1	**23**
	Other	0	0	0	0	1	0	0	0	0	**1**
	Total	51	67	52	37	35	43	63	43	76	**467**
Household Size	Nuclear family	8	7	13	4	12	9	16	8	24	**101**
	Joint Family	43	60	39	33	23	34	47	35	52	**366**
	Total	51	67	52	37	35	43	63	43	76	**467**
Sources of Income	Agriculture	43	45	45	34	33	37	50	35	67	**389**
	Non Agriculture	8	22	7	3	2	6	13	8	9	**78**
	Total	51	67	52	37	35	43	63	43	76	**467**
Sex of Househol	Male	45	51	45	24	21	28	52	39	11	**316**
	Female	6	16	7	13	14	15	11	4	65	**151**
	Total	51	67	52	37	35	43	63	43	76	**467**

3.1 Anthropometric results (based on WHO standards 2006):

Data on a total of 467 children were entered into ENA and all children's anthropometry was analysed in the survey. We have all the information regarding WAZ, WHZ, and HAZ available mothers were providing a different date of birth for their children as the true date of birth.

Although the recorded date was taken into consideration, which might have an impact on the result of stunting and underweight, including flags.

Age sex pyramid of sampled population:

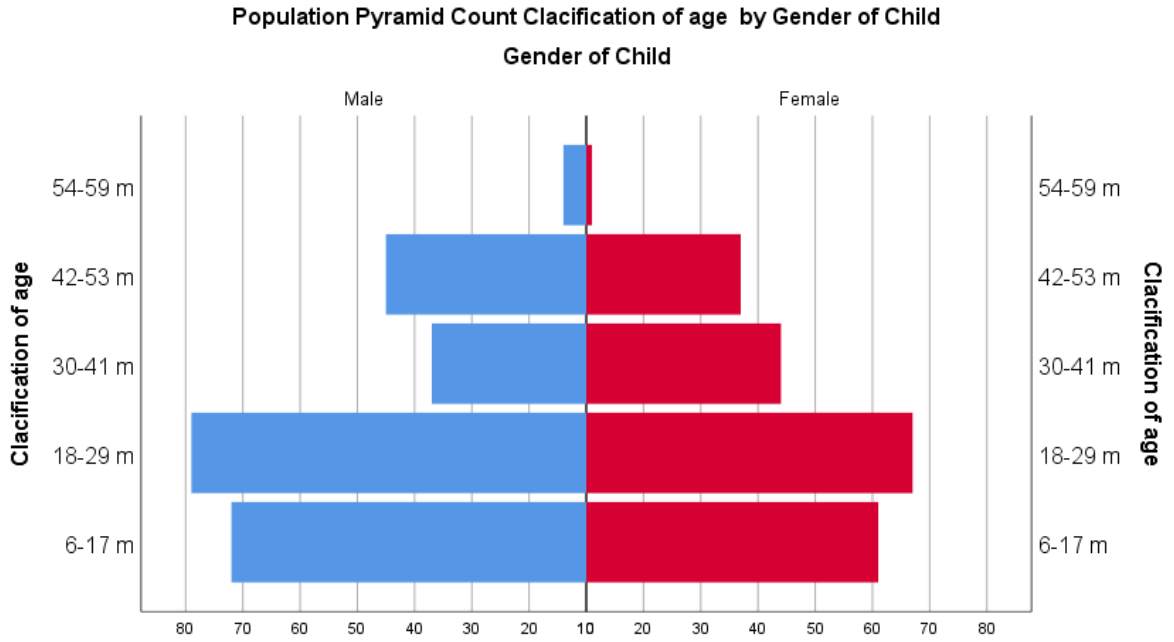
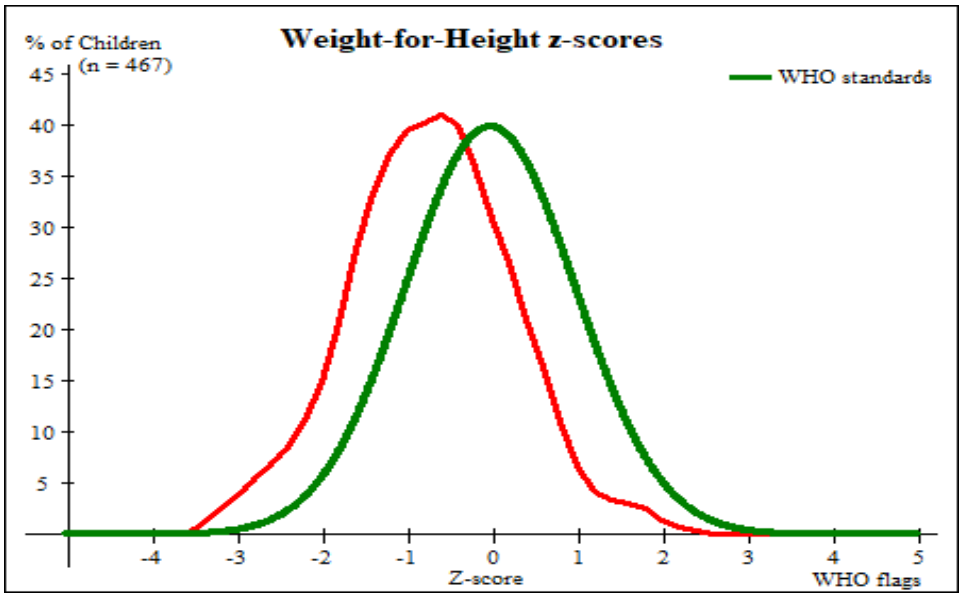


Table 3.1: Distribution of age and sex of the sample

	Boys		Girls		Total		Ratio
AGE (mo)	no.	%	no.	%	no.	%	Boy:girl
6-17	72	54.1	61	45.9	133	28.5	1.2
18-29	76	52.1	70	47.9	146	31.3	1.1
30-41	37	45.7	44	54.3	81	17.3	0.8
42-53	43	52.4	39	47.6	82	17.6	1.1
54-59	14	56.0	11	44.0	25	5.4	1.3
Total	242	51.8	225	48.2	467	100.0	1.1

Distribution of age and sex overall boys and girls were equally represented in the sample (p=0.0431). The age ratio of children 6-29 months old and 30-59 months old was 1.48 which is significantly different than expected (0.85). The digits preference Score was 6 (p=0.101), which was excellent. (Full plausibility report is given in Appendix 1).

Figure 1: Acute Malnutrition (Wasting)



Definitions of acute malnutrition should be given (for example, global acute malnutrition is defined as <-2 z scores weight-for-height and/or edema, severe acute malnutrition is defined as <-3z scores weight-for-height and/or edema The global acute malnutrition rate estimated in the survey was 8.6% (6.3-11.5, 95% C.I.). The severe acute malnutrition rate was estimated to be 1.1% (0.5 - 2.5, 95% C.I.).

Overall, there was no significant difference in the observed global acute malnutrition rate among boys and girls (p=0.536). Although a higher number of boys were screened, the same number of acutely malnourished in both boys and girls were found. A higher number of boys was detected as severely acutely malnourished compared to girls. Table 3.3 shows that a higher number of children (6-17 months) were identified as severely malnourished compared to elder children but not significantly higher (P=0.07). Overall, in global acute malnutrition, there was no significant difference among the age groups.

Table 3.2: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex

	All n = 467	Boys n = 242	Girls n = 225
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(40) 8.6 % (6.3 - 11.5 95% C.I.)	(23) 9.5 % (6.5 - 13.8 95% C.I.)	(17) 7.6 % (4.8 - 11.8 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(35) 7.5 % (5.3 - 10.5 95% C.I.)	(21) 8.7 % (5.8 - 12.8 95% C.I.)	(14) 6.2 % (3.7 - 10.3 95% C.I.)

Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(5) 1.1 % (0.5 - 2.5 95% C.I.)	(2) 0.8 % (0.2 - 3.4 95% C.I.)	(3) 1.3 % (0.4 - 4.1 95% C.I.)

The prevalence of oedema is 0.0 %

Table 3.3: Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema

		Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
Age (mo)	Total no.	No.	%	No.	%	No.	%	No.	%
6-17	133	3	2.3	14	10.5	116	87.2	0	0.0
18-29	146	1	0.7	10	6.8	135	92.5	0	0.0
30-41	81	0	0.0	3	3.7	78	96.3	0	0.0
42-53	82	1	1.2	6	7.3	75	91.5	0	0.0
54-59	25	0	0.0	2	8.0	23	92.0	0	0.0
Total	467	5	1.1	35	7.5	427	91.4	0	0.0

Mean weight for age Z score by age categories.

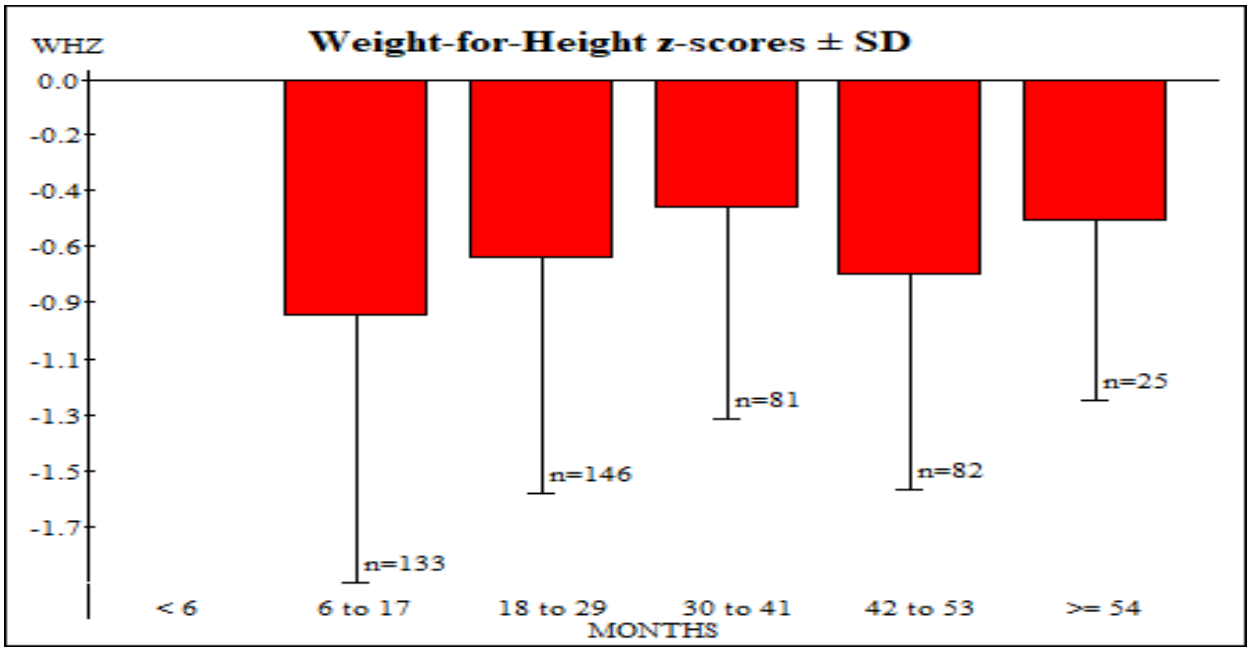


Figure 1: Mean weight for age Z score by age categories

Above graph shows that the yonger the children are, the lower their mean weight for age z score reflecting the fluctuating nutritional deficits.

Acute malnutrition by Mid Upper Arm Circumference

Global acute malnutrition rate identified by MUAC <125mm was 12.3% (9.0-16.4, 95% C.I.) which was significantly (p=0.008) lower compared to the rate (8.6%) identified by WHZ <-2SD. Further analysis by age revealed that a significantly higher number of younger children (6-29 months) were identified as wasted (MUAC <125 mm) compared to older age groups (30-59 months). MUAC has been shown to be biased toward detecting younger children and girls. This is due to the fact that MUAC is not a ratio, it is an absolute measurement of arm circumference and arm circumference is naturally smaller in younger children and girls. Rates of acute malnutrition by sex and age are given in below tables

Table 3.4: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex

	All n = 465	Boys n = 242	Girls n = 223
Prevalence of global malnutrition (< 125 mm and/or oedema)	(57) 12.3 % (9.0 - 16.4 95% C.I.)	(17) 7.0 % (4.5 - 10.8 95% C.I.)	(40) 17.9 % (12.5 - 25.0 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(53) 11.4 % (8.5 - 15.1 95% C.I.)	(17) 7.0 % (4.5 - 10.8 95% C.I.)	(36) 16.1 % (11.3 - 22.5 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(4) 0.9 % (0.3 - 2.2 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(4) 1.8 % (0.7 - 4.4 95% C.I.)

Table 3.5: Prevalence of acute malnutrition by age, based on MUAC cut off's and/or oedema

		Severe wasting (< 115 mm)		Moderate wasting (>= 115 mm and < 125 mm)		Normal (> = 125 mm)		Oedema	
Age (mo)	Total no.	No.	%	No.	%	No.	%	No.	%
6-17	133	1	0.8	31	23.3	101	75.9	0	0.0
18-29	145	2	1.4	16	11.0	127	87.6	0	0.0
30-41	81	0	0.0	2	2.5	79	97.5	0	0.0
42-53	81	1	1.2	4	4.9	76	93.8	0	0.0
54-59	25	0	0.0	0	0.0	25	100.0	0	0.0
Total	465	4	0.9	53	11.4	408	87.7	0	0.0

Prevalence of combined GAM and SAM based on WHZ and MUAC cut off's (and/or oedema) and

by sex:

The prevelance of combined GAM among children 6 to 59 months in Bajura was 16.7%(13.2 - 21.1 95% C.I.) as shown in table below. Although there is no globally accepted threshold for combined GAM and SAM, the observed prevalence of combined GAM was higher than the prevalence of WHZ or and MUAC on their own, implying that the combined GAM and MUAC indicator identified more acutely malnourished children.

Table 3.6: Prevalence of combined GAM and SAM based on WHZ and MUAC cut off's (and/or oedema) and by sex*

	All n = 467	Boys n = 242	Girls n = 225
Prevalence of combined GAM (WHZ <-2 and/or MUAC < 125 mm and/or oedema)	(78) 16.7 % (13.2 - 21.1 95% C.I.)	(31) 12.8 % (9.2 - 17.6 95% C.I.)	(47) 20.9 % (15.6 - 27.9 95% C.I.)
Prevalence of combined SAM (WHZ < -3 and/or MUAC < 115 mm and/or oedema	(8) 1.7 % (0.8 - 3.6 95% C.I.)	(2) 0.8 % (0.2 - 3.4 95% C.I.)	(6) 2.7 % (1.1 - 6.4 95% C.I.)

*With SMART or WHO flags a missing MUAC/WHZ or not plausible WHZ value is considered as normal when the other value is available

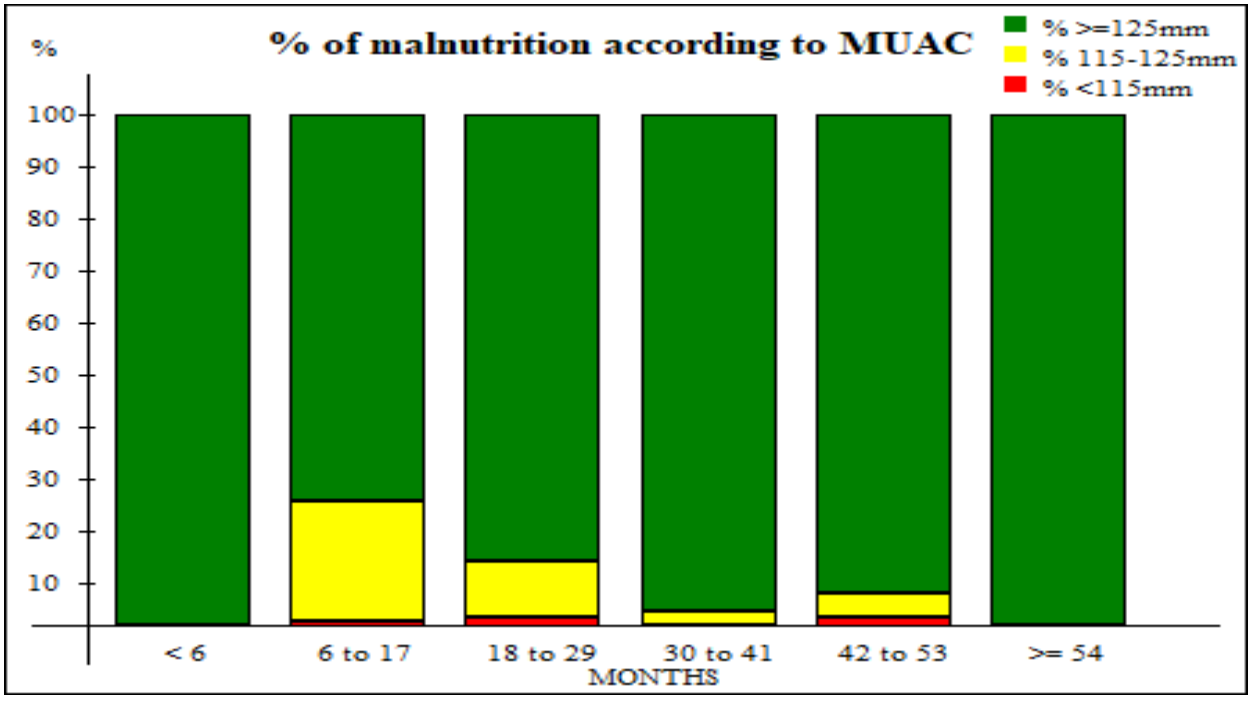


Figure 2: % of malnutrition according to MUAC

UNDERWEIGHT

An estimated 30.6% (26.1-35.5, 95% C.I.) children are underweight in Bajura district reflecting to an estimated total of 14745 children approximately. Severe underweight rate was identified as 4.7% (3.3- 6.7, 95% C.I.). No significant difference of rate was observed among boys and girls (p=0.959).

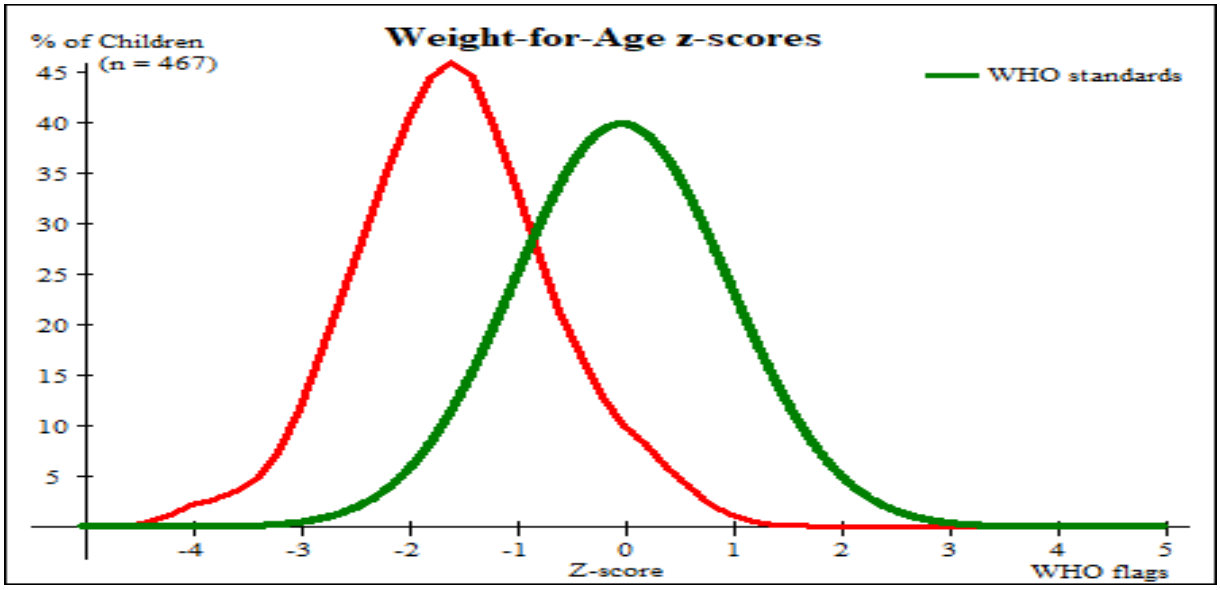


Figure 3: Frequency distribution of WFA z-scores for the children 6 to 59 months.

Graphical presentation of the distribution of Weight-for-Age z-scores of the survey data shows that the curve had deviated to the left, with mean of -1.57 and SD of ±0.90. this indicates that the nutrition standards of the surveyed population is poor compared to the WHO reference population. The standard deviation of ±0.90 is within the acceptable range of 0.8 to 1.2. The design effect determined was 1.06 which shows that there were no major intercluster differences.

Table 3.7: Prevalence of underweight based on weight-for-age z-scores by sex

	All n = 467	Boys n = 242	Girls n = 225
Prevalence of underweight (<-2 z-score)	(143) 30.6 % (26.1 - 35.5 95% C.I.)	(73) 30.2 % (23.3 - 38.1 95% C.I.)	(70) 31.1 % (24.5 - 38.6 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(121) 25.9 % (22.0 - 30.3 95% C.I.)	(63) 26.0 % (19.3 - 34.1 95% C.I.)	(58) 25.8 % (20.0 - 32.5 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(22) 4.7 % (3.3 - 6.7 95% C.I.)	(10) 4.1 % (2.4 - 7.0 95% C.I.)	(12) 5.3 % (3.0 - 9.4 95% C.I.)

Table 3.8: Prevalence of underweight by age, based on weight-for-age z-scores

		Severe underweight (<-3 z-score)		Moderate underweight (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
Age (mo)	Total no.	No.	%	No.	%	No.	%	No.	%
6-17	133	4	3.0	36	27.1	93	69.9	0	0.0
18-29	146	10	6.8	33	22.6	103	70.5	0	0.0
30-41	81	3	3.7	22	27.2	56	69.1	0	0.0
42-53	82	4	4.9	23	28.0	55	67.1	0	0.0
54-59	25	1	4.0	7	28.0	17	68.0	0	0.0
Total	467	22	4.7	121	25.9	324	69.4	0	0.0

CHRONIC UNDER NUTRITION (STUNTING)

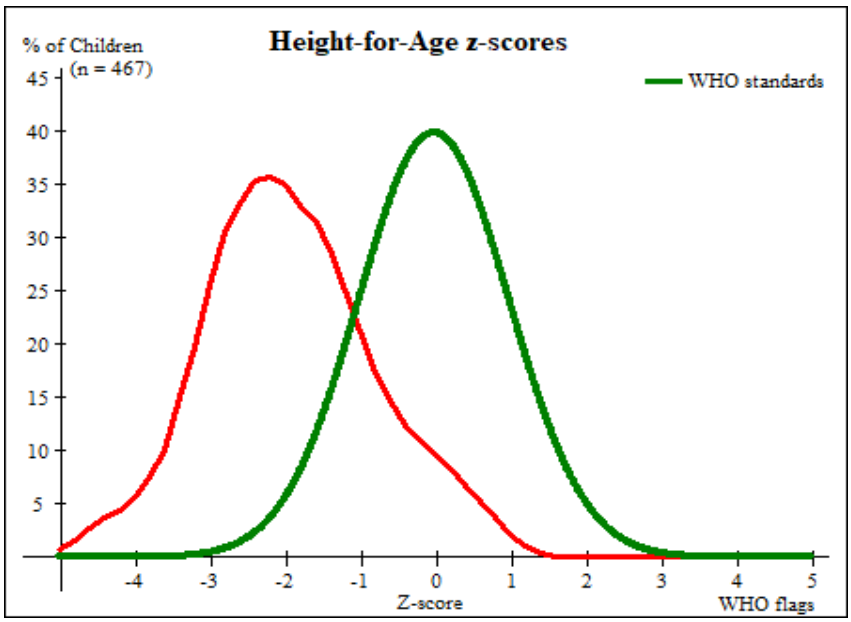


Figure 4: Chronic under nutrition (stunting)

Stunting reflects the continuous deficits of diet leading to slow linear growth among children compared to their age. In the Bajura district, 48.8 % (43.0 - 54.6 95% C.I.) of children aged 6-59 months were identified as stunted (shorter compared to their age) out of which 14.8 % were severely stunted. The rate indicates that an estimated 2187 children are stunted in the district currently. No significant differences in stunting prevalence were observed among boys and girls (p=0.007). However, table 14 shows that there was a higher rate of stunting children among younger age groups (age >29 months) compared to the elder age groups (age)

Table 3.9: Prevalence of stunting based on height-for-age z-scores and by sex

	All n = 467	Boys n = 242	Girls n = 225
Prevalence of stunting (<-2 z-score)	(228) 48.8 % (43.0 - 54.6 95% C.I.)	(117) 48.3 % (39.7 - 57.1 95% C.I.)	(111) 49.3 % (42.3 - 56.4 95% C.I.)

Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(159) 34.0 % (29.5 - 38.9 95% C.I.)	(86) 35.5 % (28.8 - 42.8 95% C.I.)	(73) 32.4 % (26.0 - 39.6 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(69) 14.8 % (11.3 - 19.1 95% C.I.)	(31) 12.8 % (8.3 - 19.3 95% C.I.)	(38) 16.9 % (12.5 - 22.5 95% C.I.)

Table 3.10: Prevalence of stunting by age based on height-for-age z-scores

		Severe stunting (<-3 z-score)		Moderate stunting (>= -3 and <-2 z-score)		Normal (> = -2 z score)	
Age (mo)	Total no.	No.	%	No.	%	No.	%
6-17	133	14	10.5	34	25.6	85	63.9
18-29	146	24	16.4	49	33.6	73	50.0
30-41	81	15	18.5	29	35.8	37	45.7
42-53	82	7	8.5	37	45.1	38	46.3
54-59	25	9	36.0	10	40.0	6	24.0
Total	467	69	14.8	159	34.0	239	51.2

Table 3.11: Mean z-scores, Design Effects and excluded subjects

Indicator	N	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	467	-0.72±0.94	1.00	0	0
Weight-for-Age	467	-1.57±0.90	1.17	0	0
Height-for-Age	467	-1.92±1.12	1.52	0	0

* contains for WHZ and WAZ the children with edema.

3.3 Children's morbidity

The data on children's morbidity was collected using a household questionnaire and the finding is presented below.

Table 3.12: Prevalence of reported illness in children in the two weeks prior to interview (n=467)

	6-59 months
Prevalence of reported illness	41.5% (95% C.I.)

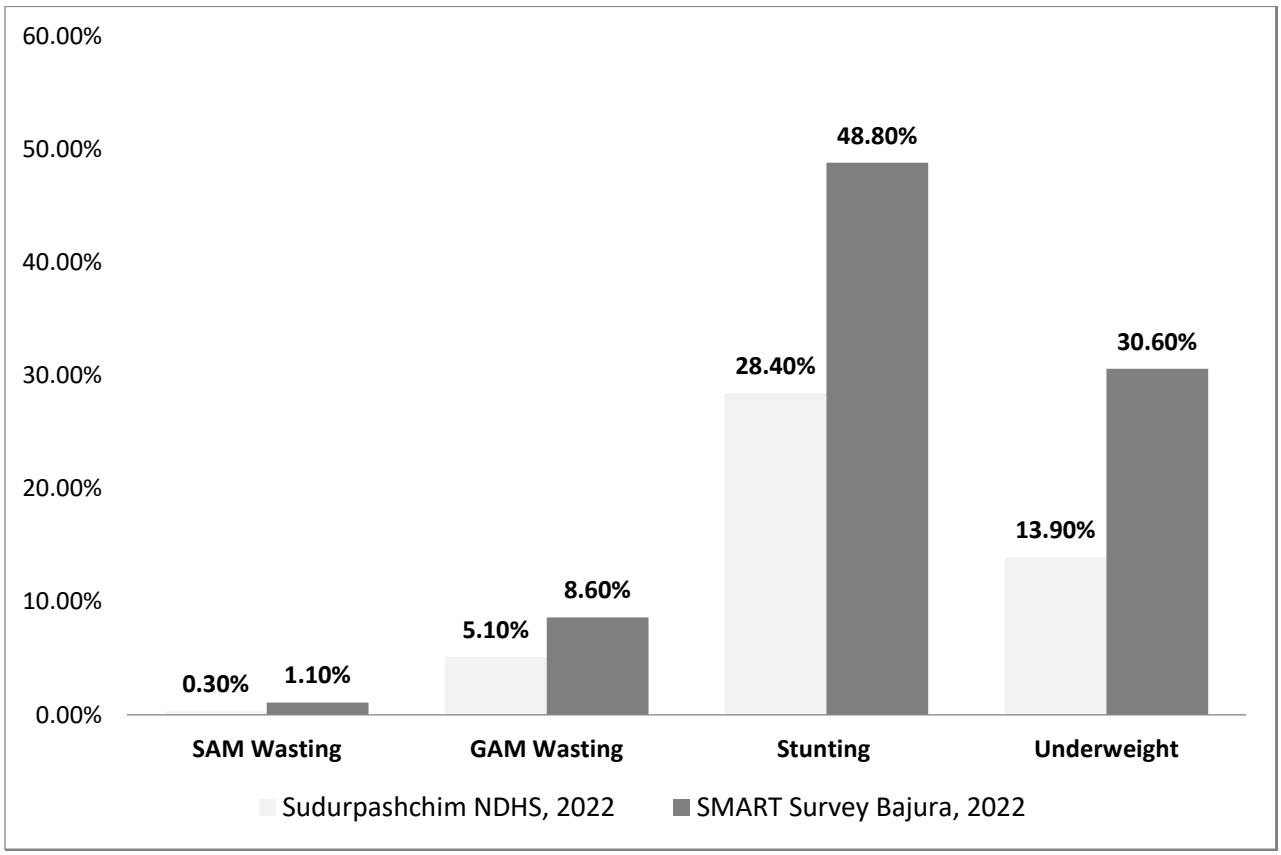
Table 3.13: Symptom breakdown in the children in the two weeks prior to interview (n=467)

	6-59 months
Diarrhoea	6.6% (95% C.I.)
Respiratory	15.8% (95% C.I.)
Fever	33.6% (95% C.I.)
Pneumonia	1.7% (95% C.I.)

Malaria	0.9% (95% C.I.)
Other	3.6% (95% C.I.)

Overall survey data quality was 24% which is acceptable. Boys and girls were equally represented in the sample (p=0.431).

Figure 5: comparison of nutritional status of smart survey with NDHS, 2022



Various factors associated with nutritional status:

1. In terms of Wasting.

Category	Variable	Wasting		Chi-square	Degree of freedom	P-value
		Yes (%)	NO (%)			
Age Category	6-23 Months	12	88	4.852	1	0.028
	24-59 Months	6.2	93.8			
Sources of Income	Agriculture	8.7	91.3	0.091	1	0.763
	Non- Agriculture	7.7	92.3			
Type of family	Joint	8.2	91.8	0.294	1	0.588
	Nuclear	9.9	90.1			
Classification of Caste	Dalit	10.6	89.4	1.325	2	0.516
	Brahman/Chhetri	7.5	92.5			
	Others	11.1	88.9			
Types of food Consumed	Vitamin A rich consumed	8.3	91.7	0.005	1	0.945
	Vitamin A rich not consumed	8.6	91.4			
	Dairy products consumed	8.2	91.8	0.016	1	0.900
	Dairy products not consumed	8.6	91.4			
	Grain/roots/tubers	11.9	88.1	4.087	1	0.043
	Grain/roots/tubers not consumed	6.5	93.5			
	Egg consumed	8.8	91.2	1.055	1	0.304
	Egg not consumed	0	100			
	Junk Food consumed	10.5	89.5	0.319	1	0.572
	Junk food not consumed	8.3	91.7			
Minimum Dietary Diversity	Minimum Dietary Diversity	12.5	87.5	0.679	1	0.410
	No minimum dietary	8.3	91.7			

Kitchen Garden	With Kitchen Garden	10	90	1.71	1	0.191
	Without Kitchen Garden	6.5	93.5			
Food shortage	Facing Food shortage	10.5	89.5	1.711	1	0.191
	No Food shortage	7.1	92.9			

2. In terms of stunting

Category	Variable	Stunting		Chi-square	Degree of freedom	P-value
		Yes	NO			
Age Category	6-23 Months	33.8%	48.1%	9.918	1	0.002
	24-59 Months	66.2%	51.9%			
Sources of Income	Agriculture	49.6%	50.4%	0.585	1	0.444
	Non- Agriculture	44.9%	55.1%			
Type of family	Joint	49.2%	50.8%	0.087	1	0.768
	Nuclear	47.5%	52.5%			
Classification of Caste	Dalit	52.1%	47.9%	2.390	2	0.303
	Brahman/Chhetri	48.2%	51.8%			
	Others	33.3%	66.7%			
Types of food Consumed	Vitamin A rich	30%	70%	9.762	1	0.002
	Vitamin A rich not consumed	51.6%	48.4%			
	Dairy products	36.1%	63.9%	7.953	1	0.005
	Dairy products not consumed	52.2%	47.8%			
	Grain/roots/tubers	40.3%	59.7%	8.131	1	0.004
	Grain/roots/tubers not consumed	54.0%	46.0%			
Minimum Dietary Diversity	Minimum Dietary Diversity	50%	50%	0.019	1	0.89
	No minimum dietary	48.7%	51.3%			
Kitchen Garden	With Kitchen Garden	44.1%	55.9%	5.683	1	0.017

	Without Kitchen Garden	55.3%	44.7%			
Food shortage	Facing Food shortage	53.3%	46.7%	3.126	1	0.077
	No Food shortage	45.1%	54.9%			

During the statistical analysis it was found that age category (0.002), vitamin A rich food consumed (0.002), dairy product food (0.005), grain/root/tubers (0.004), and households having kitchen garden (0.017) are found statistically significant and these are the associated factors for stunting. Data shows that in family income source (agriculture 0.444), type of family (nuclear 0.768), classification of cast (Dalit 0.303), types of food consumed (junk foods 0.279), minimum dietary diversity (0.089) and Facing Food shortage (0.077) are not associated factors with stunting.

3. In terms of Underweight

Category	Variable	Underweight		Chi-square	Degree of freedom	P-value
		Yes (%)	NO (%)			
Age Category	6-23 Months	30.7	69.3	0.002	1	0.966
	24-59 Months	30.5	69.5			
Sources of Income	Agriculture	32.4	67.6	3.434	1	0.064
	Non- Agriculture	21.8	78.2			
Type of family	Joint	31.1	68.9	0.221	1	0.638
	Nuclear	28.7	71.3			
Classification of Caste	Dalit	41.5	58.5	11.588	2	0.003
	Brahman/Chhetri	26.1	73.9			
	Others	22.2	77.8			
Types of food Consumed	Vitamin A rich consumed	20	80	3.656	1	0.056
	Vitamin A not consumed	32.2	67.8			
	Dairy products Consumed	22.7	77.3	3.634	1	0.057
	Dairy products not Consumed	32.7	67.3			
	Grain/roots/tubers consumed	30.1	69.9	0.034	1	0.853
	Grain/roots/tubers	30.9	69.1			

	not consumed					
	Junk Food consumed	28.1	71.9	0.199	1	0.656
	Junk food not consumed	31	69			
Minimum Dietary Diversity	Minimum Dietary Diversity	37.5	62.5	0.765	1	0.382
	No minimum dietary	30.1	69.9			
Kitchen Garden	With Kitchen Garden	27.2	72.8	3.376	1	0.066
	Without Kitchen Garden	35.2	64.8			
Food shortage	Facing Food shortage	34.8	65.2	3.221	1	0.073
	No Food shortage	27.1	72.9			

Local Level wise nutritional status:

Crosstab of Local Level and GAM of Wasting

The following table shows the GAM of Wasting of all nine local levels of Bajura districts. Pearson Chi-Square value is 9.652 with 8 degree of freedom and p-value is 0.290.

			GAM of Wasting		Total
			Malnourished children	Normal children	
LLG	badhimalika	Count	5	46	51
		% within LLG	9.8%	90.2%	100.0%
	Budhiganga	Count	4	63	67
		% within LLG	6.0%	94.0%	100.0%
	Budhinanda	Count	6	46	52
		% within LLG	11.5%	88.5%	100.0%
	Gaumul	Count	1	36	37
		% within LLG	2.7%	97.3%	100.0%
	Himali	Count	4	31	35
		% within LLG	11.4%	88.6%	100.0%
	Jagannath	Count	6	37	43
		% within LLG	14.0%	86.0%	100.0%
	Khaptad	Count	1	62	63

	Chededaha	% within LLG	1.6%	98.4%	100.0%
	swamikartik	Count	5	38	43
		% within LLG	11.6%	88.4%	100.0%
	Triveni	Count	8	68	76
		% within LLG	10.5%	89.5%	100.0%
Total		Count	40	427	467
		% within LLG	8.6%	91.4%	100.0%

Crosstab of Local Level and Prevalence of Stunting

The following table shows the Prevalence of Stunting of all nine local levels of Bajura districts. Pearson Chi-Square value is 13.910 with 8 degree of freedom and p-value is 0.084.

Crosstab

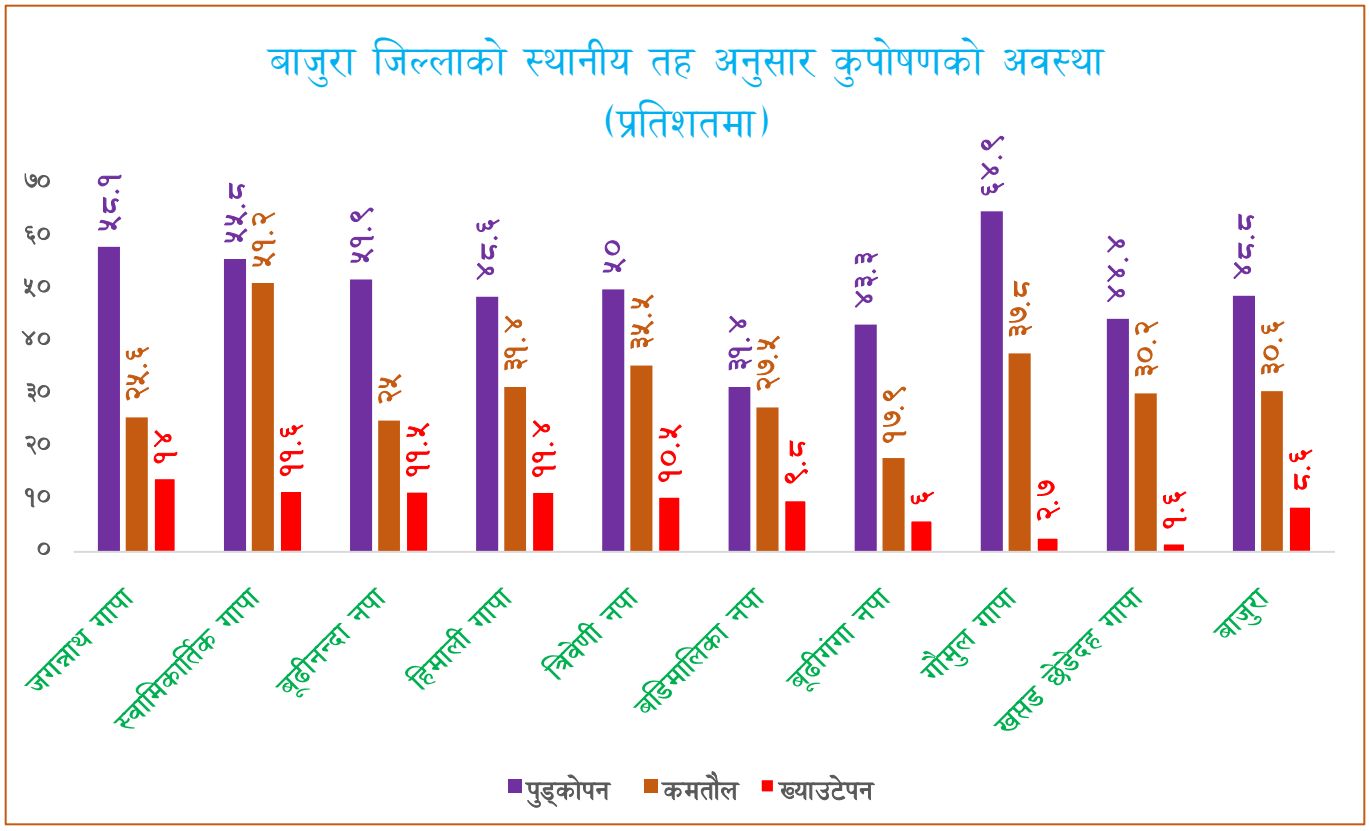
			Prevalence of Stunting		Total
			Stunted children	Normal children	
LLG	badhimalika	Count	16	35	51
		% within LLG	31.4%	68.6%	100.0%
	Budhiganga	Count	29	38	67
		% within LLG	43.3%	56.7%	100.0%
	Budhinanda	Count	27	25	52
		% within LLG	51.9%	48.1%	100.0%
	Gaumul	Count	24	13	37
		% within LLG	64.9%	35.1%	100.0%
	Himali	Count	17	18	35
		% within LLG	48.6%	51.4%	100.0%
	Jagannath	Count	25	18	43
		% within LLG	58.1%	41.9%	100.0%
	Khaptad Chededaha	Count	28	35	63
		% within LLG	44.4%	55.6%	100.0%
	swamikartik	Count	24	19	43
		% within LLG	55.8%	44.2%	100.0%
	Triveni	Count	38	38	76
		% within LLG	50.0%	50.0%	100.0%
Total		Count	228	239	467
		% within LLG	48.8%	51.2%	100.0%

Crosstab of Local Level and Prevalence of Underweight

The following table shows the Prevalence of Stunting of all nine local levels of Bajura districts. Pearson Chi-Square value is 16.950 with 8 degrees of freedom and p-value is 0.031.

Crosstab					
			Prevalence of Underweight		Total
			Underweight children	Normal children	
LLG	badhimalika	Count	14	37	51
		% within LLG	27.5%	72.5%	100.0%
	Budhiganga	Count	12	55	67
		% within LLG	17.9%	82.1%	100.0%
	Budhinanda	Count	13	39	52
		% within LLG	25.0%	75.0%	100.0%
	Gaumul	Count	14	23	37
		% within LLG	37.8%	62.2%	100.0%
	Himali	Count	11	24	35
		% within LLG	31.4%	68.6%	100.0%
	Jagannath	Count	11	32	43
		% within LLG	25.6%	74.4%	100.0%
	Khaptad Chededaha	Count	19	44	63
		% within LLG	30.2%	69.8%	100.0%
	swamikartik	Count	22	21	43
		% within LLG	51.2%	48.8%	100.0%
	Triveni	Count	27	49	76
		% within LLG	35.5%	64.5%	100.0%
Total		Count	143	324	467
		% within LLG	30.6%	69.4%	100.0%

बाजुरा जिल्लाको स्थानीय तह अनुसार कुपोषणको अवस्था



4. Conclusions

The nutrition status of children aged 6-59 months in Bajura district has to be seriously considered. The prevalence of stunting is higher in girls (49.3%), in comparison of boys (48.3%) and 36.0%, children are stunted in the age group of 54-59 months, which is highest.

By gender, wasting is higher in boys (9.5%) in comparison to girls (7.6%) but severity is higher in girls (1.3%) Under weight is more problematic in girls (31.1%) in comparison of boys (30.2%). The underweight is seen increasing with age group, which is highest in 54 to 59 months age group i.e. (6.8%).

In conclusion, the overall nutrition status in Bajura continues to be concerning, unstable and needs scale up of high impact nutrition interventions to meet the increasing needs, especially integrated malnutrition prevention interventions focusing on the first 1000 days of life, strengthening early detection and referral for acute malnutrition among women and children, and providing quality and timely treatment of all forms of malnutrition. Thus, financial investment is critical to ensuring the availability of relevant human resources, a core pipeline for nutrition and strategic partnerships for service delivery at scale.

The prevalence of global acute malnutrition is poor as per the WHO acute malnutrition threshold of (5-9%) which indicates a poor nutrition situation. Thus, there is a need to scale up malnutrition treatment programs (SC, OTP & TSFP) in order to reduce the high rate of acute malnutrition. According to the survey findings, underweight and stunting are major concerns. Both underweight and stunting rates in Bajura were classified as very high (>40 for stunting, >30 for underweight) as per the WHO thresholds. It is crucial that measures are put in place urgently in order to tackle the high underweight and stunting rates. In this regard, activities should increasingly focus on underweight and stunting reduction and prevention, alongside interventions that are implemented to reduce acute malnutrition. From a health perspective, morbidity is a concern with more than two-fifths (41.5%) of the children reportedly suffering from various illnesses in the two weeks preceding the survey. Morbidity is a major contributing factor to both acute and chronic malnutrition. Health interventions should be implemented swiftly to treat and prevent childhood morbidity. Health education and awareness raising are needed in order to encourage mothers and caregivers to use the available health services. Infant and young child feeding practices in the survey area are below accepted standards, thus putting under five children at an increased risk of morbidity and malnutrition. This calls for the promotion of infant and young child feeding behaviours as well as expanding and strengthening existing IYCF programs.

5. Recommendations and Priorities

- The problem is connected with multiple factors. The health sector alone cannot minimize the risk of poor health and nutrition conditions, multi-sectoral interventions need to be implemented in coordination with different ministries and sectors.
- Nutrition-sensitive interventions (MSNP) i.e., combined interventions from different sectors that would lead to a reduction in chronic and moderate acute malnutrition.
- Continue the implementation of therapeutic feeding programs for severely malnourished children through health facilities/OTC centers.
- Integrate the growth monitoring and promotion activities with the CB-IMNCI program in health facilities for children less than two years old.
- Advocate local government and other relevant stakeholders to invest in both nutrition-specific and sensitive interventions
- Promote home gardening to improve dietary diversity, especially among children, contributing to good nutrition status
- Implement social and behavior change communication interventions focusing on essential nutrition actions.
- Continued provision and scaling up of primary health care or mobile clinics to increase access of the population to treat and prevent illnesses like diarrhea, upper respiratory infections, and fever.

- Expand hygiene promotion, behavior change for household and child hygiene practices, and prevention of infections, given that diarrheal diseases are a key factor in stunting.
- Use social protection programs to improve caregivers' knowledge about young child feeding and maternal nutrition.
- Increase the capacity of community health workers to identify and refer malnutrition cases to treatment centers.
- Increase the implementation of joint nutrition and WASH programs and increase the coverage of handwashing facilities and WASH services in all households, including informal settlements (safe water and sanitation).
- Improve the use of school platforms to support efforts to reach adolescent girls with school feeding and messaging around nutrition and reproductive health.
- Survey results show stunting is a major concern in Bajura. The provision of health education to mothers and caregivers on optimal childcare and feeding practices should be intensified. In addition, mothers and caregivers should be sensitized to the value of seeking health services, and proper sanitation and hygiene practices, as these measures go a long way in reducing the incidence of both acute and chronic malnutrition.
- Conduct regular SMART surveys to monitor the nutrition situation. The current survey is the first successful assessment that was conducted in the area to establish a baseline for future reference.

6. References

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8. https://www.unicef.org/nepal/media/11081/file/Nepal%20MICS%202019%20Final%20Report.pdf
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7. Appendicies

Appendix 1

Plausibility Report

Standard/Reference used for z-score calculation: WHO standards 2006

(If it is not mentioned, flagged data is included in the evaluation. Some parts of this plausibility report are more for advanced users and can be skipped for a standard evaluation)

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	Score
Flagged data	Incl	%	0-2.5	>2.5-5.0		>5.0-7.5	>7.5
(% of out of range subjects)			0	5		10	20	**0** (0.0 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)	0	2		4	10	**0** (p=0.431)	
Age ratio(6-29 vs 30-59)	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)	0	2		4	10	**10** (p=0.000)	
Dig pref score - weight	Incl	#	0-7	8-12	13-20	> 20	
		0	2	4	10	**0** (6)	
Dig pref score - height	Incl	#	0-7	8-12	13-20	> 20	
		0	2	4	10	**10** (31)	
Dig pref score - MUAC	Incl	#	0-7	8-12	13-20	> 20	
		0	2	4	10	**4** (14)	
Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>=1.20	
.		and	and	and	or		
.	Excl	SD	>0.9	>0.85	>0.80	<=0.80	
		0	5	10	20	**0** (0.94)	
Skewness WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
		0	1	3	5	**0** (0.04)	
Kurtosis WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
		0	1	3	5	**0** (0.07)	
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<=0.001	
		0	1	3	5	**0** (p=0.704)	
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**24** %

The overall score of this survey is 24 %, this is acceptable.

Appendix 2

Assignment of Clusters

SN	Geographical unit	Ward no.	Population size	Assigned cluster
1	Himali RM	1	1022	1
2	Himali RM	2	963	
3	Himali RM	3	849	
4	Himali RM	4	1285	
5	Himali RM	5	1747	2
6	Himali RM	6	2912	3
7	Himali RM	7	811	
8	Gaumul RM	1	1359	
9	Gaumul RM	2	1700	4
10	Gaumul RM	3	1527	
11	Gaumul RM	4	1562	
12	Gaumul RM	5	1215	5
13	Gaumul RM	6	1435	
14	Budhinanda RM	1	2647	6
15	Budhinanda RM	2	1661	
16	Budhinanda RM	3	2825	7
17	Budhinanda RM	4	2049	
18	Budhinanda RM	5	1742	8 (RC)
19	Budhinanda RM	6	1621	
20	Budhinanda RM	7	2245	9
21	Budhinanda RM	8	1603	
22	Budhinanda RM	9	1539	10
23	Budhinanda RM	10	1656	
24	Swamikartik RM	1	3778	11

25	Swamikartik RM	2	2870	12
26	Swamikartik RM	3	3479	13
27	Swamikartik RM	4	2123	
28	Swamikartik RM	5	1521	
29	Jagannath RM	1	1830	14
30	Jagannath RM	2	1435	
31	Jagannath RM	3	1124	15
32	Jagannath RM	4	1673	
33	Jagannath RM	5	1313	
34	Jagannath RM	6	1676	16
35	Badimalika Mun	1	1862	
36	Badimalika Mun	2	1107	
37	Badimalika Mun	3	1107	17
38	Badimalika Mun	4	912	
39	Badimalika Mun	5	1019	
40	Badimalika Mun	6	2220	18
41	Badimalika Mun	7	2326	
42	Badimalika Mun	8	3075	19 (RC)
43	Badimalika Mun	9	3642	20
44	Khaptad Chededaha RM	1	3318	21
45	Khaptad Chededaha RM	2	2604	22
46	Khaptad Chededaha RM	3	2758	
47	Khaptad Chededaha RM	4	2561	23
48	Khaptad Chededaha RM	5	3583	24
49	Khaptad Chededaha RM	6	1845	
50	Khaptad Chededaha RM	7	2589	25 (RC)
51	Budhiganga Mun	1	2189	

52	Budhiganga Mun	2	2200	26
53	Budhiganga Mun	3	2150	27
54	Budhiganga Mun	4	2620	
55	Budhiganga Mun	5	1543	28
56	Budhiganga Mun	6	1862	
57	Budhiganga Mun	7	2311	29
58	Budhiganga Mun	8	1860	
59	Budhiganga Mun	9	2188	30 (RC)
60	Budhiganga Mun	10	3119	
61	Tribeni Mun	1	2236	31
62	Tribeni Mun	2	1807	
63	Tribeni Mun	3	1933	32
64	Tribeni Mun	4	2425	33 (RC)
65	Tribeni Mun	5	1158	
66	Tribeni Mun	6	3114	34
67	Tribeni Mun	7	1985	
68	Tribeni Mun	8	2081	35
69	Tribeni Mun	9	3258	

Appendix 3 : *List of Trainers and Enumerators*

सुदूरपश्चिम प्रदेश स्वास्थ्य निर्देशनालय द्वारा आयोजित SMART Survey **मा खटिने गणक तथा सुपरीवेक्षकहरुको विवरण।**

क स	नाम थर	पद। तह	स्वास्थ्य संस्था। पालिका	क्लस्टर न	
सुपरभाइजरहरु					
१	दीपक शाह		बुढीगंगा न.पा.		
२	अ ोम जगं शाही		बुढीनन्दा न.पा.		
३	पारष शाही		स्वामीकार्तिक गापा		
४	दिपक जोशी		स्वा बा बाजुरा		
५	लाल ब खड्का		स्वा बा बाजुरा		
गणकहरु					
१	शंकर बिष्ट	हे अ, पाचौ	छतारा स्वाचो त्रिबेणी	१९, २०, २१ र २२	
२	हस्त खडायत	अहेब	बाजुरा स्वा टांटे, बुढिगंगा	१९, २०, २१ र २२	
३	भेस राज पण्डित	जस्वानी	बुढिगंगा स्वा.चौ, बडिमालिका	४ र ५	
४	बद्रि सुनार	जस्वानी	गुदुखाती स्वा खसडछेडेदह	४ र ५	
५	बद्रि बहादुर शाही	सिअहेब छैठौ	साप्पाटा स्वाचै, स्वामीकार्तिक	१३, १४ र १५	
६	धर्म बहादुर खत्री	हे अ, पाचौ	दहकोट स्वा, गौमुल	१३, १४ र १५	
७	हरिलाल जैसि	सिअहेब पाचौ	ब्रह्मतोला स्वा बुढिगंगा	२७, २८, २९ र ३०	
८	गणेश रोकाया	हे अ, पाचौ	स्वा का बाजुरा	२७, २८, २९ र ३०	
९	कुल बहादुर रावल	सिअहेब पाचौ	देवलसैन स्वा बुढिगंगा	१६, १७ र १८	
१०	बिष्णु खड्का	सिअहेब पाचौ	अटिचोर स्वा खसडछेडेदह	१६, १७ र १८	
११	सिर्जना कुमारी रोकाया	सिअहेब पाचौ	तोलि स्वा चो त्रिवेणी	२३, २४, २५ र २६	
१२	प्रकाश विक्रम शाही	हे अ, पाचौ	कैलाशमाण्डौ स्वा त्रिबेणी	२३, २४, २५ र २६	
१३	तिलक राज न्यौपाने	हे अ, पाचौ	जुगाडा स्वा.चौ, बडिमालिका	६ र ७	
१४	करिष्मा लोहार	अनमी	जगन्नाथ स्वा जगन्नाथ	६ र ७	
१५	प्रेम ब विश्वकर्मा	हे अ, पाचौ	मानाकोट स्वा, गौमुल	८ र ९	
१६	नर बहादुर बुढा	अहेब	माझपाली अस्वाके, गौमुल	८ र ९	
१७	कमल बहादुर रोकाया	अहेब	धिम अस्वासेके, हिमाली	१०, ११ र १२	
१८	देवेन्द्र अधिकारी	अहेब	बांधु अस्वासेके, हिमाली	१०, ११ र १२	
१९	धीर बिक	अहेब	स्वामीकार्तिक खापर गापा	२ र ३	
२०	कुबेर भण्डारी	अहेब	हुनीमहती स्वा जगन्नाथ	२ र ३	
२१	कालु सिहं विक	हे अ, पाचौ	पाण्डुसेन स्वा बुढिनन्दा	१	
२२	लक्ष्मी बुमी	हे अ, पाचौ	बांधु स्वा, बुढिनन्दा	१	
२३	अनिता कुमारी थापा	अ न मी	बाजुरा अस्पताल		
२४	लिसा शर्मा	अ न मी	बाजुरा अस्पताल		

Appendix 4

Table 4.5: Prevalence of combined GAM and SAM based on WHZ and MUAC cut off's (and/or oedema) and by sex*

	All n = 467	Boys n = 242	Girls n = 225
Prevalence of combined GAM (WHZ <-2 and/or MUAC < 125 mm and/or oedema)	(79) 16.9 % (13.6 - 21.1 95% C.I.)	(32) 13.2 % (9.6 - 17.9 95% C.I.)	(47) 20.9 % (15.6 - 27.8 95% C.I.)
Prevalence of combined SAM (WHZ < -3 and/or MUAC < 115 mm and/or oedema	(4) 0.9 % (0.3 - 2.2 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(4) 1.8 % (0.7 - 4.4 95% C.I.)

*With SMART or WHO flags a missing MUAC/WHZ or not plausible WHZ value is considered as normal when the other value is available

Table 4.6: Detailed numbers for combined GAM and SAM

	GAM		SAM	
	no.	%	no.	%
MUAC	35	7.5	4	0.9
WHZ	22	4.7	0	0.0
Both	22	4.7	0	0.0
Edema	0	0.0	0	0.0
Total	79	16.9	4	0.9

Total population: 467

Table 4.7: Prevalence of acute malnutrition based on the percentage of the median and/or oedema

	n = 467
Prevalence of global acute malnutrition (<80% and/or oedema)	(22) 4.7 % (3.0 - 7.4 95% C.I.)
Prevalence of moderate acute malnutrition (<80% and >= 70%, no oedema)	(22) 4.7 % (3.0 - 7.4 95% C.I.)
Prevalence of severe acute malnutrition (<70% and/or oedema)	(0) 0.0 % (0.0 - 0.0 95% C.I.)

Table 4.8: Prevalence of malnutrition by age, based on weight-for-height percentage of the median and oedema

		Severe wasting (<70% median)		Moderate wasting (>=70% and <80% median)		Normal (> =80% median)		Oedema	
Age (mo)	Total no.	No.	%	No.	%	No.	%	No.	%
6-17	133	0	0.0	9	6.8	124	93.2	0	0.0
18-29	146	0	0.0	8	5.5	138	94.5	0	0.0
30-41	81	0	0.0	1	1.2	80	98.8	0	0.0
42-53	82	0	0.0	4	4.9	78	95.1	0	0.0
54-59	25	0	0.0	0	0.0	25	100.0	0	0.0
Total	467	0	0.0	22	4.7	445	95.3	0	0.0

Table 4.9: Prevalence of underweight based on weight-for-age z-scores by sex

	All n = 467	Boys n = 242	Girls n = 225
Prevalence of underweight (<-2 z-score)	(199) 42.6 % (37.9 - 47.5 95% C.I.)	(98) 40.5 % (33.8 - 47.5 95% C.I.)	(101) 44.9 % (38.3 - 51.7 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(170) 36.4 % (31.8 - 41.2 95% C.I.)	(85) 35.1 % (28.2 - 42.8 95% C.I.)	(85) 37.8 % (32.0 - 43.9 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(29) 6.2 % (4.5 - 8.6 95% C.I.)	(13) 5.4 % (3.2 - 8.8 95% C.I.)	(16) 7.1 % (4.4 - 11.4 95% C.I.)

Table 4.10: Prevalence of underweight by age, based on weight-for-age z-score

		Severe underweight (<-3 z-score)		Moderate underweight (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
Age	Total	No.	%	No.	%	No.	%	No.	%

(mo)	no.								
6-17	133	8	6.0	49	36.8	76	57.1	0	0.0
18-29	146	13	8.9	51	34.9	82	56.2	0	0.0
30-41	81	3	3.7	30	37.0	48	59.3	0	0.0
42-53	82	4	4.9	28	34.1	50	61.0	0	0.0
54-59	25	1	4.0	12	48.0	12	48.0	0	0.0
Total	467	29	6.2	170	36.4	268	57.4	0	0.0

Table 4.11: Prevalence of stunting based on height-for-age z-scores and by sex

	All n = 467	Boys n = 242	Girls n = 225
Prevalence of stunting (<-2 z-score)	(201) 43.0 % (37.9 - 48.4 95% C.I.)	(95) 39.3 % (32.1 - 46.9 95% C.I.)	(106) 47.1 % (40.1 - 54.3 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(150) 32.1 % (27.9 - 36.6 95% C.I.)	(75) 31.0 % (25.4 - 37.2 95% C.I.)	(75) 33.3 % (27.5 - 39.8 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(51) 10.9 % (8.3 - 14.2 95% C.I.)	(20) 8.3 % (5.3 - 12.7 95% C.I.)	(31) 13.8 % (9.9 - 18.9 95% C.I.)

Table 4.12: Prevalence of stunting by age based on height-for-age z-scores

		Severe stunting (<-3 z-score)		Moderate stunting (>= -3 and <-2 z-score)		Normal (> = -2 z score)	
Age (mo)	Total no.	No.	%	No.	%	No.	%
6-17	133	10	7.5	36	27.1	87	65.4
18-29	146	17	11.6	42	28.8	87	59.6
30-41	81	9	11.1	30	37.0	42	51.9
42-53	82	6	7.3	32	39.0	44	53.7
54-59	25	9	36.0	10	40.0	6	24.0
Total	467	51	10.9	150	32.1	266	57.0

Table 4.13: Mean z-scores, Design Effects and excluded subjects

Indicator	n	Mean z-scores	Design Effect (z-	z-scores not	z-scores out of

		± SD	score < -2)	available*	range
Weight-for-Height	467	-0.95±0.83	1.00	0	0
Weight-for-Age	467	-1.81±0.84	1.06	0	0
Height-for-Age	467	-1.73±1.07	1.27	0	0

* contains for WHZ and WAZ the children with edema.

status of Child morbidity, households having kitchen garden and food shortage in last three months:

Child Morbidity

The following table shows the child morbidity of all nine local levels of Bajura districts. Pearson Chi-Square value is 22.538 with 8 degree of freedom and p-value is 0.004.

Crosstab

			Child Morbidity		Total
			Yes	No	
LLG	badhimalika	Count	18	33	51
		% within LLG	35.3%	64.7%	100.0%
	Budhiganga	Count	28	39	67
		% within LLG	41.8%	58.2%	100.0%
	Budhinanda	Count	33	19	52
		% within LLG	63.5%	36.5%	100.0%
	Gaumul	Count	16	21	37
		% within LLG	43.2%	56.8%	100.0%
	Himali	Count	14	21	35
		% within LLG	40.0%	60.0%	100.0%
	Jagannath	Count	25	18	43
		% within LLG	58.1%	41.9%	100.0%
	Khaptad Chededaha	Count	20	43	63
		% within LLG	31.7%	68.3%	100.0%
	swamikartik	Count	12	31	43
		% within LLG	27.9%	72.1%	100.0%
	Triveni	Count	28	48	76
		% within LLG	36.8%	63.2%	100.0%
Total		Count	194	273	467
		% within LLG	41.5%	58.5%	100.0%

Food shortage in last 3 months

The following table shows the food shorted in last three months prior to the survey of all nine local levels of Bajura districts. Pearson Chi-Square value is 179.512 with 8 degree of freedom and p-value is 0.00.

Crosstab

			Food sortage in last 3 months		Total
			Yes	No	
LLG	badhimalika	Count	0	51	51
		% within LLG	0.0%	100.0%	100.0%
	Budhiganga	Count	49	18	67
		% within LLG	73.1%	26.9%	100.0%
	Budhinanda	Count	32	20	52
		% within LLG	61.5%	38.5%	100.0%
	Gaumul	Count	7	30	37
		% within LLG	18.9%	81.1%	100.0%
	Himali	Count	22	13	35
		% within LLG	62.9%	37.1%	100.0%
	Jagannath	Count	41	2	43
		% within LLG	95.3%	4.7%	100.0%
	Khaptad Chededaha	Count	41	22	63
		% within LLG	65.1%	34.9%	100.0%
	swamikartik	Count	8	35	43
		% within LLG	18.6%	81.4%	100.0%
	Triveni	Count	10	64	74
		% within LLG	13.5%	86.5%	100.0%
Total		Count	210	255	465
		% within LLG	45.2%	54.8%	100.0%

Households having or not having their own kitchen garden:
The following table shows the Households having or not their own kitchen garden of all nine local levels of Bajura districts. Pearson Chi-Square value is 31.508 with 8 degree of freedom and p-value is 0.00.

Crosstab					
			Having kitchen garden		Total
			Yes	No	
LLG	badhimalika	Count	32	18	50
		% within LLG	64.0%	36.0%	100.0%
	Budhiganga	Count	33	32	65
		% within LLG	50.8%	49.2%	100.0%
	Budhinanda	Count	32	19	51
		% within LLG	62.7%	37.3%	100.0%
	Gaumul	Count	31	6	37
		% within LLG	83.8%	16.2%	100.0%
	Himali	Count	21	14	35
		% within LLG	60.0%	40.0%	100.0%
	Jagannath	Count	22	19	41
		% within LLG	53.7%	46.3%	100.0%
	Khaptad Chededaha	Count	24	39	63
		% within LLG	38.1%	61.9%	100.0%
	swamikartik	Count	16	26	42
		% within LLG	38.1%	61.9%	100.0%
	Triveni	Count	50	26	76
		% within LLG	65.8%	34.2%	100.0%
Total		Count	261	199	460
		% within LLG	56.7%	43.3%	100.0%

Appendix 5

Maps of area

The map shown above shows the distribution of selected clusters(wards) for SMART survey in Bajura district.

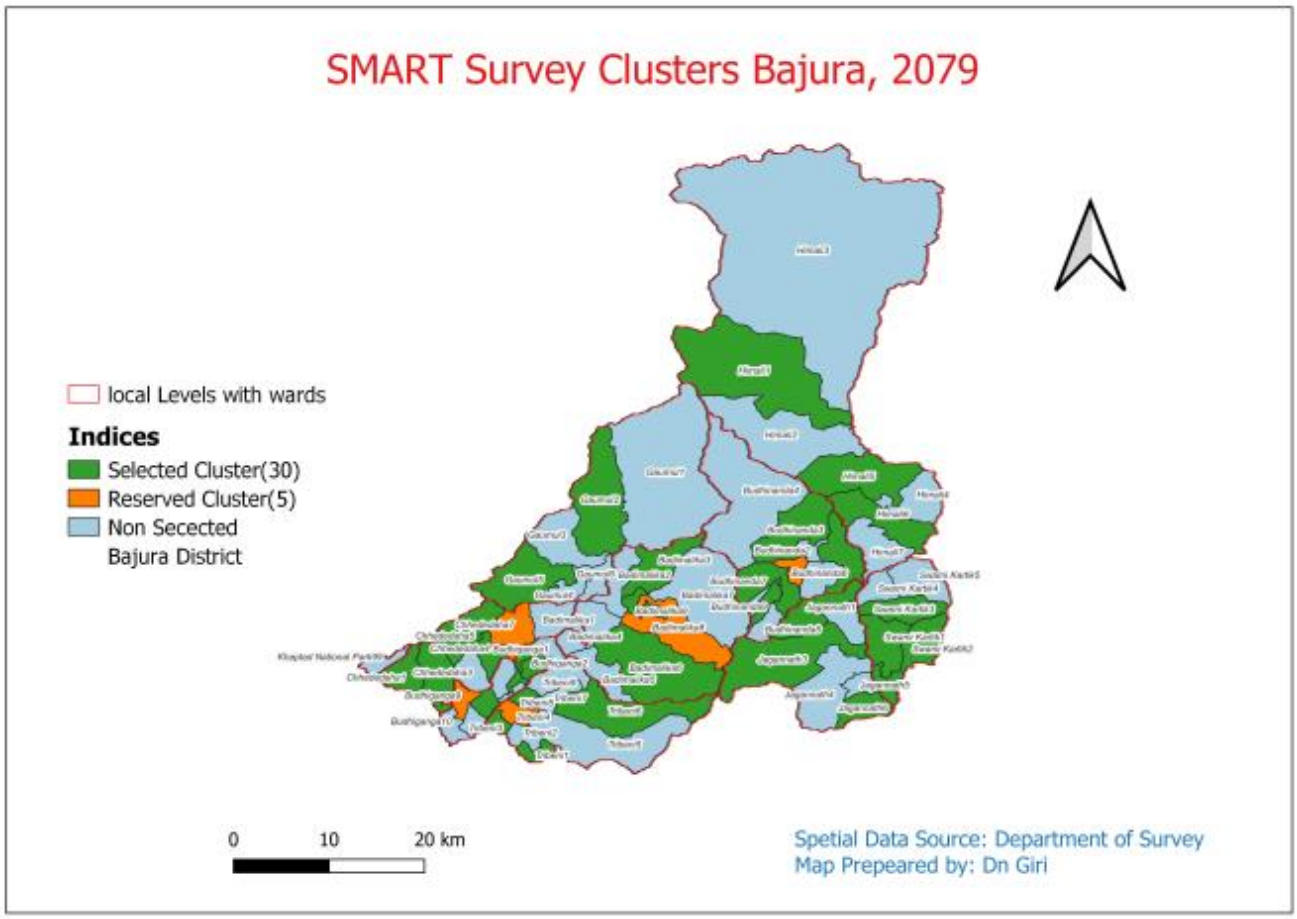


Figure 6: SMART Survey Clusters Map

Appendix 6

SMART Survey Training Schedule

Venue: Martadi, Bajura Date: 09-13 Sept 2022

Day	*Time*	*Subject/Topic*	*Methodology*
1st	08:30-08:45	Opening	
	08:45-09:00	Introduction of participants	
	09:00-09:45	Enumerators and Supervisor's training overview	Presentation
	09:45-10:30	Survey team	
	10:30-10:45	**Break**	
	10:45-11:30	Basic knowledge on malnutrition	Presentation
		Anthropometric measurement	
	11:30-13:00	Weight	Presentation, Group work
	13:00-14:00	**Lunch**	
	14:00-15:15	Height/Length	Presentation, Group work
	15:15-15:30	**Break**	
	15:30-16:15	MUAC	Presentation, Group work
	16:15-17:00	Oedema	Presentation, Group work
2nd	08:00-08:30	Interpretation of measurements	Presentation
	08:30-12:00	Food Security and Nutrition	Presentation
	12:00-13:00	**Break** and discussion	
	13:00-14:00	**Lunch**	
	14:00-15:00	Quality checks (including standardization test organization)	
	15:00-15:15	**Break**	
	15:15-16:00	Mock standardization test	Group work
	16:00-17:00	Simulation of interview	Role play
3rd	08:00-13:00	Standardization test	Practice
	13:00-14:00	**Lunch**	
	14:00-15:00	Field Procedure (SMART Survey)	Presentation and discussion
	15:00-15:15	**Break**	
	15:15-17:00	Methodology: sampling	Presentation and discussion
4th	08:00-13:00	Review of Standardization	Presentation and discussion
	13:00-14:00	**Lunch**	
	14:00-15:00	Simulation of interview and anthropometry	internal meeting for team formation
	15:00-15:15	**Break**	
	15:15-17:00	Preparation for Survey	
5th		supervisor's training and Field practices	

Appendix 7

Questionnaire of the Survey

सुदूरपश्चिम प्रदेश सरकार
सामाजिक विकास मन्त्रालय
स्वास्थ्य निर्देशनालय डोटी
र
यूनिसेफ नेपालद्वारा
गरिएको बाजुरा जिल्लाका ६ देखी ५९ महिना सम्मका बालबालिकाको पोषण अवस्थाको सर्वेक्षण प्रश्नावली, २०७९

नमस्ते मेरो नाम ...., सुदूरपश्चिम प्रदेश स्वास्थ्य निर्देशनालय, राजपुर, डोटीले यस जिल्लाको ६ देखि ५९ महिनासम्मका बालबालिका र हाल गर्भवती महिलाहरूको स्वास्थ्य र पोषण अवस्थाबारे सर्वेक्षण गरिरहेको छ । यस उद्देश्यका लागि हामी तपाईको घरमा भएका ६ देखि ५९ महिनासम्मका बालबालिका र गर्भवती महिलाहरूको जानकारी सङ्कलन गर्न चाहन्छौं। हाम्रो अन्तर्वार्ता लगभग १ घण्टा को हुनेछ।

यदि तपाईं यस अध्ययनमा भाग लिने निर्णय गर्नुहुन्छ भने तपाईंलाई कुनै जोखिम हुनेछैन भन्ने विश्वास दिलाउन चाहन्छौं। यस सर्वेक्षणमा तपाईको सहभागिता स्वैच्छिक हो। यदि तपाई कुनै कारणले प्रश्नको जवाफ दिन चाहनुहुन्न भने, मलाई थाहा दिनुहोस् र म अर्को प्रश्नमा जानेछु। तपाई कुनै पनि समयमा अन्तर्वार्ता रोक्न सक्नुहुन्छ।हामी आशा गर्छौं कि तपाईले यस सर्वेक्षणमा भाग लिनुहुनेछ किनभने तपाईको विचारहरू महत्त्वपूर्ण छन्।तपाईको सहभागिता र तपाईंले हामीलाई प्रदान गर्ने सबै जानकारी पूर्ण रूपमा गोप्य रहनेछ। तपाईंका सबै प्रतिक्रियाहरू प्रतिवेदनका लागि प्रयोग हुनेछन् । तर तपाईको नाम र विवरणहरू कसैलाई पनि प्रयोग गर्न दिइने छैन।

थप जानकारीको लागि, तपाईले तथ्याकं अधिकृत, श्री धर्मानन्द गिरी, स्वास्थ्य निर्देशनालय(९८४९८६८८७७) वा ज्ञानेन्द्र दवाडी(९८५५०५७१०८) वा डा. संजय रिजाल, युनिसेफ (टेलिफोन: ०१-५५२३२००) लाई सम्पर्क गर्न सक्नुहुन्छ।

के म अन्तर्वार्ता सुरु गर्न सक्छु? ☐ गर्नसक्नु हुन्छ ।
☐ गर्नसक्नु हुन्न । ⟶ अन्त्य

मन्जुरीनामा

उत्तरदाताको सहमति:

मलाई मेरो कुनै पनि जिज्ञासा सोध्ने मौका दिइएको छ र त्यस्ता सबै प्रश्न वा जिज्ञासाहरूको जवाफ मेरो सन्तुष्टिमा दिइएको छ।
म थप बुझ्छु कि मेरो अभिलेखहरू गोप्य राखिनेछ र म कुनै पनि समय यो अध्ययनबाट पछि हट्न सक्छु। यस अध्ययनबाट मेरो फिर्ता वा मेरो भाग लिन अस्वीकारले मेरो सामान्य सेवाहरूलाई कुनै पनि हिसाबले असर गर्ने छैन। कुनै सोधपुछको अवस्थामा कसलाई सम्पर्क गर्ने भनेर मलाई मौखिक र लिखित रूपमा सूचित गरिएको छ। म यस अध्ययनमा स्वेच्छिक रूपमा भाग लिन सहमत छु।

_____
उत्तरदाताको नाम

_____ _____
उत्तरदाताको हस्ताक्षार मिति

गणकको प्रतिवद्दता:

मैले, अधोहस्ताक्षर, उत्तरदातालाई अध्ययनमा पालना गर्नुपर्ने प्रक्रियाहरू र उसले बुझ्ने भाषामा समावेश जोखिम र फाइदाहरू व्याख्या गरेको छु। म पुष्टि गर्छु कि उत्तरदाता पूर्ण रूपमा सूचित भइसकेपछि अध्ययनमा भाग लिन सहमत हुनुभएको छ। म सहभागीद्वारा प्रदान गरिएको जानकारी गोप्य राख्ने वाचा गर्दछु।

_____
गणकको नाम

_____ _____
गणकको हस्ताक्षार मिति

SMART Survey tool , Sep, 2022

परिचय	
१) जिल्लाको नाम:	
२) साविकको गा.वि.स.को नाम:	
३) नयाँ नगरपालिका/गाउँपालिकाको नाम:	
४) वडा नं.	
५) बसोबास गर्ने गाउँ/टोलको नाम:	
६) क्लस्टर नं.	
७) घरधुरी नं.	
८) फर्म नं.	
९) उत्तरदाताको नाम। नाता: ।	
१०) बच्चाको नाम :	
११) प्रश्नकर्ताको नाम:	
१२) अन्तरवार्ता मिति:	

खण्ड H१: सामान्य तथा सामाजिक र आर्थिक अवस्थाको जानकारी

प्र.नं.	प्रश्नहरु	कोडीङ बर्गीकरण	प्र.नं. ... मा जाने
H101	तपाईको घर परिवारमा कति जना सदस्यहरू प्राय:जसो बसोबास गर्नु हुन्छ ?	जना: _____	
H102	घरमूलीको लिङ्ग	पुरूष ..... 1 महिला 2	
H103	जात/जातीयता	क्षेत्री/ब्राह्मण ..... 1 नेवार ..... 2 गुरूङ्ग/मगर ..... 3 लामा/तामाङ्ग ..... 4 गिरी/पुरी/सन्यासी/दशनामी/नाथ ..... 5 लिम्बु/राई ..... 6 मधेसी ..... 7 तराई दलित ..... 8 पहाडी दलित ..... 9 मुस्लीम ..... 10 थारू ..... 11 भन्न नचाहेको ..... 12 अन्य (खुलाउने) _____ 13	
H104	तपाईको घर परिवारको आम्दानीको मुख्य स्रोत के हो ?	अन्नबाली/खेती किसानी ..... 1 पशुपालन ..... 2 माछापालन ..... 3 ज्यालादारी काम ..... 4 वैदेशिक रोजगारी (विप्रेषण) ..... 5 व्यापार/व्यवसाय ..... 6 सहायताका कार्यक्रमहरू (पेन्सन, विकास कार्यक्रमहरू, आदि) ..... 7 नोकरी ..... 8 अन्य (खुलाउने) _____ 9	
H105	के तपाईको घरमा करेसाबारी छ ? **(अवलोकन गर्नुहोस)**	छ ..... 1 छैन ..... 2 → H201	

खण्ड H२: खाद्य सामग्री र खाद्य सुरक्षामा पहुँच

प्र.नं.	प्रश्नहरु	कोडीङ वर्गीकरण		प्र.नं. ... मा जाने
H201	तपाईको घर परिवारमा गएको ३ महिनामा कहिल्यै खाद्य सामग्रीको कमी भएको थियो ?	थियो थिएन	1 2	
H202	यदि गएको ३ महिनामा तपाईको घरमा खाद्य सामग्रीको कमी भएको थियो भने, त्यसको व्यवस्थापन कसरी गर्नु भयो ? (नोटः एक भन्दा बढी उत्तर)	खाद्य सामग्री किन्नको लागि पैसा सापटी लिएर उधारोमा सामान ल्याएर सिकार/जंगलमा पाईने खानेकुराहरूको संकलन गरेर बीउको लागि जम्मा गरेर राखेको अन्नको उपभोग गरेर घरको धन सम्पति बेचेर बस्तुभाउ बेचेर जग्गा बेचेर गहना बेचेर साथी/नातेदार सँग खाद्यान्न सापटी मागेर आवश्यकता भन्दा थोरै मात्रामा खाना खाएर साना बच्चाहरूलाई खाना खुवाउनको लागि वयस्क द्वारा कम खाना खाएर घरको एक वा सो भन्दा बढी सदस्यहरूले दैनिक खानाको छाक घटाएर घरको एक वा सो भन्दा बढी सदस्यहरूले दिनभरी भोकै बसेर अन्य (खुलाउने) _____	1 2 3 4 5 6 7 8 9 10 11 12 13 14	

खण्ड H३: खानेपानी तथा सरसफाइ

प्र.नं.	प्रश्नहरु	कोडीङ वर्गीकरण		
H301	तपाइको घरको खानेपानीको मुख्य स्रोत के हो	धारा..... कुवा..... आकाशको पानि..... 3 खोलाको पानि..... 4 मूलको पानी 5	1 2 3	
H302	तपाइ शौचालय काहा जानुहुन्छ	चर्पि छिमेकिको शौचालय खूला मेदान नदि /पोखरी झाडी /जंगल सार्वजनिक शौचालय अन्य (निर्दिष्ट गर्नुहोस्).....	1 2 3 4 5 6 7 9	

खण्ड C2 : ६ देखि २३ महिनाका बालबालिकाले गत २४ घण्टामा खाएका खानेकुराको जानकारी

(गएको २४ घण्टा भित्रमा खाएका खानाहरूको सम्झना)

छनौट गरिएको बच्चाको नाम ....

प्र.नं.	प्रश्नहरु	कोडीङ वर्गीकरण				
C201	अब म तपाईलाई तपाईको बच्चाले हिजो विहान उठेदेखि आज विहान नउठुन्जेल सम्म (अर्थात गएको २४ घण्टा भित्रमा) के के खानेकुरा खाए सो को बारेमा प्रश्न सोध्ने छु । कृपया बाहिर खाएको खानालाई पनि समावेश गर्नु होला ।					
	तपाईको बच्चाले तल उल्लेख गरिएको के के खानेकुराहरू खाएका थिए ?					
	खानाको प्रकार	उदाहरणहरू	खाएका थिए	खाएका थिएनन्	थाहा छैन	यदी खाएको भए, कति पटक खाए?
१	दहि	दाँह, मोही	1	2	8	
२	गाई/भैसीको दूध	भैसीको, गाईको, बाखाको दुध,	1	2	8	
३	क्यानको दूध वा धुलो दूध	Red Cow, Everyday	1	2	8	
४	Infant formula like lactogen	Infant formula	1	2	8	
५	व्यवसायिक रूपमा फोर्टिफाईड गरिएको बच्चाको खाना	सेरेलेक, पोषिलो पिठो	1	2	8	
६	घरमै बनाएको लिटो	जुनसुकै किसिमको घरमै बनाएको लिटो	1	2	8	
७	रोटी, भात, हलुवा वा अन्नबाट बनेको खानेकुरा	भात, गहुँ (आटा वा मैदा), मकै, फापर, कोदो, जौ, आदि	1	2	8	
८	पत्रु खाना (जकं फुड)	चाउचाउ, बिस्कुट	1	2	8	
९	भित्री भागमा सुन्तला रंगको वा पहेंलो देखिने पाकेको फर्सी, गाजर वा सकरखण्ड	पाकेको फर्सी, गाजर, सुन्तला रंगको सकरखण्ड, आदि	1	2	8	
१०	सेतो आलु, गिठ्ठा, भ्याकुर, तरूल वा अन्य जरामा फल्ने तरकारीहरू	सेतो आलु, गिठ्ठा, भ्याकुर, पिडालु, तरूल आदि	1	2	8	
११	गाढा हरियो सागपात, जस्तै पालुङ्गोको साग, तोरीको/रायोको साग, चम्सुरको साग	बेथेको साग, पालुङगोको साग, तोरीको/रायोको साग, मेथीको साग, जिरीको साग (सलाद खाने साग), काउली, ब्रोकौलीको पात	1	2	8	
१२	पाकेको आँप, मेवा वा आरू	पाकेको आँप, मेवा वा आरू	1	2	8	
१३	अन्य फलफूल वा तरकारीहरू	तिते करेला, लौका, भान्टा, काउली, काँक्रो, परवर, इस्कुस, मटर कोसा, प्याज, आदि अंगुर, अनार, स्याउ, लिची, भूइँ कटहर	1	2	8	
१४	गुन्द्रुक/मसौरा (जुनसुकै प्रकारको मसौरा)	गुन्द्रुक/मसौरा (जुनसुकै प्रकारको मसौरा)	1	2	8	
१५	मुटु, कलेजो, किड्नी र अन्य भित्री अंगको मासु	मुटु, कलेजो, किड्नी, आन्द्रा, फोक्सो, पेट र अन्य भित्री अंगको मासु	1	2	8	
१६	कुनै पनि प्रकारको मासु जस्तै भैसी, याक, भेडा, खसी, बोका, हाँस, कुखुराको मासु	सुंगुर, भेडा, खसी, बोका, हाँस, कुखुरा, परेवा, बंगुर, बदेलको मासु, आदि	1	2	8	

प्र.नं.	प्रश्नहरु	कोडीङ बर्गीकरण				
१७	अण्डा	हाँस, कुखुरा, वा अन्य अन्य अण्डा	1	2	8	
१८	ताजा वा सुकेको माछा	ताजा वा सुकेको माछा	1	2	8	
१९	सिमी, मटर, दाल, वा साह्रो बोक्रा भएका फलबाट बनेका कुनै पनि खाद्य पदार्थ ।	मासको दाल, मुगंको दाल, बोडी, मुसुरोको दाल, केराउ (सुकेको), भटमास, चनाको दाल, रहरको दाल, राजमा, स्वेटा (Red/ black beans), आदि बदाम, नरिवल, तोरीको बिउ, कालो तिल आदि	1	2	8	
२०	ताजा र सुकेका पनिर, चीजबाट वा दूध बनाईएका अन्य खाना	चीज, पनिर, आदि	1	2	8	
२१	कुनै पनि अन्य, ठोस, अर्धठोस, वा नरम खानेकुरा	अन्य ठोस, अर्धठोस, वा नरम खानेकुरा ?	1	2	8	
२१ (क)	यदि थियो भने अन्य खुलाउनोस्	_____ _____				
C202	तपाईको बच्चाले गएको २४ घण्टा भित्रमा (हिजो बिहान उठे देखि आज बिहान नउठुञ्जेल सम्म), ठोस, अर्ध ठोस वा नरम खानेकुरा (खाजा समेत) कति पटक खाएका थिए ?	खाएको पटकः ____ हाल सम्म खान नदिएको ..... 9 थाहा छैन 7				

खण्ड C३: ६ देखि ५९ महिनाका सबै बालबालिका स्वास्थ्य स्थिति

घरमा भएका ६ देखि ५९ महिनाका सबै बालबालिकाहरूको स्वास्थ्य समस्या बारे जानकारी लिने ।

प्र.नं.	प्रश्नहरु	कोडीङ बर्गीकरण				
		1	2	3	४	
	बच्चाको नाम	_____	_____	_____	_____	
C301	बच्चाको लिङ्ग	पुरूष .....१ महिला २	पुरूष .....१ महिला २	पुरूष .....१ महिला २	पुरूष .....१ महिला २	
C302	गएको २ हप्ता भित्रमा, तपाईको बच्चा बिरामी भएका थिए वा उनलाई स्वास्थ्य सम्बन्धी कुनै समस्या भएको थियो ?	थियो ....१→C303 थिएन ..२	थियो ..१→C303 थिएन ..२	थियो..१→C303 थिएन ..२	थियो ...१ →C303 थिएन ..२	
C303	यदि बिरामी भएको थियो भने, के समस्या वा बिमार भएको थियो ? **(नोटः एक भन्दा बढी उत्तर)**	ज्वरो .....१ स्वासप्रस्वास समस्या ....२ निमोनिया (यदि पत्ता लागेको भए) .....३ औलो .....४ झाडा पखाला ..५ अन्य (खुलाउने)६	ज्वरो .....१ स्वासप्रस्वास समस्या .....२ निमोनिया (यदि पत्ता लागेको भए) .....३ औलो .....४ झाडा पखाला ..५ अन्य (खुलाउने)६	ज्वरो .....१ स्वासप्रस्वास समस्या .....२ निमोनिया (यदि पत्ता लागेको भए) .....३ औलो .....४ झाडा पखाला ..५ अन्य (खुलाउने)६	ज्वरो .....१ स्वासप्रस्वास समस्या .....२ निमोनिया (यदि पत्ता लागेको भए) .....३ औलो .....४ झाडा पखाला ..५ अन्य (खुलाउने)६	

खण्ड C४: ६ देखि ५९ महिनाका बालबालिकाको बारेमा सामान्य जानकारी तथा उनीहरूको शरिरको नाप तौल

(खण्ड C३ बाट बच्चाको नाम, क्र. सं., लिङ्ग र उमेर सार्ने)

प्र.नं.	प्रश्नहरु	कोडीङ बर्गीकरण				
		1	2	3	४	
१	बच्चाको नाम	_____	_____	_____	_____	
२	बच्चाको क्र. सं.	_____	_____	_____	_____	
C401	बच्चाको लिङ्ग	पुरूष .....१ महिला २	पुरूष .....१ महिला २	पुरूष .....१ महिला २	पुरूष .....१ महिला २	
C402	बच्चाको उमेर **(पूरा भएको महिनामा)**	उमेर: _____	उमेर: _____	उमेर: _____	उमेर: _____	
C403	बच्चाको तौल (यदि तौल नाप्न नदिएको वा असक्त भएको अवस्थामा ०.० लेख्नुहोस्)	☐☐.☐ केजी	☐☐.☐ केजी	☐☐.☐ केजी	☐☐.☐ केजी	
C404	MUAC (६ महिना वा सो भन्दा बढी उमेरका बच्चाको लागि मात्रै) ***(बच्चाको उमेर प्र.न. C402 मा हेर्नें)***	☐☐.☐ सेमी	☐☐.☐ सेमी	☐☐.☐ सेमी	☐☐.☐ सेमी	
C405	बच्चाको उचाई प्र. **C402** बाट एकिन गर्नुहोस । **यदि बच्चाको उमेर २ वर्ष वा सो भन्दा कम भए मात्र लम्बाई नाप्नुहोस् ।** **यदि २ वर्ष वा सो भन्दा कम उमेरका बच्चाले सुतेर नाप्न दिएन भने उठेर नापेको तौलमा ०.७ सेमी जोड्ने** **यदि २ वर्ष भन्दा बढी उमेरका बच्चाले उठेर नाप्न दिएन भने सुतेर नापेको तौलमा ०.७ सेमी घटाउने** **(यदि उचाई नाप्न नदिएको वा असक्त भएको अवस्थामा ०.० लेख्नु होस)**	लम्बाई सेमीमा ☐☐☐☐ उचाई सेमीमा ☐☐☐☐	लम्बाई सेमीमा ☐☐☐☐ उचाई सेमीमा ☐☐☐☐	लम्बाई सेमीमा ☐☐☐☐ उचाई सेमीमा ☐☐☐☐	लम्बाई सेमीमा ☐☐☐☐ उचाई सेमीमा ☐☐☐☐	
C406	बच्चालाई bilateral इडिमा (***Edema***) भएको नभएको पत्ता लगाउने। (यो थाहा पाउनका लागि दुवै खुट्टा 3 sec सम्म दबाउने) *इडिमा (Edema) को परिभाषा निर्देशिकाबाट हेर्नें*	इडिमा भएको .१ इडिमा नभएको.२	इडिमा भएको .१ इडिमा नभएको.२	इडिमा भएको .१ इडिमा नभएको.२	इडिमा भएको .१ इडिमा नभएको.२	

खण्ड W 3: गर्भावस्था र प्रसव पछि हेरचाह (गर्भवती महिलाहरुको लागी मात्र)

प्र.नं.	प्रश्नहरु	कोडीङ वर्गीकरण	
W301	के तपाईंले यो गर्भावस्था जांचको लागि स्वास्थ्य संस्थामा जानुभयो	गएं ..... 1 गइन ..... 2 (गर्भवती पुरा भएको महिना खुलाउनुहोस .....)	
W302	तपाईंले आइरन-फोलिक एसिड (IFA) ट्याब्लेटहरू कसरी प्राप्त गर्नुभयो? (सम्भव भएमा चक्कीहरू हेर्नुहोस)	किनेर खाएको..... 1 निशुल्क पाएको..... 2 नखाएको ..... 3 थाहा छैन..... 9	
W303	तपाईंले अहिलेसम्म कतिवटा ट्याब्लेट (IFA) लिनुभएको छ?	संख्या : ☐☐☐ याद छैन : 99	

उत्तरदातालाई धन्यवाद दिइ अन्तरवार्ता समाप्त गर्नुहोस ।

◆◆◆◆◆◆◆◆◆◆◆◆

Appendix 8

Photo Galary: SMART Survey Training and field Work


unicef


चित्र चार्ट: य-ज्ञ
unicef

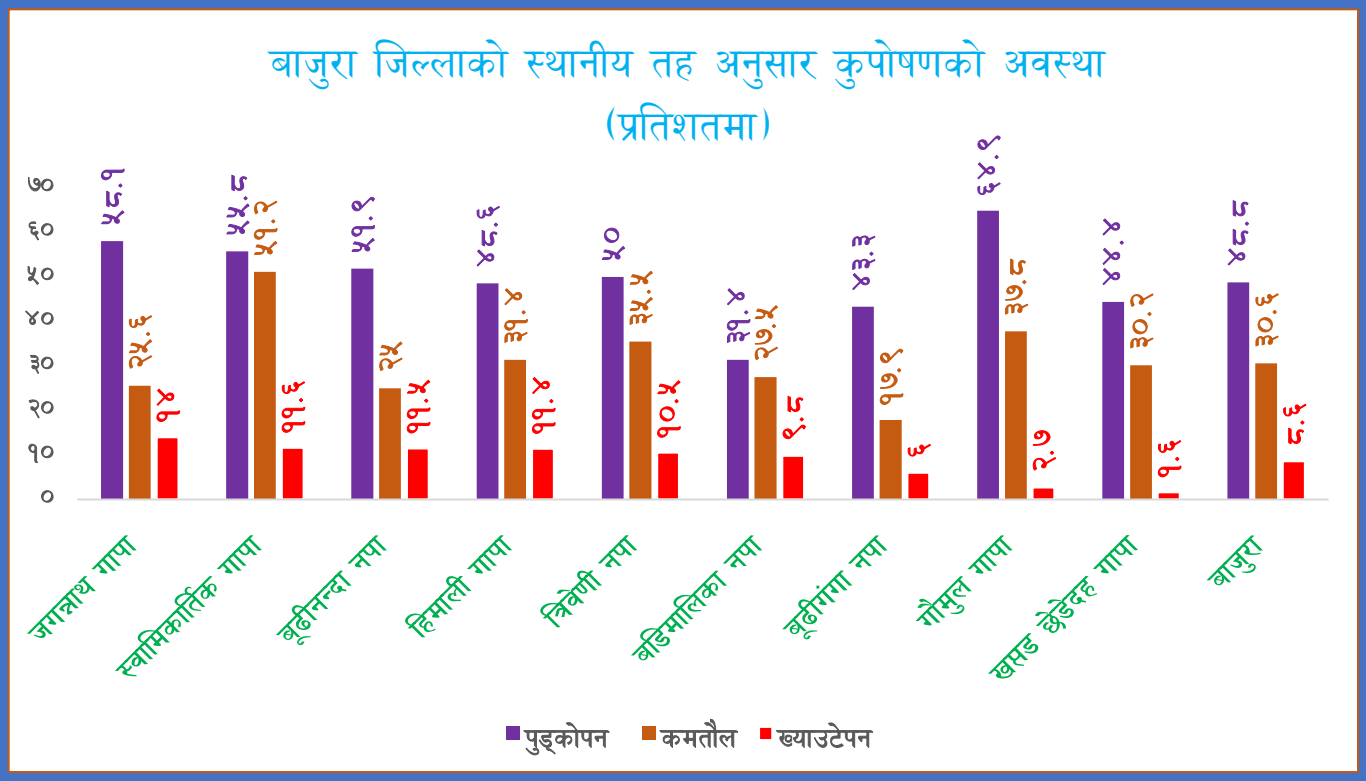
पोषण भनेको खाना हो ?

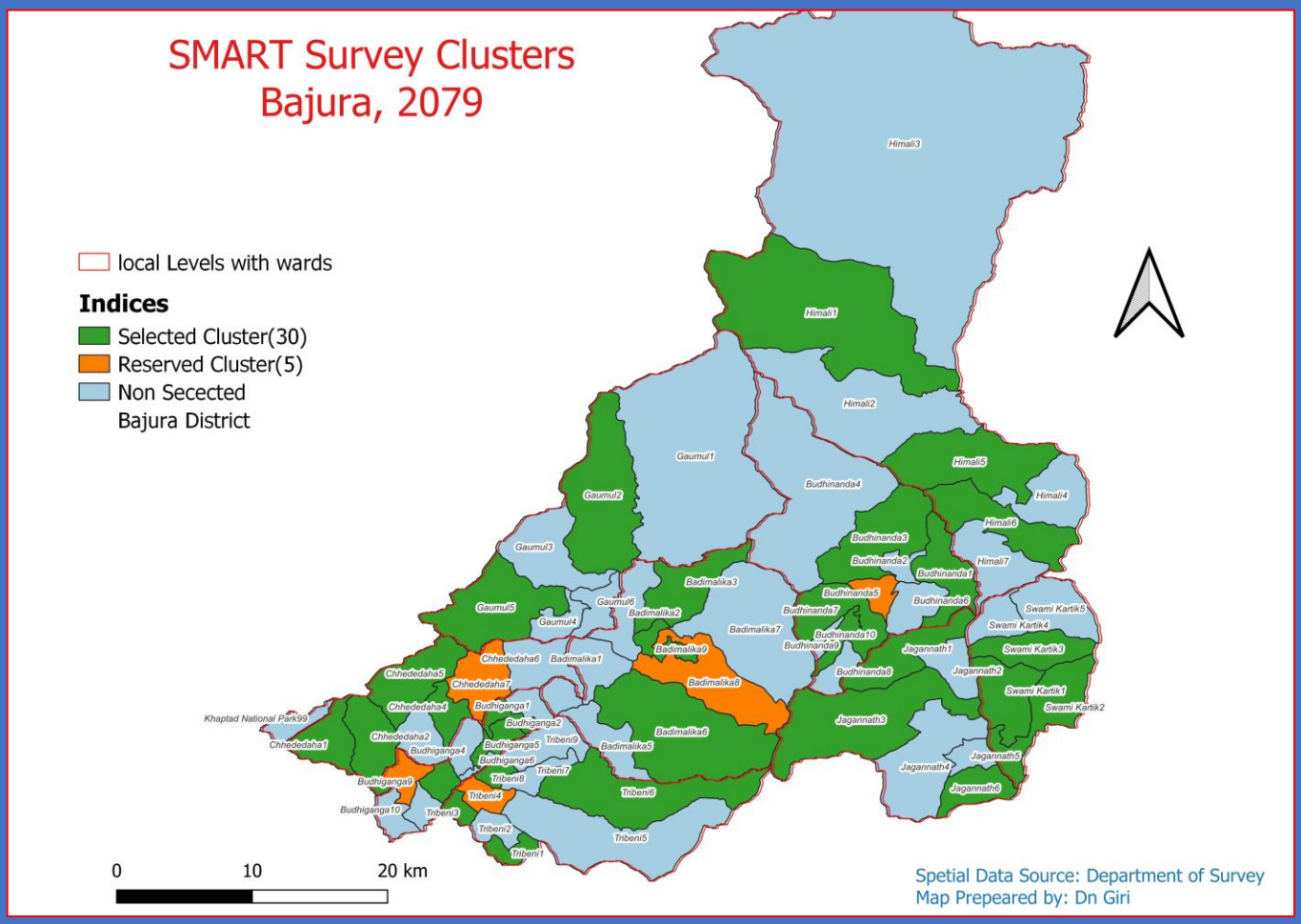
तागत (शक्ति) दिने (अघाउने)

वृद्धि विकास गर्ने

रोगबाट बचाउने

थप तागत दिने


बाजुरा जिल्लाको स्थानीय तह अनुसार कुपोषणको अवस्था
(प्रतिशतमा)
७०
६०
५०
४०
३०
२०
१०
०
५८.१
२५.६
१४
५५.८
५१.२
११.६
५१.९
२५
११.५
४८.६
३१.४
११.४
५०
३५.५
१०.५
३१.४
२७.५
८.८
४३.३
१७.९
५
६४.९
३७.८
२.७
४४.४
३०.२
१.६
४८.८
३०.६
८.६
जगन्नाथ गापा
स्वामिकार्तिक गापा
बूढीनन्दा नपा
हिमाली गापा
त्रिवेणी नपा
बडिमालिका नपा
बूढीगंगा नपा
गौमुल गापा
खप्तड छेडेदह गापा
बाजुरा
पुड्कोपन
कमतौल
ख्याउटेपन


SMART Survey Clusters
Bajura, 2079
local Levels with wards
Indices
Selected Cluster(30)
Reserved Cluster(5)
Non Secected
Bajura District
Himali3
Himali1
Himali2
Himali5
Himali4
Himali6
Himali7
Gaumul1
Gaumul2
Gaumul3
Gaumul5
Gaumul6
Gaumul4
Budhinanda4
Budhinanda3
Budhinanda2
Budhinanda1
Budhinanda5
Budhinanda6
Budhinanda7
Budhinanda10
Budhinanda9
Budhinanda8
Badimalika3
Badimalika2
Badimalika7
Badimalika9
Badimalika8
Badimalika1
Badimalika6
Badimalika5
Jagannath1
Jagannath2
Jagannath3
Jagannath5
Jagannath4
Jagannath6
Swami Kartik5
Swami Kartik4
Swami Kartik3
Swami Kartik1
Swami Kartik2
Chhededaha6
Chhededaha5
Chhededaha7
Chhededaha4
Chhededaha2
Chhededaha1
Khaptad National Park99
Budhiganga1
Budhiganga2
Budhiganga5
Budhiganga4
Budhiganga6
Budhiganga9
Budhiganga10
Tribeni9
Tribeni7
Tribeni8
Tribeni4
Tribeni3
Tribeni2
Tribeni1
Tribeni6
Tribeni5
0
10
20 km
Spetial Data Source: Department of Survey
Map Prepeared by: Dn Giri