

**Second Round of Nutrition Surveillance Among  
Post Conflict Displaced Children under five  
years in Vavuniya District**

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# CHAPTER 1

## BACKGROUND

Since the Arrival of the Internally Displaced Populations (IDP) in Menikfarm Camps, Ministry of Healthcare and Nutrition had been conducting nutrition assessment at regular interval and providing health and nutrition services in the camps. A large scale nutrition survey was conducted during May in all Menikfarm Camps with about 1,120 children under-five that showed a high level of undernutrition with 35.6 percent wasting (acute undernutrition). A huge nutrition programme was launched by Ministry of Healthcare and Nutrition through the coordination of Family Health Bureau with technical and financial support from UNICEF, field support from Sarvodaya. The target of the programme was to reduce the prevalence of undernutrition by at least 10% in 3 months time (i.e. September 2009) and less than 20% in 6 months time (i.e., December 2009). In order to assess the progress of implementation and measuring how far the target has been reached, a repeat survey was done by the Department of Nutrition, Medical Research Institute (MRI) in collaboration with UNICEF during 28<sup>th</sup> August to 01<sup>st</sup> October, 2009 that aimed at looking at the trends of nutrition status of the under-five children in IDP camps of Vavuniya. Four different cross sectional surveys were done to represent Zone 0 & 1 (as one unit- Z1)), Zone 2 (including those who have moved out recently in puram villages & zone 7-Z2), Zone 3 (as one unit- Z3) and Zone 4 & 5 (as one unit- Z4).

The findings and recommendations of baseline survey were presented and discussed at the national forum that brought together all stakeholders involved in nutrition work in Vavuniya. The survey was instrumental to inform partners how the nutritional status of children evolved over time and the measures that need to be taken to positively change the situation.

This report depicts the findings and recommendations of the second round nutrition survey conducted three months after the first assessment. The reports also compares the findings of the second round nutrition surveillance with that of the first round and gives a better understanding of how the nutritional status of children evolved over time.

### Objectives

1. To measure the trends in nutritional status and determinants of the displaced children under five living in camps in Vavuniya District
2. To assess the coverage and monitor nutrition interventions and food aids
3. To assess the mortality among them during the past 3 months

## CHAPTER 2

### METHODS

This was a representative cross sectional survey among displaced children under five living in welfare centers in Vavuniya. These locations were named as zones. There were 7 zones and 5 transit camps at the time of the survey. Assessment was done to cover all displaced population: Zone 0, 1, 2, 3, 4, 5, 7 and transit camps (Weerapurum, Sumathipurum and Dharmapurum). Zone 0 and 1 were considered as one zone and the zone 2, 7 and transit camps as one zone 4 and 5 as one. Zone 3 was taken as independent area. The study population was identified as children less than 5 years. SMART methodology was adopted for this assessment.

#### Sample size

The required sample size for the survey was calculated considering the prevalence of wasting among children under 5 years as 25%, confidence interval as 95% and precision as 5% by using ENA package. The non-response rate was taken as 5%. When calculating the size of the sample following factors were taken into consideration using the formula given below:

$$n = t^2 \times (p \times q) / d^2$$

n = sample size

t = confidence interval

p = expected prevalence of malnutrition in the population

q = 1 - p, expected proportion of children not presenting malnutrition

d = absolute precision.

A sample size of 450 for each zone and a total of 1800 for all zones.

#### Sampling

Welfare centers were named as zones. All the zones were well organized as blocks and in each block there were rows of tents and semi permanent houses arranged in a systematic manner. Cluster sampling technique.

- 30 Blocks were randomly selected from each zone and blocks were taken as clusters.
- The required number of children from each block (cluster) was 15.
- If more than one eligible child was found in a household, youngest child was included in the sample. If a child was not present at the time of the visit, the data collectors went back to the household in order to measure the child.

#### Data collection

A survey team composed of 15 people: the supervisor, ten enumerators and 4 measurers. One day training was done and the objectives of the survey, the sampling method and its rationale were detailed, stressing the importance of a representative sample. All measurers are well trained people who had previous experience in participating in national nutrition surveys for the last 10 years and they are staff members of the Department of Nutrition. Data collection period was 13<sup>th</sup> to 30<sup>th</sup> September 2009.

All the health staff was informed about the study and permission was obtained from the relevant health authorities and security personnel. Verbal consent was taken from the parent or guardian of children prior to the study, after explaining to them the purpose and the study methods to them.

Data was collected using the following techniques.

**Interviewer administered questionnaire:** An interviewer-administered questionnaire was used to collect information from the mother of the child or from a responsible caregiver. The following information was gathered: basic information (date of birth if not age, sex); morbidity and feeding data; access to water and sanitation; measles immunization status, duration of displacement, availability of food and coping mechanisms; coverage of supplementation programme etc.

**Anthropometric measurements:** Weight and height/length of children were measured using standard techniques described by the World Health Organisation (WHO) [2]. Measurements were taken by the staff of MRI who were especially trained. Weight was measured with minimal clothing and without shoes to the nearest 100 g with Seca electronic weighing scale and accuracy checked using the standard weights (no corrections have been made for the weight of the clothing). Length was measured for children under 2 years of age and height was measured for children over 2 years to the nearest 0.1 cm with a measuring board.

### **Data analysis**

Data was entered in Epi6 software package and the analysis was carried out by using SPSS software package and ENA package for mortality. Age was calculated in months from the child's birthday. Weight-for-age, weight-for-height and height-for-age were calculated for children by using Anthro 2007 software. The WHO 2005 standard was used and the Z score below -2SD was taken as cut off values to estimate prevalence of stunting, wasting and underweight according to the recommendations made by the World Health Organisation (WHO) [3]. The children below the -3SD of weight-for-height was taken as cut off values to estimate severe acute under nutrition (SAM) and moderate acute under nutrition ((MAM) between -3SD and -2SD of weight-for-height according to the recommendations made by WHO (1995).

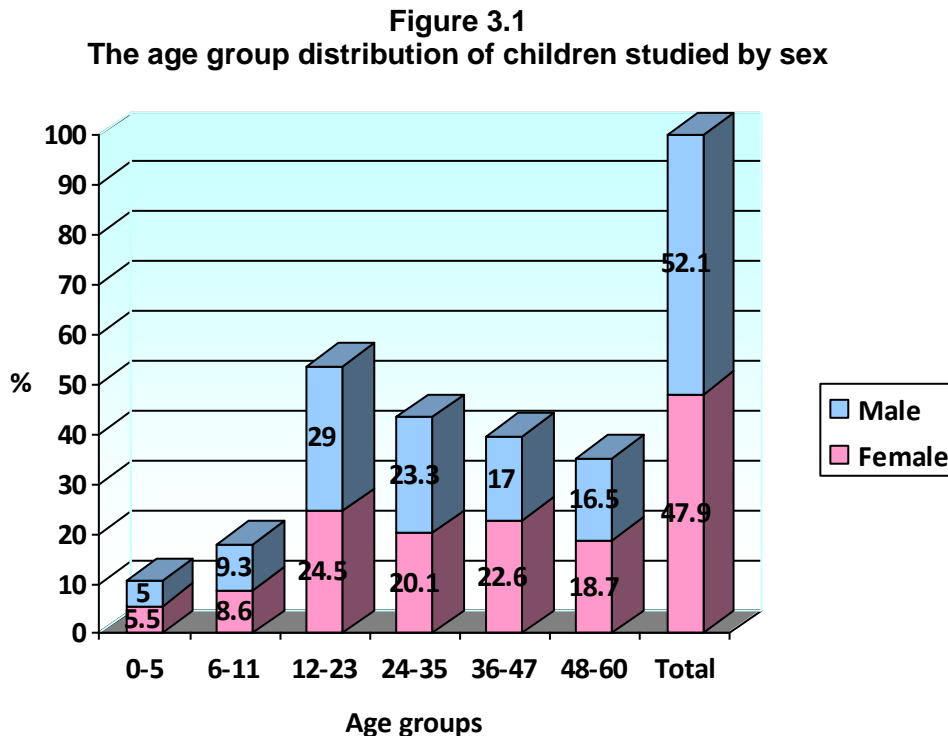
## CHAPTER 3

### RESULTS

A total of 1,797 children less than five years among the displaced population in Vavuniya district were covered by the study. From this point onward, welfare centers in Zone 0 and 1 were considered as Zone 1, Zone 2, 7 and transit camps (Dharmapuram, Veerapuram and Sumathipuram) were considered as Zone 2 and zone 4 and 5 was considered as Zone 4.

#### 3.1. Demographic characteristics

As shown in Figure 3.1, 14.2% were infants and 5.2% were below 6 months of age in the study sample. The highest number of children (26.8%) was present in the age group of 12-23 months. There were 52.1% boys and 47.9% girls.



#### 3.2. Nutritional situation

##### 3.2.1. Prevalence of wasting, stunting and underweight in children

Using the default settings for flagging records in the ANTHRO software based on extreme Z-score values of -6 and +6 for height/length-for-age (HAZ), weight-for-age (WAZ); and weight-for-height/length (WHZ), a total of 17 records were flagged. The final analysis for the anthropometric analysis was based on 1780 children.

The findings of the study revealed that the prevalence of wasting (percentage below the -2SD of weight-for-height WHO standard) was 23.9%. The prevalence of stunting (percentage below the -2SD of height-for-age WHO standard) was 32.9%. The prevalence of underweight (percentage below the -2SD of weight-for-age WHO standard) was 42.3%. None were found with oedema (Table 3.1).

**Table 3.1**  
**Prevalence of under nutrition (Wasting, Underweight and Stunting)**  
**In May and September 2009 by age group**

Age (months)	Wasting <sup>1</sup>		Stunting <sup>2</sup>		Underweight <sup>3</sup>		Number	
	May	September	May	September	May	September	May	September
0 – 5	23.4	16.5	25.0	16.5	37.5	25.9	64	85
6 – 11	40.3	27.8	26.2	19.0	46.3	38.0	148	158
12 – 23	43.1	24.2	30.7	32.5	51.2	35.6	283	480
24 – 35	40.5	21.0	38.1	40.9	52.9	46.8	209	391
36 – 47	28.3	22.2	29.6	35.5	45.1	44.3	226	352
48 – 60	28.2	29.0	25.0	31.8	39.4	51.3	191	314
<b>Total</b>	<b>35.6</b>	<b>23.9</b>	<b>30.0</b>	<b>32.9</b>	<b>46.9</b>	<b>42.3</b>	<b>1120</b>	<b>1780</b>

There is a reduction of wasting in each age group except among children between 48-60 months. Overall reduction of acute undernutrition is remarkable from 35.6% in May to 23.9% in September. This is about 33% reduction in the prevalence of acute undernutrition (Table 3.1).

The prevalence of underweight also showed a reduction from 46.9% to 42.3% over the period of time. There was a slight increase in the prevalence of stunting from 30% in May to 32.9% in September.

**Figure 3.2**  
**Prevalence of wasting, stunting and under weight with severity in May and September**

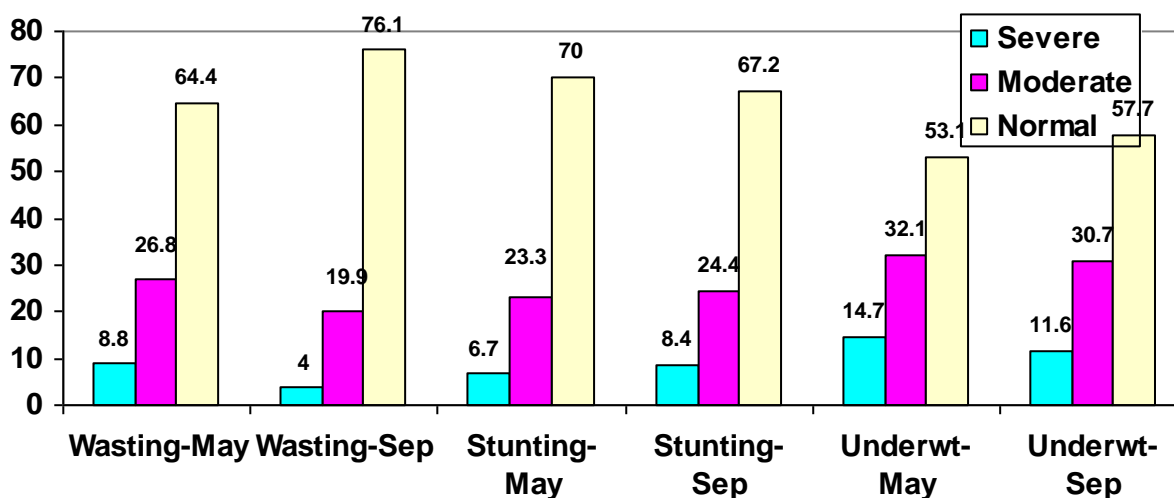


Figure 1.2 shows that the reduction has been more in case of severe acute undernutrition which reduced from 8.8% in May to 4.0% during September- a net 55% reduction.

**Table 3.2**

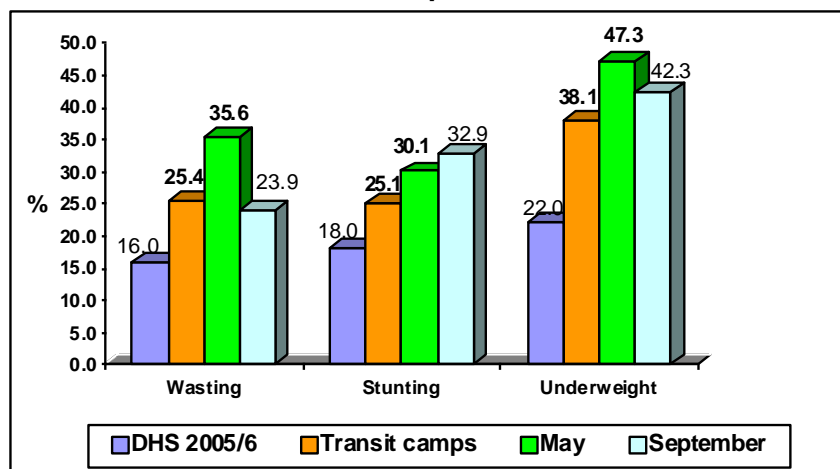
**Undernutrition (Wasting, Underweight and Stunting) by Zone in May and September 2009**

Welfare Centers	Wasting %		Stunting %		Underweight %		N	
	May	Sep	May	Sep	May	Sep	May	Sep
Zone 1	28.8	20.4	28.4	30.0	40.9	40.6	215	446
Zone 2	45.2	27.6	33.5	36.4	57.7	45.2	310	434
Zone 3	28.0	23.4	26.3	29.8	38.2	38.2	293	440
Zone 4	38.1	24.1	31.1	35.2	48.3	45.2	302	460
<b>Total</b>	<b>35.6</b>	<b>23.9</b>	<b>30.0</b>	<b>32.9</b>	<b>46.9</b>	<b>42.3</b>	<b>1120</b>	<b>1780</b>

Reduction of wasting reflected in all zones and the highest percentage of reduction was detected in Zone 2. As indicated in Table 3.2, stunting has increased in all zones and underweight has reduced except in Zone 3.

**3.2.2. Comparison of child nutritional status**

**Figure 3.3**  
**Prevalence Wasting, Stunting and underweight compared with National and previous data**



The prevalence of wasting, stunting and underweight is still high in this survey compared to the results of the National data (Figure 3.3). This comparison indicates the burden of the problem and the challenge of reducing the percentages to the national level.

### 3.2.3. Acute Under nutrition (wasting)

In Table 3.3, it is noted that boys appeared to have higher prevalence of wasting than girls (24.1% in boys and 23.6% in girls). The prevalence of severe wasting among boys (4.5%) was higher than that of the girls (3.4%). The difference between girls and boys were more in May than in September.

**Table 3.3**

#### Weight for height Z- score (wasting) by sex

Sex	Wasting							
	Normal >-2		Moderate ≥ -3 &<-2		Severe <-3		Total	
	May	Sep	May	Sep	May	Sep	May	Sep
<b>Female</b>	69.1	76.4	24.5	20.2	6.4	3.4	560	852
<b>Male</b>	59.6	75.9	29.1	19.6	11.3	4.5	560	928
<b>Total</b>	64.4	76.1	26.8	19.9	8.8	4.0	1127	1780

**Table 3.4**

#### Weight for height Z- score (wasting), by age group in May & September

Age group	Wasting							
	Normal ≥-2		Moderate ≥ -3 &<-2		Severe <-3		Total	
	May	Sep	May	Sep	May	Sep	May	Sep
<b>0 - 5</b>	77.0	83.5	18.0	12.9	4.9	3.5	61	85
<b>6 - 11</b>	60.1	72.2	26.4	20.3	13.5	7.6	148	158
<b>12 - 23</b>	56.7	75.8	30.9	21.9	12.4	2.3	282	480
<b>24 – 35</b>	59.7	79.0	30.8	16.9	9.5	4.1	211	391
<b>36 – 47</b>	71.4	77.8	25.0	18.5	3.6	3.7	224	352
<b>48 - 60</b>	72.1	71.0	22.1	23.9	5.8	5.1	190	314
<b>Total</b>	64.4	76.1	26.9	19.9	8.7	4.0	1116	1780



Table 3.4 shows that the prevalence of wasting in relation to age among children compared to the results in May. It showed a higher prevalence of severe wasting between 6 -11 months (7.6%) and moderate wasting over 48 months (23.9%). Current survey have shown a lower level of severe wasting and moderate wasting in all age groups than the survey carried out in May except among children over 48 months with moderate wasting and children of 36 - 47 age group with severe wasting.

**Table 3.5**  
**Weight for height Z- score (wasting), by zones**

Welfare centers	Wasting							
	Normal ≥-2		Moderate ≥ -3 &<-2		Severe <-3		Total	
	May	Sep	May	Sep	May	Sep	May	Sep
<b>Zone 1</b>	71.3	79.6	22.2	17.0	6.5	3.4	216	446
<b>Zone 2</b>	55.0	72.4	33.5	22.8	11.5	4.8	313	434
<b>Zone 3</b>	72.2	76.6	22.0	19.8	5.8	3.6	295	440
<b>Zone 4</b>	67.7	75.9	27.7	20.0	10.6	4.1	303	460
<b>Total</b>	<b>64.4</b>	<b>76.1</b>	<b>26.8</b>	<b>19.9</b>	<b>8.8</b>	<b>4.0</b>	<b>1127</b>	<b>1780</b>

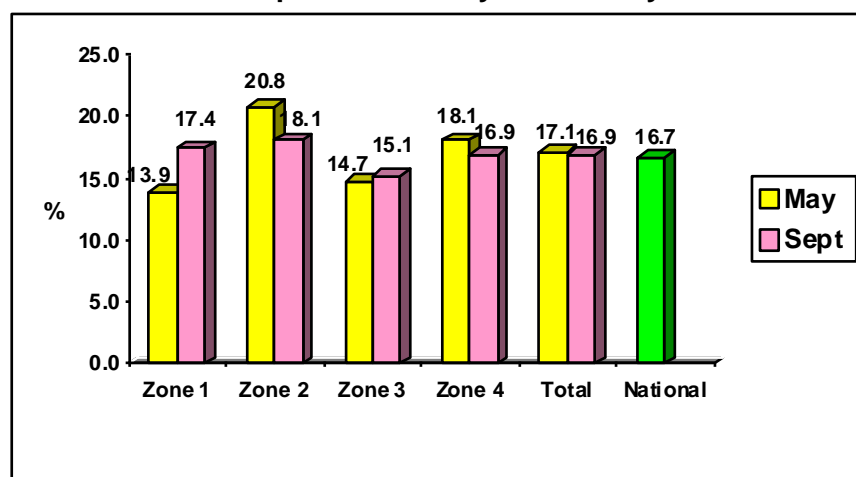
All Zones showed a reduction of the prevalence of wasting among children under five years. This reduction was more marked in the Zone 2 which was from 11.5 percent to 4.8 percent with severe wasting and 33.5% to 22.8% with moderate wasting (Table 3.5).

### **3.1.4. Low Birth Weight (LBW)**

Birth weight was taken from the Child Health Development Records (CHDR). From the total surveyed sample birth weight could only be obtained from 97.3% of the children (n=1748) due to non availability of child health development record (CHDR) or not recording in CHDR. The mean birth weight of the children was 2.9 (SD=0.5) kgs.

Figure 3.4 shows that the prevalence of low birth weight has reduced from 17.1% in May to 16.9% in September which is currently close to the national figure. Presently the highest prevalence was reported from Zone 2 (18.1%) and the lowest low birth weight prevalence was reported from Zone 3 (15.1%).

**Figure 3.4: Distribution of birth weight of surveyed children in Zones compared to survey data in May**



### 3.3. Determinants of child nutritional status and child survival

The main findings from the survey hereafter have been compared with the findings of the survey carried out in May by following UNICEF conceptual framework.

#### 3.3.1. Immediate causes

##### a. Diseases

The prevalence of important child illnesses 2 weeks prior to the study was determined. Diarrhoeal diseases were determined by passing 3 or more stools per day. Acute respiratory tract infection (ARI) was defined as cough or cold with or without fever. Breathing rate was counted by the trained health personnel in the Department of Nutrition when the child had ARI to determine the lower respiratory tract infections (LRTI). When the breathing rate is more than 50 breaths per minutes for children less than one year and more than 40 breaths per minute for children 1-5 years was considered as LRTI (WHO 2005).

It is also important to note here that there has been substantial amount of reduction in the morbidity situation also. Prevalence of Diarrhoea has reduced from 41.9% in May to 21.4%, Acute Respiratory Infection (ARI) reduced from 61.9% in May to 27.3% in September and Lower respiratory tract infections (LRTI) has reduced from 6.0% to 4.1%. These were about 49%, 56% and 32% reductions respectively. Similar observation was noted in all age groups except among children under 6 months for diarrhea (Table 3.6).

**Table 3.6**  
**Morbidity pattern by age group**  
 (illnesses during the 2 weeks preceding the study)

Age group (months)	Diarrhoea <sup>1</sup>		ARI <sup>2</sup>		Number*		LRTI <sup>3</sup>		Number**	
	May	Sep	May	Sep	May	Sep	May	Sep	May	Sep
<b>0 – 5</b>	12.9	13.8	58.1	21.3	62	94	11.1	3.3	27	16
<b>6 – 11</b>	44.6	27.3	71.6	31.7	148	161	5.5	1.3	73	46
<b>12 – 23</b>	47.7	24.5	67.1	32.2	283	482	10.2	7.9	118	150
<b>24 – 35</b>	47.4	22.3	59.6	26.6	213	391	3.7	4.9	81	98
<b>36 – 47</b>	40.9	22.7	59.6	23.8	230	353	4.1	2.3	98	79
<b>48 – 60</b>	35.8	13.7	53.4	24.1	193	315	2.8	0.6	71	73
<b>Total</b>	<b>41.9</b>	<b>21.4</b>	<b>61.9</b>	<b>27.3</b>	<b>1129</b>	<b>1796</b>	<b>6.0</b>	<b>4.1</b>	<b>468</b>	<b>462</b>

(\*Children responded for diarrhoea and ARI; \*\*Number of children were counted for breathing rate)

**Table 3.7**  
**Morbidity pattern by Zones**  
 (illnesses during the 2 weeks preceding the study)

Welfare centers	Diarrhoea <sup>1</sup>		ARI <sup>2</sup>		Number		LRTI		Number	
	May	Sep	May	Sep	May	Sep	May	Sep	May	Sep
<b>Zone 1</b>	44.5	20.2	63.8	33.6	218	450	6.0	4.7	133	152
<b>Zone 2</b>	46.7	23.1	58.1	23.1	315	437	6.9	3.4	175	100
<b>Zone 3</b>	39.9	17.5	58.8	22.0	301	445	4.9	1.4	164	71
<b>Zone 4</b>	37.3	24.9	67.3	30.1	303	465	-	6.5	-	139
<b>Total</b>	<b>477</b>	<b>21.5</b>	<b>61.8</b>	<b>27.3</b>	<b>1137</b>	<b>1797</b>	<b>5.9</b>	<b>4.1</b>	<b>472</b>	<b>462</b>

The reduction of diarrhea and ARI has been highest in Zone 2 which had the worst scenario in May with 46.7% Diarrhoea and 58.1% ARI that reduced to 23.1%. The highest prevalence of LRTI was observed in Zone 4 and the Zone 4 was not assessed in May for comparison.

**a. Dietary intake**

***Frequency of meals***

This study also revealed the frequency of feeding among children over 6 months to compare the finding of the survey carried out in May (Table 3.8). About 82.7% of children were fed 3-4 times

per day which is 20% higher than the previous level. Only 0.6% were fed once per day which was 6.2% in May and 7.5% were fed twice a day.

**Table 3.8**

**Number of meals consumed by children > 6 months per day by age group**

Number of meals <sup>1</sup>	Age groups in months										No.	
	6 - 11		12 - 23		24 - 35		≥ 36		Total		May	Sep
	May	Sep	May	Sep	May	Sep	May	Sep	May	Sep	May	Sep
Once	10.2	1.2	10.3	0.8	5.6	0.5	2.4	0.3	6.2	0.6	63	10
Twice	15.0	18.6	9.9	9.6	8.9	5.7	7.8	4.3	9.6	7.5	97	127
3 - 4 times	32.0	64.6	55.3	80.4	66.2	84.8	76.6	87.6	62.7	82.7	637	1405
≥ 5 times	35.4	7.5	19.9	7.1	12.2	8.7	4.9	7.8	14.6	7.8	146	132
No answer	7.5	8.1	4.6	2.1	7.0	0.3	8.3	0.0	6.9	1.4	73	24
<b>Total No.</b>	<b>147</b>	<b>161</b>	<b>282</b>	<b>480</b>	<b>213</b>	<b>389</b>	<b>423</b>	<b>668</b>	<b>1016</b>	<b>1698</b>	<b>1016</b>	<b>1698</b>
<b>%</b>	<b>13.8</b>	<b>9.5</b>	<b>26.5</b>	<b>28.3</b>	<b>20.0</b>	<b>22.9</b>	<b>39.7</b>	<b>39.3</b>	<b>100.0</b>	<b>100.0</b>	<b>1016</b>	<b>1698</b>

**Type of food**

Table 3.9 shows the food consumption of children over 6 months during the past 24 hours prior to the interview day.

**Table 3.9**

**Type of food eaten by children >6 months during last 24 hours by age groups (n=1017)**

Type of food given*	Age groups in months									
	6 - 11		12 - 23		24 - 35		≥ 36		Total	
	May	Sep	May	Sep	May	Sep	May	Sep	May	Sep
Family food	33.1	72.7	60.8	95.9	79.3	96.9	80.3	98.3	68.4	95.2
Milk in Bottle	31.8	39.2	30.4	30.5	18.3	12.5	13.7	5.2	21.6	17.2
Milk in cup	-	19.3	-	46.1	-	54.1	-	52.8	-	48.3
BP-100	-	2.9	-	0.9	-	1.4	-	1.3	-	1.4
UNIMIX	8.8	13.9	3.2	21.6	4.2	29.0	4.0	34.7	4.5	27.9
Plumppy nut	-	1.5	-	0.5	-	1.1	-	1.0	-	0.9
Thriposha	-	19.3	-	32.1	-	23.1	-	24.1	-	25.7
HEB	-	1.5	-	1.6	-	0.8	-	2.3	-	1.7

<b>Others (biscuits etc.)</b>	32.5	77.4	69.8	60.7	16.9	63.3	65.4	60.4	17.9	62.7
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(\*Multi responses)

There is an increase trend of consuming family food with the increasing of age which was higher in this survey than the previous one. In the current survey 72.7% of children aged 6 -11 months, 95.9% of children between 12 - 23 months, 96.9% of children aged 24 – 35 months and 98.3% of children aged over 36 months were given family food compared to 33.1% of children aged 6 - 11 months, 60.8% of children between 12 - 23 months, 79.3% of children aged 24 – 35 months and 80.3% of children aged over 36 months were given family food in May. There was a reduction in milk in bottle from 21.6% to 17.2% and 48.3% were given milk in cup. About 62.7% of children were given biscuits, sugar added in tea and beverages compared to 17.9% in May. There was an increase of formula milk consumption among children between 6-11 months which was 39.2% in September to 31.8% in May.

### 3.3.2. Underlying causes

#### a. Care for children

##### **Breastfeeding**

There were 674 children under 2 years of age. Percentages of children currently breastfeeding has increased from 84.7% to 89.3% as shown in Table 3.10. This increase was noted in all zones except in Zone 2 and the increase was highest in Zone 4. Out of the mothers who had stopped breastfeeding, the percentage due to lack of milk has reduced from 52.9% to 35.6%.

**Table 3.10**

**Breast-feeding practices among children under 2 years in Zones**

Currently	Zone									
	0 & 1		2		3		4		Total	
Breast feeding <sup>1</sup>	May	Sep	May	Sep	May	Sep	May	Sep	May	Sep
<b>Yes</b>	83.0	90.5	89.7	85.4	87.4	89.0	78.3	92.1	<b>84.7</b>	<b>89.3</b>
<b>No</b>	17.0	9.5	10.3	14.6	12.6	11.0	21.7	7.9	<b>15.3</b>	<b>10.7</b>
<b>Total</b>	<b>94</b>	<b>169</b>	<b>136</b>	<b>164</b>	<b>119</b>	<b>163</b>	<b>129</b>	<b>178</b>	<b>478</b>	<b>674</b>
<b>Reasons for stopping breastfeeding</b>										
<b>No milk</b>	19.4	41.2	66.7	30.4	25.0	55.6	33.3	13.3	<b>52.9</b>	<b>35.6</b>
<b>Mother sick</b>	21.4	17.6	21.4	30.4	21.4	16.7	35.7	13.3	<b>20.6</b>	<b>20.5</b>
<b>Mother not with the child</b>	33.3	17.6	16.7	8.7	0.0	0.0	50.0	0.0	<b>8.8</b>	<b>6.8</b>
<b>Other reasons</b>	27.3	23.5	0.0	30.4	27.3	27.8	54.4	73.3	<b>17.7</b>	<b>37.0</b>
<b>Total</b>	<b>15</b>	<b>17</b>	<b>12</b>	<b>23</b>	<b>15</b>	<b>18</b>	<b>26</b>	<b>15</b>	<b>68</b>	<b>73</b>

## b. Household food security

### Availability

Majority of the households (75.5%) received dry ration compared to the results in May as shown in Table 3.11. Only 23.3% of households received cooked food currently which was 72.9% in May. Cooked foods were received mainly to households from Zone 2. All the other zones the less than 2% of households has received cooked food and the have received dry ration which shows the normalization of the eating pattern and family cooking. Over two third of households (76.3%) were satisfied with food. Majority who received cooked food in Zone 2 has mentioned the dissatisfaction with food. However, the percentage of households dissatisfied with food was reduced from May to September from 66.1% to 23.7%. Out of that 63.5% of the households mentioned that they do not like the taste of food which is higher than in May (49.8%) and 10.9% and 9.5% mentioned food was not properly cooked and had bad smell respectively.

**Table 3.11**

**Food availability of households and the quality of food**

Type of food	Zone									
	1		2		3		4		Total	
	May	Sep	May	Sep	May	Sep	May	Sep	May	Sep
<b>Dry ration</b>	56.0	93.7	13.0	7.8	26.6	98.7	21.5	99.6	27.1	75.5
<b>Cooked food</b>	44.0	1.6	87.0	92.2	23.4	1.3	78.5	0.4	72.9	23.3
<b>Others</b>	0.0	4.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2
<b>Total</b>	<b>90</b>	<b>450</b>	<b>272</b>	<b>437</b>	<b>219</b>	<b>445</b>	<b>238</b>	<b>465</b>	<b>1137</b>	<b>1797</b>
<b>Satisfied with food</b>										
Yes	43.0	90.4	38.3	19.7	39.3	99.8	20.8	93.3	33.9	76.3
No	57.0	9.6	61.7	80.3	60.7	0.2	79.2	6.7	66.1	23.7
<b>Reason for dissatisfaction*</b>										
Amount not enough	7.3	28.6	1.0	0.0	0.0	100.0	0.0	50.0	0.9	6.9
Taste not good	56.4	7.1	44.6	72.9	56.8	0.0	47.1	37.5	49.8	63.5
Bad smell	1.8	2.4	4.7	11.0	0.0	0.0	0.0	3.1	1.5	9.5
Not properly cooked	63.6	0.0	54.4	12.7	40.4	0.0	50.4	6.3	49.9	10.9
Not used to	0.0	59.5	0.5	0.9	0.0	0.0	0.0	0.0	0.1	6.6
Other	-	2.4	-	2.6	-	0.0	-	3.1	-	2.6

(\*multi responses)

### **Accessibility of nutrition services**

Food access for many households has improved with food aid.

### **Visit to health centre**

Table 3.12 shows that 97.5% of children were brought to health centres to measure weight and height and the highest proportion of children was observed from Zone 2 and 3 (99.1%). Mean number of days of visiting centers to obtain nutrition services were 4 in all zones except in Zone 1, which was 4 times.

**Table 3.12**

**Visit to health center to obtain nutrition services by zones**

Visit to health center to check weight/height of the child	Zone									
	1		2		3		4		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Yes	442	98.2	433	99.1	444	99.1	436	93.8	1751	97.5
No	8	1.8	4	0.9	4	0.9	29	6.2	45	2.5
<b>Total</b>	<b>450</b>	<b>25.1</b>	<b>437</b>	<b>24.3</b>	<b>444</b>	<b>24.7</b>	<b>465</b>	<b>25.9</b>	<b>1796</b>	<b>100.0</b>
Frequency and interval of visiting health center among children >6months	Mean days	SD	Mean days	SD	Mean days	SD	Mean days	SD	Mean days	SD
Time elapsed from the first visit	93.2	42.8	81.3	37.2	104.0	32.2	84.2	31.0	90.9	37.1
Time elapsed from the last visit	18.0	22.3	21.6	22.2	28.0	25.0	25.9	26.2	23.5	24.3
Mean number of visits after displacement	4	2.8	3	1.3	3	1.2	3	1.2	3	1.8

**Table 3.13**

**Availability of NRP cards among children >6 months with SAM by zones**

Availability of NRP	Zone
---------------------	------

	1		2		3		4		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Yes	4	26.7	9	47.4	3	21.4	8	42.1	24	35.8
No	11	73.3	10	52.6	11	78.6	11	57.9	43	64.2
<b>Total</b>	15	22.4	19	28.4	14	20.9	19	28.4	67	100.0

### **Food supplementation programme**

Children over 6 months with SAM were included in a therapeutic feeding programme using therapeutic food such as BP-100 and Plumppy Nut. Children who were enrolled in this programme were provided with a special card named Nutrition Rehabilitation card (NRP). Table 3.15 shows the availability of NRP cards. It was 35.3% in children with SAM. The highest proportion of SAM children had NRP card was found in Zone 2 (47.4%) and the lowest proportion of children was found in Zone 3 (20.0%).

**Table 3.14**

### **Food supplements received from the health center by zones**

<b>Received BP100 / Plumppy nut for SAM children</b>	<b>Zone</b>									
	1		2		3		4		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Ever	4	26.7	9	45.0	9	64.3	5	26.3	27	39.7
In the last visit	1	6.7	1	5.0	0	0.0	8	42.1	10	14.7
Never	10	66.7	10	50.0	5	35.7	6	31.6	31	45.6
<b>Total</b>	15	22.1	20	29.4	14	20.6	19	27.9	68	100.0
<b>Received UNIMIX / HEB for MAM children</b>	No.	%	No.	%	No.	%	No.	%	No.	%
Ever	39	52.7	64	65.3	65	80.2	54	60.0	222	64.7
In the last visit	1	1.4	10	10.2	3	3.7	23	25.6	37	10.8
Never	34	45.9	24	24.5	13	16.0	13	14.4	84	24.5
<b>Total</b>	74	21.6	98	28.6	81	23.6	90	26.2	343	100.0
<b>Received Thripasha / CSB as blanket</b>	No.	%	No.	%	No.	%	No.	%	No.	%
Ever	394	94.9	295	70.9	406	95.8	206	46.2	1301	76.5



In the last visit	1	0.2	109	26.2	18	4.2	217	48.7	345	20.3
Never	20	4.8	12	2.9	0	0.0	23	5.2	55	3.2
<b>Total</b>	<b>415</b>	<b>24.4</b>	<b>416</b>	<b>24.5</b>	<b>424</b>	<b>24.9</b>	<b>446</b>	<b>26.2</b>	<b>1701</b>	<b>100.0</b>

**Table 3.15**

**Current and past status of Therapeutic and Supplementary feeding programme in relation to nutritional status of children over 6 months**

Wasting (weight-for-height)	Therapeutic and supplementary food									
	BP-100		Plumppyn ut		HEB		UNIMIX		CSB/Thripos ha	
	May	Sep	May	Sep	May	Sep	May	Sep	May	Sep
Severe <-3	4.2	11.8	11.6	11.8	11.1	5.9	13.7	2.9	34.7	17.6
Moderate $\geq -3$ & <-2	1.4	1.8	3.5	1.8	12.3	9.7	10.4	1.5	34.6	21.6
Normal $\geq -2$	0.0	0.8	0.7	0.8	15.2	7.3	8.3	2.0	41.8	20.1
<b>Total</b>	<b>0.8</b>	<b>1.4</b>	<b>2.5</b>	<b>1.4</b>	<b>14.0</b>	<b>7.7</b>	<b>9.3</b>	<b>1.9</b>	<b>39.2</b>	<b>20.3</b>
<b>Total No.</b>	<b>8</b>	<b>24</b>	<b>26</b>	<b>36</b>	<b>158</b>	<b>130</b>	<b>99</b>	<b>33</b>	<b>415</b>	<b>344</b>
<b>Stunting (height-for-age)</b>										
Severe <-3	0.0	4.8	7.5	2.7	9.5	5.6	13.4	2.1	34.3	22.6
Moderate $> -3$ & <-2	2.0	0.9	2.4	3.1	14.4	9.0	8.2	3.1	41.2	25.2
Normal $> -2$	0.4	1.2	1.9	1.7	16.2	7.5	9.3	1.5	38.9	18.2
<b>Total</b>	<b>0.8</b>	<b>1.4</b>	<b>2.4</b>	<b>2.1</b>	<b>14.6</b>	<b>7.7</b>	<b>9.3</b>	<b>1.9</b>	<b>39.1</b>	<b>20.3</b>
<b>Total No.</b>	<b>8</b>	<b>24</b>	<b>26</b>	<b>36</b>	<b>156</b>	<b>130</b>	<b>99</b>	<b>33</b>	<b>416</b>	<b>344</b>
<b>Underweight (weight-for-age)</b>										
Severe <-3	3.2	4.5	9.6	5.6	8.7	6.6	11.5	2.5	35.7	20.2
Moderate $> -3$ & <-2	0.9	1.5	1.7	3.0	14.0	9.3	9.7	1.7	38.9	24.0
Normal $> -2$	0.0	0.7	0.9	0.9	15.6	7.1	8.5	2.0	40.5	18.3
<b>Total</b>	<b>0.8</b>	<b>1.4</b>	<b>2.4</b>	<b>2.1</b>	<b>14.0</b>	<b>7.7</b>	<b>9.3</b>	<b>1.9</b>	<b>39.3</b>	<b>20.3</b>
<b>Total No.</b>	<b>8</b>	<b>24</b>	<b>26</b>	<b>36</b>	<b>159</b>	<b>130</b>	<b>99</b>	<b>33</b>	<b>418</b>	<b>344</b>

Table 3.15 shows how 3 supplementary feeding programmes was targeted for the children with wasting, stunting and underweight. Therapeutic feeding programme is supposed to cover only children with severe wasting but the study results indicates that BP-100 was provided to children with moderate wasting and Plumppy nut was provided even to children who are not wasted also. Similar findings was observed with UNIMIX and HEB which are the food items

targeted for children with moderate wasting but the study results indicate that 15.2% and 9.3% of non wasted children were also provided with HEB and UNIMIX respectively. On the contrary CSB and Thriposha should be given to all children despite their nutritional status but the study results show only 34.7% of children with severe wasting, 34.6% of children with moderate wasting and 41.8% of normal children also has received CSB and Thriposha. It indicates that the feeding programmes are poorly targeted.

**Table 3.16**  
**Therapeutic and Supplementary feeding of children**  
**over 6 months in different zones in May and September**

Welfare center	Therapeutic and supplementary food									
	BP-100		Plumppynut		HEB		UNIMIX		CSB/Thriposha	
	May	Sep	May	Sep	May	Sep	May	Sep	May	Sep
Zone 1	1.5	0.2	0.5	0.2	0.5	1.7	0.5	0.0	57.6	0.2
Zone 2	0.0	0.5	1.4	1.7	3.4	3.2	3.1	2.7	33.1	26.2
Zone 3	1.4	0.2	1.8	0.7	12.5	1.7	11.4	1.0	69.0	4.3
Zone 4	0.3	4.5	5.5	5.6	37.7	23.5	19.9	4.1	4.1	48.6
Total	0.8	1.4	2.4	2.1	14.6	7.7	9.3	1.9	39.3	20.3
Total No.	8	24	26	36	157	130	100	33	421	344

**Table 3.17**  
**Coverage of food supplementation programme in children over 6 months**  
**in May and September**

Type of food supplementation programme	Coverage		Mean (SD) amount of pkts. received at the last visit	Mean (SD) duration in days to be used
	May	Sep		
<b>Therapeutic Feeding among severe wasted children</b>				
<b>BP-100</b>	4.2	11.8	3.5(1.7)	10.7(5.8)
<b>Plumppy Nut</b>	11.6	5.9	22.7(7.3)	9.5(7.1)
<b>Feeding among moderately wasted children</b>				

<b>HEB</b>	12.3	9.7	1.7(0.5)	15.4(9.9)
<b>UNIMIX</b>	10.4	1.5	1.0(0.2)	1.0(0.4)
<b>Blanket feeding among children&gt;6months</b>				
<b>CSB / Thripasha</b>	39.3	20.3	2.5(1.4)	27.2(9.7)

### c. Health services and Healthy Environment

Ministry of Healthcare and Nutrition conducted a child health campaign in June to enhance the coverage of polio vaccine, Vitamin A megadose and deworming.

#### **Measles Immunisation**

As shown in Table 3.19, 78.9% of children over 9 months were given measles vaccination in September and 36.1% were given during the child health campaign in June. Vaccination records were obtained from the CHDR immunization records. It was reported that the measles vaccination given during the child health campaign was recorded on the back page of the CHDR which may not have been counted during the survey. It may be the reason to get a low coverage of measles vaccination even after the child health campaign.

**Table 3.19**

**Proportion of children over 9 months given the measles or MR vaccine**

Welfare centers	Coverage of measles / MR vaccination No. (%)			
	May		September	
	Measles	MR	During Campaign	Total
<b>Zone 1</b>	162 (84.4)	95 (81.9)	94 (24.7)	312 (82.1)
<b>Zone 2</b>	210 (76.4)	122 (80.9)	129 (34.2)	315 (83.6)
<b>Zone 3</b>	215 (81.7)	122 (83.0)	197 (49.4)	303 (75.9)
<b>Zone 4</b>	208 (75.4)	129 (76.8)	144 (35.5)	302 (74.4)
<b>Total</b>	<b>795 (79.0)</b>	<b>468 (80.7)</b>	<b>564 (36.1)</b>	<b>1232 (78.9)</b>

#### **Vitamin A supplementation**

All children above 6 months were given a dose of Vitamin A, 100,000IU to children 6-12 months and 200,000IU to children above one year. Coverage has increased from 45.3% in May to 79.2% in September. The highest coverage was reported from Zone 1 (97.0%) and the lowest coverage from Zone 4 (87.2%). Coverage of the Vitamin A supplementation during the campaign was 79.2% (Table 3.20).

Table 3.20

Proportion of children who received the Vitamin A mega dose after being displaced

Welfare centers	Coverage of Vitamin A megadose No. (%)			
	May		September	
	N	%	During Campaign	Total
Zone 1	141	69.5	337 (83.2)	393 (97.0)
Zone 2	66	22.8	319 (80.4)	379 (95.5)
Zone 3	170	60.3	326 (78.6)	392 (94.5)
Zone 4	106	36.4	318 (75.0)	370 (87.3)
<b>Total</b>	<b>483</b>	<b>45.3</b>	<b>1300 (79.2)</b>	<b>1534 (93.5)</b>

### ***Polio vaccination***

All children under five were given a dose of polio after the displacement and currently 94.3% children had received polio after the displacement (Table 3.21). The highest coverage was reported from Zone 2 (95.9%) and the lowest coverage was from Zone 4 (92.5%). Coverage during the campaign was 30.6%.

Table 3.21

Proportion of children who received the oral polio vaccine after being displaced

Welfare centers	Coverage of polio vaccine No. (%)			
	May		September	
	N	%	During Campaign	Total coverage
Zone 1	130	61.6	156 (35.6)	416 (95.0)
Zone 2	35	12.2	170 (40.7)	401 (95.9)
Zone 3	169	59.1	98 (22.5)	410 (94.0)
Zone 4	35	14.3	98 (22.2)	408 (92.5)
<b>Total</b>	<b>369</b>	<b>35.9</b>	<b>522 (30.1)</b>	<b>1635 (94.3)</b>

### ***Deworming***

The Ministry of Health has provided all children above two years with an additional dose of mebendasole 500mg for deworming after the displacement. Presently 89.1% children received

deworming medication (Table 3.8). The highest coverage was observed from Zone 1 (97.0%) and the lowest coverage from Zone 4 (76.8%). The coverage during the campaign was 76.1%.

**Table 3.22**

**Proportion of children who received the Deworming tablets after being displaced**

Welfare centers	Children above 2 year received deworming tablets			
	May		September	
	N	%	During Campaign	Total coverage
<b>Zone 1</b>	71	59.7	208 (89.7)	225 (97.0)
<b>Zone 2</b>	35	19.9	201 (81.4)	222 (89.9)
<b>Zone 3</b>	73	42.0	192 (70.8)	253 (93.4)
<b>Zone 4</b>	49	28.8	167 (64.5)	199 (76.8)
<b>Total</b>	<b>228</b>	<b>35.7</b>	<b>768 (76.1)</b>	<b>899 (89.1)</b>

**Availability of CHDR**

This study revealed that 96.7% of children had CHDR which is higher than the reported figure in May (82.1%) (Table 3.24).

**Table 3.24**

**Proportion of children with the availability of CHDR**

Welfare centers	Availability of child's CHDR			
	May		September	
	N	%	N	%
<b>Zone 1</b>	189	86.7	441	98.0
<b>Zone 2</b>	253	80.3	418	95.7
<b>Zone 3</b>	252	83.7	438	98.4
<b>Zone 4</b>	240	79.2	441	94.8
<b>Total</b>	<b>934</b>	<b>82.1</b>	<b>1738</b>	<b>96.7</b>

**Water and sanitation**

Table 3.25 shows that 85.2% of them got drinking water from the tube wells in September and only 9% got water from the Bowsers. Only 1% used river water for drinking purposes. This is fairly a satisfactory situation. Similar percentages were observed in May and September to obtain water for other purposes other than drinking.

**Table 3.25**  
**Main source of water by households**

Main source of drinking water (n=1147)	Welfare centers									
	Zone 1		Zone 2		Zone 3		Zone 4		Total	
	May	Sep	May	Sep	May	Sep	May	Sep	May	Sep
Water tank	8.2	3.6	7.9	3.0	3.3	9.7	14.9	2.2	8.6	4.6
Tube well	73.2	88.2	77.2	92.7	74.3	67.6	51.6	92.0	68.8	85.2
Bowser	18.2	4.0	13.9	4.1	19.1	22.5	31.2	5.6	20.7	9.0
Bottled	12.5	0.7	0.3	0.0	1.3	0.0	0.3	0.2	0.6	0.2
Other (River)	0.0	3.6	0.6	0.2	2.0	0.2	1.9	0.0	1.2	1.0
<b>Main source of water for washing and other purposes</b>										
Water tank	26.5	13.1	8.5	11.7	3.6	7.2	6.5	12.9	10.1	11.2
Tube well	44.7	57.9	51.9	45.8	56.6	65.6	65.0	52.9	55.3	55.6
Bowser	14.6	3.8	14.9	27.2	30.5	17.3	21.2	21.9	20.6	17.5
Bottled	0.0	0.0	0.6	0.0	0.0	0.2	0.0	0.0	0.2	0.1
Other (River)	14.2	25.2	24.1	15.3	9.3	9.7	7.2	12.3	13.7	15.6

Table 3.26 shows 93.7% washed hands after using toilets in September which was 81.7% in May and only 0.1% did not wash the hands which was 0.5% in May. 79% always washed hands before eating with soap in September which was 46.1% in May and 16.7% washed hands without using soap in May which has decreased in September to 14.6%. Almost 99% were using toilets for defecation but 33.7% disposed their child's stool to bush.

**Table 3.26**  
**Hygiene practices and sanitation by households**

Washing of hand after using toilets	Welfare centers									
	Zone 1		Zone 2		Zone 3		Zone 4		Total	
	May	Sep	May	Sep	May	Sep	May	Sep	May	Sep
Always with soap	67.1	77.6	71.7	95.6	87.4	99.8	96.4	99.3	81.7	93.1
Sometime with soap	30.4	4.0	26.1	1.2	12.0	0.2	1.7	0.7	16.7	1.5
Wash without soap	1.8	18.2	1.0	3.2	0.7	0.0	1.3	0.0	1.1	5.4
Did not wash	0.0	0.2	1.3	0.0	0.0	0.0	0.6	0.0	0.5	0.1
<b>Washing of hand</b>										

<b>before eating</b>										
Always with soap	41.4	54.4	40.4	79.4	54.3	91.7	47.2	90.3	<b>46.1</b>	<b>79.0</b>
Sometime with soap	45.0	9.8	36.9	6.9	35.7	3.6	32.3	5.2	<b>36.9</b>	<b>6.3</b>
Wash without soap	13.8	35.6	22.1	13.7	10.0	4.7	20.5	4.5	<b>16.9</b>	<b>14.6</b>
Did not wash	0.0	0.2	0.6	0.0	0.0	0.0	0.0	0.0	<b>0.2</b>	<b>0.1</b>
<b>Place of defecation</b>										
Toilet	-	99.8	-	99.8	-	100.0	-	100.0	-	<b>99.9</b>
Bush	-	0.0	-	0.2	-	0.0	-	0.0	-	<b>0.1</b>
River	-	0.2	-	0.0	-	0.0	-	0.0	-	<b>0.1</b>
<b>Place of dispose child's stool</b>										
Toilet	-	55.2	-	66.6	-	72.8	-	67.1	-	<b>65.4</b>
Bush	-	44.8	-	33.4	-	26.3	-	30.0	-	<b>33.7</b>
Other	-	0.0	-	0.0	-	0.9	-	2.6	-	<b>0.9</b>

### 3.3.3. Basic causes

#### **Number of household members**

Nearly two third of the household (68.3%) consisted of less than 5 members and 29.8% of household had about 5-7 members. Only 1.9% of household consisted of more than 7 members (Table 3.27). The pattern was similar to the results in May.

**Table 3.27**

#### **Number of people per household in zones**

Welfare centers	Number of people per household							
	< 5		5 – 7		≥ 8		Total	
	May	Sep	May	Sep	May	Sep	May	Sep
<b>Zone 1</b>	61.5	68.6	34.9	29.6	3.7	1.8	218	449
<b>Zone 2</b>	57.5	64.5	39.0	33.0	3.5	2.5	315	437
<b>Zone 3</b>	58.1	67.9	38.9	30.3	3.0	1.8	302	445
<b>Zone 4</b>	67.3	71.8	29.4	26.5	3.3	1.7	303	465
<b>Total</b>	<b>61.1</b>	<b>68.3</b>	<b>35.6</b>	<b>29.8</b>	<b>3.2</b>	<b>1.9</b>	<b>1137</b>	<b>1796</b>
<b>Total No.</b>	<b>694</b>	<b>1226</b>	<b>405</b>	<b>535</b>	<b>38</b>	<b>35</b>	<b>1137</b>	<b>1796</b>

#### **Number of children under five**

Most of the households (98.6%) which were visited had 2 children or one child under five years. Only 1.4% of the houses had children 3 to 4 (Table 3.28). Similar pattern was observed in May.

**Table 3.28**

**Number of children under the age of five per household in zones**

Welfare centers	Number of children under five per household					
	≤ 2		3-4		Total	
	May	Sep	May	Sep	May	Sep
Zone 1	95.0	98.4	5.0	1.6	218	450
Zone 2	94.3	98.6	5.7	1.4	314	437
Zone 3	98.3	99.3	1.7	0.7	301	445
Zone 4	94.7	98.1	5.3	1.9	303	464
<b>Total</b>	<b>95.6</b>	<b>98.6</b>	<b>4.4</b>	<b>1.4</b>	<b>1136</b>	<b>1796</b>
<b>Total No.</b>	<b>1086</b>	<b>1771</b>	<b>50</b>	<b>25</b>	<b>1136</b>	<b>1796</b>

**Current status of parents**

The majority (97.8%) of households had the mother. In about 6.8% of households it was found that the father was dead and also 1.9% of the mothers were dead. In eleven households the father and mother both were dead (Table 3.29). Only 82.1% of fathers were alive and living in the household with the family. Percentage of father alive but separated from the family were more in September than in May (4.9% in May and 9.2% in September). Around 1.8% of fathers and 0.1% of mothers were missing and no information was available about them but the percentage was lower than in May.

**Table 3.29**

**Distribution of households studied by status of parents**

Status of the parents	Welfare centers									
	Zone 1		Zone 2		Zone 3		Zone 4		Total	
	May	Sep	May	Sep	May	Sep	May	Sep	May	Sep
<b>Dead</b>	4.6	7.1	11.2	6.9	4.3	5.8	10.2	7.3	7.8	6.8
<b>Alive &amp; together</b>	89.4	80.2	80.8	84.4	84.4	82.0	82.2	81.9	83.8	82.1
<b>Alive &amp; separated</b>	3.2	11.3	2.6	7.1	7.6	10.1	5.9	8.4	4.9	9.2
<b>Missing / unknown</b>	2.8	1.3	5.4	1.6	3.7	2.0	1.7	2.4	3.4	1.8
<b>Mother**</b>	<b>May</b>	<b>Sep</b>	<b>May</b>	<b>Sep</b>	<b>May</b>	<b>Sep</b>	<b>May</b>	<b>Sep</b>	<b>May</b>	<b>Sep</b>
<b>Dead</b>	0.9	2.0	3.2	1.8	1.0	0.9	2.0	2.2	1.9	1.7
<b>Alive &amp; together</b>	97.7	97.1	93.9	97.9	99.0	98.7	97.4	97.6	96.9	97.8
<b>Alive &amp; separated</b>	0.9	0.9	0.0	0.2	0.0	0.2	0.7	0.2	0.4	0.4



Missing / unknown	0.5	0.0	2.9	0.0	0.0	0.2	0.0	0.0	0.9	0.1
Total	19.2	25.1	27.5	24.3	26.5	24.8	26.7	25.8	100.0	100.0
Total No.	218	450	312	437	301	445	303	464	1134	1796

### Education of the mother

Table 3.30 shows there is a similar pattern with regards to the educational level of mothers in both surveys. In the current survey only 1.3% of mothers had not attended schools which was 1.3% in May and majority (71.8%) had attained secondary level of education which was 69% in May. A very few (1.6%) had obtained higher education which was 1.0% in May.

**Table 3.30**  
Level of education of mothers in Zones

Mother's education in years	Welfare centers									
	Zone 1		Zone 2		Zone 3		Zone 4		Total	
	May	Sep	May	Sep	May	Sep	May	Sep	May	Sep
No education	0.5	1.6	2.6	1.4	0.3	1.3	2.3	0.9	1.5	1.3
Primary ( 1- 5)	12.4	12.1	11.6	14.6	13.0	10.3	12.5	11.6	12.4	12.2
Secondary (6-11)	68.3	70.1	67.4	71.9	69.4	74.4	70.6	70.9	69.0	71.8
Tertiary (12-13)	18.3	14.5	16.8	11.0	16.3	12.8	13.9	14.2	16.2	13.2
Higher (Degree/Diploma /Postgraduate)	0.5	1.8	1.6	1.1	1.0	1.1	0.7	2.4	1.0	1.6

### Displacement

Families included in the study were affected and on average they have changed 9 (SD±5.9) places during the displacement. The mean days of displacement from own residence varied from 223.3 – 405.3 days and the mean was 322 days. Duration of living in the current place varied from 10.3 – 39.2 days and on average 30 days (Table 3.32).

**Table 3.32**  
Details on displacement

Mean number of days of displacement	Welfare center									
	Zone 1		Zone 2		Zone 3		Zone 4		Total	
	Mean (SD)		Mean (SD)		Mean (SD)		Mean (SD)		Mean (SD)	
	May	Sep	May	Sep	May	Sep	May	Sep	May	Sep
Leaving own home	235.3 (186.2)		263.2 (223.3)		405.3 (520.0)		363.8 (450.1)		322.3 (387.9)	

Leaving last point of residence	53.4 (36.4)		25.4 (15.2)		42.4 (79.4)		11.9 (20.5)		<b>31.6</b> <b>(48.3)</b>	
Living in this place	39.2 (26.6)	<b>124.8</b> <b>(29.9)</b>	25.5 (17.2)	<b>120.7</b> <b>(24.1)</b>	45.4 (21.3)	<b>146.6</b> <b>(20.7)</b>	11.9 (10.3)	<b>107.9</b> <b>(21.1)</b>	<b>29.8</b> <b>(23.2)</b>	<b>124.9</b> <b>(28.0)</b>
No. of places changed	5.0 (3.0)		9.9 (5.9)		9.4 (7.0)		10.9 (5.2)		<b>9.1</b> <b>(5.9)</b>	

### 3.3.4. Mortality

Number of deaths for last 3 months was obtained. It was reported 94 deaths among children under 5 years and 151 deaths over 5 years during the last 3 months.

**Table 3.34**  
**Pattern of mortality and injuries**

Mortality during last 3 months	May	Sep
Total under five deaths	19	<b>3</b>
Total > 5 deaths	167	<b>7</b>

Under five child mortality rate (U5MR) and crude mortality rate (CMR) was calculated using ENA software. Number of live birth in the sample during the recall period was 106 and the household members in the sample were 7315 and under five children in the sample was 2242.

**Under five mortality rate = 4.29 (2.63 – 6.93) / 10,000 per day in May**

**Crude mortality rate = 2.3 (0.6 – 8.45) / 10,000 per day in September**

The objective of the overall emergency assistance programme should be to achieve a crude mortality rate less than 1 per 10,000 persons per day and an under-five mortality rate of less than 2 per 10,000 children per day as soon as possible. The results indicate that the U5MR and crude mortality rate was higher than the acceptable level.

### 3.3.5. Risk of child under nutrition by selected factors

Table 3.36 shows that a male child had a greater risk of suffering from wasting than a female child, which is highly significant. There is an increasing prevalence of wasting with the increasing age which is also highly significant. Two immediate causes (dietary intake in relation to the frequency of feeding and the disease prevalence) contributed to the prevalence of wasting and showed that there is a significant difference between the wasted and not wasted groups with diarrhoea and ARI. The following factors were determined as underlying causes related to wasting. They are source of drinking water, sanitary facilities, household size, number of under 5 children in the household and status of parents. All these factors were not significantly related to the wasting. Low birth weight is highly significant with wasting.

**Table 3.36**  
**Weight for height Z- score (wasting) and risk factors**

Risk factors	Wasting				Total	Test statistics
	Yes		NO			
	n	%	n	%		
<b>Sex</b>						
Female	201	23.6	651	76.4	852	$\chi^2 = 0.073,$
Male	224	24.1	704	75.9	928	$P = 0.787$
<b>Age (months)</b>						
0 - 5	14	16.5	71	83.5	85	$\chi^2=10.846, P=0.055$
6 – 11	44	27.8	114	72.2	158	
12 – 23	116	24.2	364	75.8	480	
24 – 35	82	21.0	309	79.0	391	
36 – 47	78	22.2	274	77.8	352	
48 – 60	91	29.0	223	71.0	314	
<b>Illness</b>						
Diarrhoea <sup>1</sup>	108	28.3	274	71.7	382	$^1\chi^2=5.171, P=0.023$
No Diarrhoea	317	22.7	1081	77.3	1398	
ARI <sup>2</sup>	138	28.4	348	71.6	486	$^2\chi^2=7.510, P=0.006$
No ARI	287	22.2	1007	77.8	1294	
<b>Frequency of feeding</b>						
<3	34	23.6	110	76.4	144	$\chi^2= 0.019$
>=3	373	24.1	1173	75.9	1546	$P=0.890$
<b>Birth Weight</b>						
Low birth weight	109	37.2	184	62.8	293	$\chi^2=35.808$
Normal	301	20.9	1139	79.1	1440	$P=0.000$
<b>Total</b>	425	23.9	1355	76.1	1780	

### 3.3.6. Home deliveries

There were 84 pregnant women in the study sample. Majority of pregnant women (63.1%) were between 13-28 weeks. About 42% mothers visited clinic once and only 17.6% had not gone for clinics. About 63% were received tetanus toxoid.

## **Conclusions and Recommendations**

The prevalence of acute undernutrition (wasting) among children under five was 23.9%. This is about 33% reduction in the prevalence of acute undernutrition. However, this progress has been more in case of severe acute undernutrition which reduced from 8.8% in May to 4.0% during September- a net 55% reduction. This reduction reflected in all zones and the highest percentage of reduction was detected in Zone 2. The children between 48-60 months were the most affected group. In terms of location of children, IDPs in Zone 2 still remains the most affected with 22.8% moderate acute undernutrition and 4.8% severe acute undernutrition.

It is also important to note here that there has been substantial amount of reduction in the morbidity situation also. Prevalence of Diarrhoea has reduced from 41.9% in May to 21.5% and Acute Respiratory Infection (ARI) reduced from 61.9% in May to 27.3% in September. These were about 49% & 56% reduction respectively. This reduction has been highest in Zone 2 which had the worst scenario in May with 46.7% Diarrhoea and 58.1% ARI that reduced to 23.1%.

There were good coverage of nutrition interventions implemented in areas; 93.5% of children between 6-59 months have received a dose of Vitamin A and this coverage was only 45% in May (almost a 108% increase). Coverage of Polio vaccination between 2-60 months were 95.7% which was only 35.9% in May (a 167% increase). Coverage of Deworming of children between 1-5 years was 89.5% which was only 35.7% in May (a net increase of 151%). These were the due to the Child Health Campaign conducted by the Ministry of Healthcare and Nutrition in collaboration with UNICEF & Other Partners.

### **Recommendations:**

1. To screen all the children under five years to identify children with SAM and MAM after good community sensitization programme
2. To increase the coverage of therapeutic feeding programme with enhancing the monitoring
3. To extend the support to target all food supplementation programme to minimize the duplication and to increase the coverage.
4. Conduct a 3<sup>rd</sup> round of surveillance after 3 months to identify the impact of all interventions.

