

Nutrition Survey

**Nyaminyami District,
(Kariba Rural)**

Mashonaland West Province

Zimbabwe

July,2002



Save the Children

**in Collaboration with the Nyaminyami
Food and Nutrition Management Team**

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Participating Organisations/Institutions

Save the Children (UK)

Ministry of Health and Child Welfare

-Nursing Department – Binga District

-Environmental Health – Binga District

Nyaminyami Rural District Council

Ministry of Local Government and National Housing

Ministry of Education – Kariba District

Ministry of Youth Development, Gender and Employment Creation - Siakobvu

EXECUTIVE SUMMARY

① Introduction

Nyaminyami (or Kariba Rural) district is ranked as the least developed district in all of Zimbabwe¹. The communal lands are mainly classified as natural regions IV and V, and agriculture also suffers from destruction of produce by wildlife from Matusadona Game Park within the district. As of February 2002, 5.8% of children were acutely malnourished, while 34.1% were chronically malnourished.

In line with Save the Children (UK)'s ongoing situation assessment and reports by the District Food and Nutrition Management Team of imminent food insecurity, this assessment was commissioned.

② Objectives

The objective of the current survey was to estimate the prevalence of acute malnutrition in children 6-59 months of age in Binga district. A similar survey was carried out in Nyaminyami in February 2002, thus secondary objectives were therefore to assess changes in acute malnutrition over the 4-month period, and to assist with understanding the impact of food aid programmes being implemented in the district. The survey was carried out soon after a household economy assessment, and so also served as a situation assessment.

③ Methodology

The nutrition survey was conducted from the 16th to the 21st of July 2002. 30 communities were selected from the area of interest, 30 children randomly selected from each selected community using standard household selection techniques. A total of 924 children were thus sampled, from whom measurements of physical growth (anthropometric measurements e.g. weight and height) were taken and analysed to compute indicators of nutritional status.

Acute or current malnutrition comprises wasting (marasmus) and kwashiorkor. Wasting (or “thinness”) was assessed using the weight for height index, which expresses the weight of a child in comparison to his height. The index is based on comparison of weight and height measurements to reference values. The assessment of kwashiorkor or oedematous malnutrition was based on the presence of bilateral (symmetrical) oedema, which is the main clinical sign of kwashiorkor.

The two main signs of acute malnutrition are a decrease in the value of the weight for height index and the presence of oedema. The combination of these two signs and a cut off value for the index are used to define 2 classes of acute malnutrition – “moderate” and “severe”, which are referred to as “global” acute malnutrition when combined.

④ Main results

The survey design requires that the true levels of malnutrition be presented within a range of values defined by what is called the confidence interval (C.I.). (This is the estimated prevalence plus or minus the precision achieved.) The 95% confidence

¹ UNDP Zimbabwe Human Development Report, 2000

interval implies that the probability of the true value lying within the range is 95%. In other words, we are 95% certain that the level of malnutrition is within the range presented

Global acute malnutrition defined by an index weight-for-height < - 2 Z-scores or presence of oedema: **5.1%**

95% confidence interval: 3.1% to 7.1%

Severe acute malnutrition defined by an index weight-for-height < - 3 Z-scores or presence of oedema: **2.1%**

95% confidence interval: 0.8% to 3.4%

Acute malnutrition was found to be relatively low exhibiting a slight decrease from the February 2002 range of 3.7% to 8.0 (5.8%), indicating a slight improvement of the nutrition situation. Acute malnutrition also was found to be more prevalent in children 6 –29 months due to their higher susceptibility to changes in household food security.

⑤ **Conclusions**

Acute malnutrition was found to be not yet a problem of public health significance, but indicators suggest coping mechanisms have been exhausted.

Despite the low rate, aggravating factors in malnutrition, namely high respiratory and diarrhoeal disease prevalence, still exist, thus classifying the situation as a risky situation - one that requires development agencies to be “alert” in as far as the livelihood security situation is concerned.^{2,3} The lack of significant improvement in spite of the interventions currently underway further emphasises this.

The chronic malnutrition rate was found to be 38.8%, a level which indicates a compromise in children’s physical and cognitive development which will compromise future productivity. This is a result of chronic calorific deficit (or poor health conditions) resulting in stunted growth. The result shows that 38.8% of the children in Nyaminyami are likely not to achieve their physical and intellectual potential. The high rate reflects the chronic livelihood constraints prevalent in the district.

As such, it is imperative that agencies continue to avert disaster through co-ordinated provision of food aid until such a time when communities can be assisted to get back on their feet.

⑥ **Recommendations**

From the survey findings, and considering findings from the HEA, it is recommended:

- To continue co-ordinated blanket food aid in the district in order to restore people’s ability to obtain and produce food and provide an income transfer with which people can recover their health, welfare, education and a reasonable existence.
- To complement food aid by implementing supplementary feeding of malnourished children. Recommendation of both interventions is based on experiences drawn from the collective impact of the two in Binga district. While food aid serves as a

² WHO – Rapid Health Assessment, 1999

³ UNHCR/WFP: Guidelines for Selective Feeding Programmes in Emergency Situations. 1999

livelihood support mechanism, supplementary feeding directly improves child nutritional status, hence the synergism.

- To consider increasing Christian Care – World Food Programme ration per household to ensure mean per-capita calorific returns from the programme that are close to average dietary requirements.
- To embark on agri-input support mechanisms, coupled with training in the appropriate crops and inputs for the agro-ecological conditions of the district. Due to the poor agricultural production and costs of coping so far experienced, it will be necessary to start rebuilding lives and livelihoods by supporting communities to get back on their feet in the coming season.
- To facilitate improvement of sanitation coverage coupled with health and hygiene education. Lack of toilets predisposes communities to unsanitary practices and concomitantly sanitation related communicable diseases.
- To improve, through action or advocacy, therapeutic feeding in the District Hospital to meet conditions stipulated in the WHO recommendations in Management of Severe Malnutrition in Children.

1- INTRODUCTION

Kariba rural or Nyaminyami district is ranked as the least developed district in all of Zimbabwe (77th out of 77 on ranking the Human Development Index).⁴ It is bordered to the west by Lake Kariba, to the south by Binga district, by Gokwe North to the east, and by Hurungwe to the north and north-east. There are no tarred roads in the district, and the unsurfaced roads have been subjected to serious deterioration especially during the rainy seasons. The district, which lies largely in Natural Region IV and V, normally receives erratic and insufficient rainfall and periodic droughts, resulting in relatively poor agricultural production. Only a small portion of the district lies in Natural Region III. The district has an estimated population size of 40,827⁵

Nyaminyami is a chronic food production deficit area, meaning that most households very rarely produce enough food to last throughout the year. Therefore to ensure food security, they rely on a variety of income-earning activities including the sale of cash crops (especially cotton) and vegetables, sale of crafts, labouring on others' farms and brewing. The sale of livestock is not as important in most of Nyaminyami as it is for other rural communities in Zimbabwe due to the continued presence of tsetse fly in the district. This means that communities are not officially permitted to keep cattle, except in the Kanyati area. A substantial portion of the district is taken up by National Parks, with wildlife often straying into the communal lands.

The communal lands in the district have been classified into five distinct food economy zones⁶ (FEZ) – geographic units in which most households obtain food and cash income through roughly the same combination of means⁷. Two of these zones – Omay Agro-Fishers and GacheGache Agro-Fishers – are mainly dependent on fishing on Lake Kariba, and have not been included in this assessment due to their small populations, and because they tend to be food secure even in drought years. The three other zones – Mola/ Negande, Nebiri/ Msambakaruma/ Kasvisva and Kanyati – are distinguished mainly by levels of agricultural productivity, and by livestock holdings. Tsetse fly is still prevalent in Mola/ Negande, and increasingly in other parts of the district, but this has contributed to keeping Mola and Negande the poorest parts of the district.

A Household Economy Assessment (HEA) conducted by Save the Children (UK) in May 2002⁸ in the communal areas of the district produced the following observations and predictions:

- The 2002 harvest was significantly reduced by drought, with grain production falling to 26% of the 1990s average.
- Communities were affected by losses of cattle and donkeys to tsetse borne trypanosomiasis. Sale of livestock was an important means of coping despite the low livestock holding in the district. This reduction in livestock holdings will impact negatively on future agro-production as well as coping capacity.

⁴ UNDP Zimbabwe Human Development Report, 2000

⁵ This population estimate is provided by FEWS-NET, and is based on the 1992 census figures with a derived population growth rate. FEWS-NET's estimates are the most widely used figures, including by WFP and the UN.

⁶ Majid N. *Risk Map Report – Nyaminyami*. Harare: Save the Children (UK): 1997

⁷ Save the Children (UK). *The Household Economy Approach: A resource Manual for Practitioners*. London: Save the Children (UK), 2000

⁸ *Household Economy Assessment Kariba District, Mashonaland West Province*, Harare: Save the Children (UK): May 2002

- It was predicted that the poor group would be food insecure as of June 2002, and the middle wealth group from September 2002. Due to this livelihood and food insecurity, it was recommended that food aid amounting to 75% energy RDA (Recommended Daily Allowance) be ensured.

In terms of health, Nyaminyami is a malaria endemic area and has high under-five prevalence of diarrhoeal disease and respiratory infections. The poor roads and road networks which reduce accessibility to health facilities also exacerbate the problem.

The district benefits from a Christian Care general food distribution programme, part of the World Food Programme's national food aid programme. The programme, which has been running since April 2002, targets all households in the district but limits rations to a maximum quantity of that of five beneficiaries per household.

Also under implementation, is a highly targeted SC (UK) food aid programme which facilitates the provision of free distributions of food aid to a limited population of specific, highly vulnerable groups (just over 5,000 individuals in total). Beneficiaries encompass "Social Welfare" cases in the district, namely widows, the elderly and disabled and orphans who are without family support or a formal source of income. The beneficiaries receive rations of maize meal, cooking oil and beans.

A nutrition survey carried out in the district by SC in February 2002 found a global acute malnutrition level of 5.8%, and a chronic malnutrition (stunting) level of 34.1%. Mola and Negande were found to be the worst off areas with acute and chronic malnutrition levels of 7.4% and 47.6% respectively. The current survey thus endeavours to assess the changes in nutritional status since then.

2- OBJECTIVES

- **Main objectives**
 - To estimate the prevalence of acute malnutrition in children from 6 to 59 months of age in Binga district.
 - To assess the changes in nutrition status of the community since the beginning of the harvest period - February 2002
- **Secondary objectives**
 - To estimate the current measles vaccination coverage in children aged 9 to 59 months.
 - To assess the underlying causes of malnutrition.
 - To assess morbidity in children aged 6 to 59 months.
 - To make recommendations to Save the Children (UK) and other relevant actors on strategies and measures to improve the situation where found necessary.

3- METHODOLOGY

A two-stage cluster survey was conducted from the 16th to the 21st of July 2002 in Nyaminyami district. The target population comprised children in the 6-59 month age group. This sub-group is more vulnerable to nutritional stress and is used as a proxy indicator of the nutritional status of the entire population. In line with international recommendations⁹ on cluster surveys, 30 clusters of 30 children each was studied, which resulted in a sample size of at least 900 children.

⁹ N. Bikin, K. Sullivan, N. Staehling and P. Nierburg. *Rapid nutrition surveys*. Disasters:1992; 97-103.

① **Sampling**

A two-stage cluster sampling procedure was applied.

- ***First level of sampling: selection of the clusters***

Clusters were randomly drawn from geographical units by applying the probability proportional to population size (PPS) sampling technique using Cosas Software (version 4.41). This technique ensures that each unit's chance of being selected is primarily dependent on the relative population size but without introducing bias against any of the units. PPS sampling requires the grouping of the population in the smallest available geographical units. In the area of interest these units were villages.

- ***Second level of sampling: selection of the children***

Once the boundaries of the selected cluster were identified with the help of a community member or survey team member knowledgeable on the area, the survey team went to its approximate centre and picked a random direction. As the homesteads were too scattered it was not possible to count them from the centre to the border of the cluster in the selected direction and select the first homestead to be visited randomly. Instead the survey started at the nearest household from the cluster centre in the selected direction. Then the subsequent households were chosen by proximity. All eligible children found in a household were included in the survey. When possible, temporarily absent children were located and examined. When polygamous households were encountered, one of the wives was selected at random.

② **Data collected**

- ***Gender***

The gender of the child selected was recorded.

- ***Age***

When birth records or other documents were available, the date of birth was recorded. This facilitated the computation of the exact age (with precision of 2 decimal places). When the latter was unknown (which, fortunately, was rather infrequent), a local events calendar was used to estimate ages.

- ***Length/Height***

Measurements were taken using a wooden measuring board, having a precision of 0.1 cm. Children below two years of age were measured lying down. The child was placed in the middle of the board, with the head against the fixed end and legs fully extended by pushing on the knees. The child's soles were at right angle against the movable sliding board.

Children two years of age and above were measured standing up. The child was placed in the middle of the board with heels, calves, buttocks, shoulder blades, and back of head all against the board. The child looked straight ahead while the sliding board was positioned on top of the head crown.

- ***Weight***

Measurements were made using a 25-kg hanging Salter Scale, having a precision of 0.1 kg. The scale was held by a wooden stick, the child was placed undressed in the weighing pants and the weight was read at eye level when the child was steady and

hanged freely. Prior to weighing, the scale was set to zero with the empty weighing pants suspended below.

- **Presence of oedema**

Oedema is the abnormal accumulation of fluids within extra-cellular spaces. This was detected by applying a moderate thumb pressure on the feet or the front of the legs for three seconds. If there was oedema a shallow print or pit remained when the thumb was lifted. Only children with bilateral oedema (i.e. on both feet/ legs) were considered to have nutritional oedema – an indicator of protein deficiency. When detected, the severity of the oedema was ascertained by assessing the legs and arms.

- **Additional information** was collected from mothers on measles vaccination, demography, morbidity, food sources and water and sanitation.
- **Classification of surveyed children** in terms of their weight for height in percentage of the median was performed on the spot to allow referral to appropriate health facilities if the child was found to be severely wasted or oedematous.

③ **Indicators of nutritional status**

To measure current or acute malnutrition at the time of a survey and detect short-term changes in the nutritional situation, the indicator to be used is weight for height, which expresses the weight of a child in relation to his height. Individual measurements are then compared to reference values for a healthy population (NCHS/WHO standardised reference values¹⁰), that is the weight of a child is compared to the distribution of the weights of the reference children of the same height (or length). The weight for height index can be expressed either as standard deviations of the reference distribution, known as Z-scores, or as a percentage of the reference median. Expression in Z-scores has a true statistical meaning, which percentage of the median does not have and is, therefore, recommended.

Global and severe acute malnutrition are defined, as follows:

Global acute malnutrition: proportion of children with W/H index < -2 Z-scores (or 80% of the median) and/or oedema

Severe acute malnutrition: proportion of children with W/H index < -3 Z-scores (or 70% of the median) and/or oedema

④ **Analysis**

Data analysis and calculation of nutritional indices were performed using Epi-Info and EpiNut software (version 6.04) and Excel.

4- RESULTS

The table below shows the demographic distribution of the sample. A total sample size of 918 children was achieved, with both sexes and all age groups being adequately represented. The fact that the observed is similar to the expected profile

¹⁰ National Center for Health Statistics (1977) NCHS growth curves for children birth - 18 years. United States.

shows that the sampling procedure did not introduce any bias and thus the sample can be considered to be representative of the under five population in Nyaminyami.

Table 1: Distribution by age and gender, Nyaminyami, July 2002

Age group In months	Female		Male		Both sex		Sex ratio (M/F)
	n	%	N	%	n	%	
06-17.99	140	29.9	113	25.2	253	27.6	0.81
18-29.99	106	22.6	94	21.0	200	21.8	0.89
30-41.99	95	20.3	102	22.8	197	21.5	1.07
42-53.99	88	18.8	95	21.2	183	20.0	1.08
54-59.99	39	8.3	44	9.8	83	9.1	1.12
Total	468	51.1	448	48.9	918	100	0.96

7.7% of the children in the sample had lost one or both parents; specifically, 3.7% had lost a mother, 3.3% a father and 0.7% had lost both parents. This compares with a national average of approximately 14.3%.¹¹ 12.2% (112) of the children included in the sample were from female-headed households. These have increased from 10.7% since February 2002. There were no child headed households in the sample.

① ***Prevalence of acute malnutrition expressed in Z-scores***

Using Weight for Height Z-scores 5.1% of the measured children were found to be acutely malnourished, that is, with a W/H Z-score < -2 or oedema. The rate has decreased slightly from 5.8% in February 2002. Severe acute malnutrition (W/H Z < -3 or oedema) was found in 2.1% of the children, marking an increase from 1.9% from February 2002.

Table 2: Acute malnutrition rates in Z-scores, Nyaminyami, July 2002

	Percentage	95% Confidence Interval
Global acute malnutrition	5.1%	from 3.1% to 7.1%
Severe acute malnutrition	2.1%	from 0.8% to 3.4%

The W/H distribution curve (Graph 1) exhibited a slight shift to the left compared to that of the reference population. The mean Z - score was -0.2 with a standard deviation of 1.0, which in comparison with a mean Z - score of 0 and a SD of 1 in the reference indicates that the study population exhibited a poorer nutritional status with normal variance within the sample. Comparison with the February 2002 distribution, which had a mean Z - score of -0.49 and standard deviation of 1.0, indicates an overall decrease in wasting. This is evident in the thinness and height of the curve, which indicates low variance in Z - scores. It is apparent that the differences in nutritional status between the two sexes was reduced as illustrated by the disappearing “two – peaked” distribution.

¹¹ Figure calculated from data in UNAIDS Zimbabwe Epidemiological Fact Sheets on HIV/AIDS and Sexually Transmitted Infections, 2002 Update.

Graph 1: Distribution of Weight for Height Z-Scores - Nyaminyami July 2002

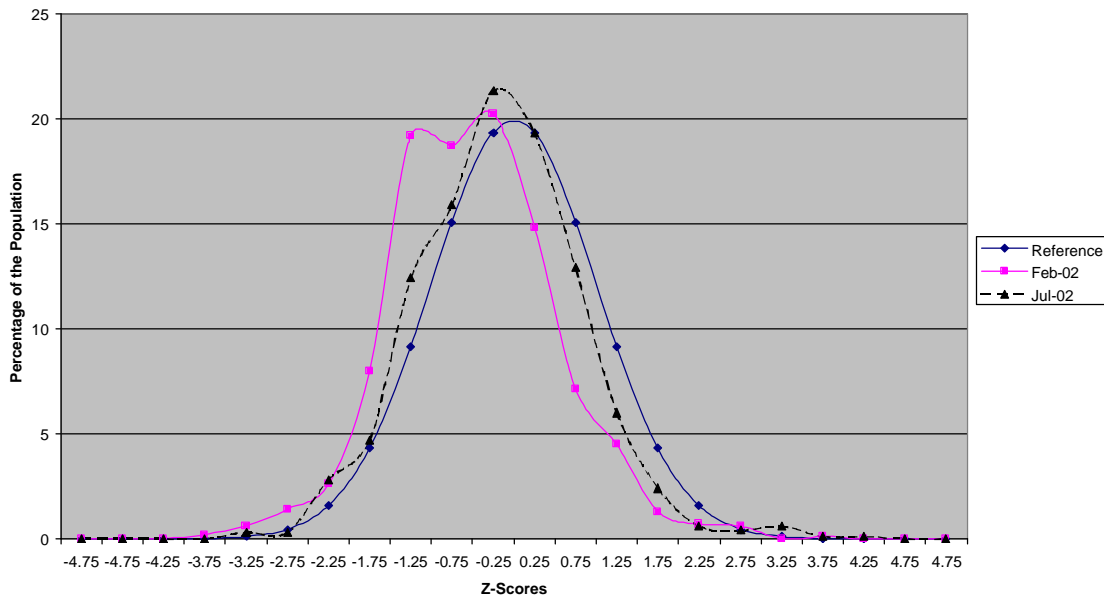


Table 3 below gives a breakdown of the sample by wasting (W/H < -2) and oedema status. It is apparent that marasmus was the major form of acute malnutrition. This was in comparison with kwashiorkor, which accounted for 1.5% of the sample. This difference is indicative of dietary energy deficit. Severe protein deficiency is also becoming increasingly significant as exhibited by increased prevalence of oedematous malnutrition.

Table 3: Distribution according to W/H in Z-scores and presence of oedema, Nyaminyami, July 2002

	W/H < -2 Z-Scores	W/H >= - 2 Z-Scores
Oedema +	Kwash/marasmus 2 0.2%	Kwashiorkor 14 1.5%
Oedema -	Marasmus 31 3.4%	Normal 871 94.9%

Table 4 below compares the global acute malnutrition rates for both sexes of the 6 – 29 month and 30 – 59 month age groups.

Table 4: Acute malnutrition rates in Z-scores by age group and gender, Nyaminyami, July 2002

	Male	Female	Both Sexes	95% Confidence Interval
Children 6-29 months	9.2%	7.3%	8.1%	4.6% to 11.6%
Children 30-59 months	1.2%	3.2%	2.2%	0.3% to 4.1%
All Children (6-59 months)	4.9%	5.3%	5.1%	3.1% to 7.1%

There seems to be a marked age and gender difference in acute malnutrition. Whilst more females are acutely malnourished than boys at the age of 6 to 29 months, the

opposite is true as they grow older (30-59 months). Acute malnutrition was found to be more prevalent in children 6 –29 months, unlike in February 2002 when it was higher in the 30 –59 month age group.

Table 5 compares the global malnutrition rates in each of the three Food Economy Zones. Whilst disaggregation of nutritional status by zone and especially cluster is not statistically reliable in studies of this design, it gives an indication of trend or distribution and can provide an indication of areas of concern.

Contrary to the expected profile, all indicators exhibit higher prevalence of Malnutrition in Kanyati than the other two FEZs. This could be due to the loss of livestock over the last 18 months, which are normally an important source of income. The other two FEZs are chronically food insecure and thus have more diverse coping strategies, hence the lack of alternative mechanisms could be responsible for the decline in nutrition status. This, however, needs further investigation.

Table 5: Global Malnutrition according to Food Economy Zone, Nyaminyami, July 2002

	Acute Malnutrition (W/H Z-Scores)		Chronic Malnutrition (H/A Z-Scores)		Underweight (W/A Z-Scores)	
Mola, Negande FEZ	23	5.2%	159	36.1%	105	23.9%
Nebiri, Msamba, Kasvisva FEZ	13	4.2%	104	33.9%	91	17.6%
Kanyati FEZ	11	6.4%	93	54.4%	31	15.2%
Nyaminyami	47	5.1%	356	38.8%	185	20.2%

② Prevalence of acute malnutrition expressed as a percentage of the median

Tables 6 to 8 represent some of the results outlined in the previous section expressed as a percentage of the median.

The Z-score index is a more sensitive index and thus recommended for reporting prevalence of acute malnutrition. The Z score recognizes the variation in the spread of weights, which is different from one height to the other, and it classifies children of different heights/ages equally, based on a more correct statistical analysis. The difference in the results obtained from z-scores and percentage of the median become larger among taller children. The W/H% is thus presented here to allow comparison with other surveys, as W/H% is sometimes used/understood by some institutions or may have been (or may be) utilised in another survey.

The rate of global malnutrition is the percentage of children with a W/H index < 80% of the median and/or oedema. Severe acute malnutrition defines the percentage of children with a W/H index < 70% of the median and/or oedema.

Table 6: Acute malnutrition rates in % of the median, Nyaminyami , July 2002

	Percentage	95% Confidence Interval
Global acute malnutrition	3.6%	from 1.9% to 5.3%
Severe acute malnutrition	1.7%	from 0.5% to 2.9%

Table 7: Distribution according to W/H in % of the median and presence of oedema, Nyaminyami, July 2002

	W/H < 80%	W/H ≥ 80%
Oedema +	Kwash/marasmus 2 0.2%	Kwashiorkor 14 1.5%
Oedema -	Marasmus 17 1.9%	Normal 885 96.4%

Table 8: Acute malnutrition rates in % of the median by age group, Nyaminyami, July 2002

	Percentage	95% Confidence Interval
Children 30-59 months	1.7%	from 0% to 3.4%
Children 6-29 months	5.5%	from 2.5% to 8.5%

③ Underlying Causes of Malnutrition

- **Socio-Economic Status**

This survey made an attempt to disaggregate the sample population by socio-economic status or by “wealth groups”, as is done in Household Economy Assessments, to see whether there were significant differences between malnutrition rates among the poor and better off. The study defined the poor wealth group as those who do not have draught power (have one or no head of cattle) and may offer agricultural labour (i.e. go for work on others’ fields). The better off category was defined as those who farm cotton, have two or more head of cattle and sometimes hire agricultural labour. The poor group was observed to have a GAM rate of 5.7%, more than twice that of the better off, 2.4%. The poor group comprised 64.9% of the sample, whilst the better off accounted for 16.9%. The remaining 16.9% were difficult to classify using the specified criteria.

- **Water and Sanitation**

The majority of the children in the sample (82.1%) are from households that do not have access to a toilet. 1.5% of the households have pit latrines and 16.3% have Blair toilets. Some of these Blair toilets are owned by institutions eg. pre-schools. As such, some of these toilets may run the risk of filling up and may be poorly maintained.

The table below shows the various water sources available in the district and the populace’s access thereto.

Table 9: Sources of Drinking Water, Nyaminyami, July 2002

Water source	n	Percentage
Dam/river	91	9.9%
Unprotected well	253	27.6%
Protected well	33	3.6%
Borehole	423	46.1%
Spring	118	12.9%
Total	918	100%

The majority of households (62.6%) obtain water from relatively safe sources, i.e. protected wells, boreholes and springs. This does not necessarily mean that they drink safe water though since this would require analysis of the path from the source to the actual consumption. It is alarming that 27.6% of the sample access drinking water from unprotected wells. In addition, a number of boreholes in Mola and some in Negande have/produce saline and/or coloured water.

Water sources had no influence on wasting in this context as evidenced by a relative risk¹² (RR) of 1.02 (the exposure being unsafe water source). This means that a child from a household with an unsafe water source was 1.02 times more likely to be acutely malnourished than those with access to a safe water source.

The low sanitation coverage may however be a contributing factor to the high prevalence of diarrhoea, which affected 10.5% of children between 6 and 59 months of age in the month prior to the survey (Table 10).

- **Morbidity**

Almost half of the children in the sample, 416 (45.3%), complained of illness during the survey or in the 2 weeks prior to the survey. Wasting was significantly associated with recent morbidity, with 6.4% of those who had been ill in the last 2 weeks being wasted compared to 3.8% of those who had not been ill. A statistical test suggested that ill children were 1.6 times more likely to be acutely malnourished than well children were (RR= 1.6, 95% CI 0.9 to 2.8).

Table 10 below, which outlines morbidity by age group and shows prevalence in the sample, illustrates that illness was age related, with younger children more likely to have been ill recently.

¹² Relative Risk (or Risk Ratio) estimates the likelihood of exposure to a certain factor (e.g. poor water and sanitation) resulting in a disease outcome (e.g. acute malnutrition).

Table 10: Morbidity in the Two Weeks Prior to the Survey, Nyaminyami, July 2002

Age group	Malaria	Fever	Measles	Diarrhoea	Cough/ARI	Other	Total	
6-17	18	17	0	45	28	42	150	16.3%
18-29	10	16	0	24	18	15	83	9.0%
30-41	13	20	0	17	28	13	91	9.9%
42-53	9	15	0	7	21	11	63	6.9%
54-59	7	3	0	3	9	7	29	3.2%
Total	57	71	0	96	104	88	416	
	6.2%	7.7%	0	10.5%	11.3%	9.6%	45.3%	

Coughs and Acute Respiratory Infections accounted for the highest morbidity followed by diarrhoea. This indicates that personal health and hygiene is an issue of public health concern in the district. Increased prevalence of ARI is probably due to the winter season, whilst diarrhoea is high because of poor water and sanitation in the district. Despite the fact that the malaria season has passed, the disease continues to account for 14% of total morbidity.

④ Measles vaccination coverage

Children in the sample were assessed for measles vaccination since it is a highly infectious disease, particularly when nutrition status is low. Only children from 9 to 59 months were included in the analysis, since the immunisation schedule for measles stipulates that the vaccine should be administered at 9 months of age. When the vaccine is given before that age, the child should receive a second booster at 12 months.

Children are considered to be vaccinated when the vaccination date is specified on their health card. . The portion of the population who both have an immunization card and have confirmation based only on the word of the mother is 79.9 %. The word of the mother (“history” in the table below), however, can not be regarded as reliable information when considering immunization coverage rates. Therefore, among the children 9 to 59 months in the sample population, 41.4% had verification of receiving the measles immunization.

Table 11: Measles vaccination coverage, Nyaminyami, July 2002

	N	Percentage
Card	356	41.4%
History	331	38.5%
Not vaccinated	173	20.1%
Total	860	100%

5- DISCUSSION

• *Nutritional status*

Global acute malnutrition was observed to be within the range 3.1% to 7.1% (5.1%), exhibiting a slight decrease from the February 2002 range of 3.7% to 8.0 (5.8%), indicating a slight improvement of the nutrition situation.

The study identified marked age and gender difference in acute malnutrition. Whilst more females are acutely malnourished than boys at the age of 6 to 29 months, the opposite is true as they grow older (30-59 months). Acute malnutrition also was found to be more prevalent in children between the ages of 6 and 29 months due to their higher susceptibility to changes in household food security. The gender differences however require further investigations as to the childcare and feeding practices (intra-household food distribution).

Relative to neighbouring Binga district, which has similar agro-ecological conditions and household economy, the rate of acute malnutrition remains higher. This may be due to the continued presence and complementarity of SC (UK) and Catholic Commission for Justice and Peace (CCJP)/ Catholic Development Commission (CADEC) projects – general rations and supplementary feeding respectively.

Table 12: Comparison of Malnutrition Rates

Area and Date of Survey	Acute Malnutrition		Chronic Malnutrition	
	Global	Severe	Global	Severe
Nyaminyami (July 2002)	5.1%	2.1%	38.8%	11.8%
Nyaminyami (Feb 2002)	5.8%	1.9%	34.1%	10.1%
Binga (May 2002)	4.4%	1.4%	29.5%	9.3%
National (2002) ¹³	7.2%		33.1%	12.4%

Little statistical correlation with water and sanitation was found and disease played a less significant role than in February 2002 (RR = 1.8). Consequently, changes in acute malnutrition may be attributed to either care related or food security constraints. Two possible ways in which food security may have changed since February are in relation to seasonal factors and the provision of food aid. The current assessment was carried out 3 months after the harvest period, and even though harvests were small in Nyaminyami, the food availability situation was better than in February. In relation to food aid, after the first survey Christian Care began implementing general food distributions under the World Food Programme, an exercise that may also have contributed to the decrease.

That said, we might have expected to have seen a greater decrease in malnutrition rates as a result of these factors. The lack of significant improvement in nutritional status may be due to the poor harvest, the fact that Christian Care rations were fixed at a maximum level of 5 people per household, and that beans were not always available for distribution. The latter factor meant that beneficiaries only received maize grain and sometimes cooking oil. Due to communities' reliance on food aid, this left them with no source of dietary protein hence the increase in oedematous malnutrition. According to the HEA, a large portion of expenditure on food was

¹³ Ministry of Health and Child Welfare\UNICEF; National Nutrition Assessment – Preliminary results

restricted to staple food purchases, for the poor and middle, maize was very dominant, whereas the better off bought a more varied food basket

Despite the low rate, aggravating factors in malnutrition, namely high respiratory and diarrhoeal disease prevalence, still exist, thus classifying the situation as a risky situation - one that requires development agencies to be “alert” in as far as the livelihood security situation is concerned^{14;15}. The lack of significant improvement in spite of the interventions currently underway further further emphasises this.

The finding that the rate of acute malnutrition in children from households that can be defined as “poor” in relative terms in the district is more than twice the rate for the “better off” provides a strong indication that acute malnutrition is linked to overall poverty levels within the district.

The chronic malnutrition rate was found to be 38.8%, a level which indicates a compromise in children’s physical and cognitive development which will compromise future productivity. This is a result of chronic calorific deficit (or poor health conditions) resulting in stunted growth. The result shows that 38.8% of the children in Nyaminyami are likely not to achieve their genetic potential in terms of both physical and intellectual potential. The high rate reflects the chronic livelihood constraints prevalent in the district.

- ***Coping Strategies***

Observations during the survey period and the May HEA revealed existence of the following indications of nutritional risk:

- Drought and subsequently decreased production
- Major pests (tsetse) affecting crops or livestock
- Declining food stocks at household, district and national level
- Rising market prices
- Evidence of excessive sale of household assets.
- Shift to eating crisis (“famine”) foods

These shocks and stresses directly affect coping (- the first four), and demonstrate an end to coping (- the latter two), rendering communities vulnerable to the prevalent nutritional shocks and stresses. As such, it is imperative that agencies continue to avert disaster through provision of food aid until such a time when communities can be assisted to get back on their feet.

Acute malnutrition, or wasting, is not yet a problem of public health significance, but indicators suggest coping mechanisms have been exhausted. The rate has dropped by only 0.7% in spite of the harvest and food aid provided in the district.

- ***Measles vaccination coverage***

Measles vaccination coverage was found to be low in Nyaminyami district. However, in a bid to eliminate measles, the Ministry of Health in collaboration with UNICEF embarked on a national immunisation and Vitamin A supplementation campaign in July 2002 where all children between 9 and 59 months were targeted to be given an extra measles dose regardless of their immunisation status. Vitamin A was also

¹⁴ WHO – Rapid Health Assessment, 1999

¹⁵ UNHCR/WFP: Guidelines for Selective Feeding Programmes in Emergency Situations. 1999

administered to all children between 6 and 71 months. This presumably increased the coverage of measles vaccination significantly.

6- RECOMMENDATIONS

- Consideration should be given to blanket feeding of the community. The current Christian Care programme targets all households, but not all household members, and therefore needs to be extended. A general ration would meet the objectives of restoring people's ability to obtain and produce food and provide an income transfer with which people can recover their health, welfare, education and a reasonable existence. Detailed recommendations on this were provided in the Household Economy Assessment report.
- Supplementary feeding needs to be considered in order to **complement** general or targeted distributions since, on its own, it is less holistic, not taking the adverse long-term effects of coping strategies and the complexities of intra-household food distribution into consideration. Complementarity of the two interventions is demonstrated in the collective impact of the Binga district SC (UK) and CCJP programmes. If a general ration is in place, then the supplementary feeding should be targeted to acutely malnourished children.
- The fact that the current Christian Care ration limits household rations to that of a maximum of five individuals compromises mean per-capita calorific returns from the programme. Considering the household sizes of poor families of 10 to 12 individuals (Nyaminyami HEA), each individual ends up receiving an inadequate fraction of their RDA. Consequently, greater impact would be realised by targeting based on actual household size.
- Due to the poor agricultural production and costs of coping so far experienced, it will be necessary to start rebuilding lives and livelihoods. Means of supporting communities to get back on their feet in the coming season need to be explored. This can be in the form of agricultural input support mechanisms, since little grain will be available to serve as seeds. If implemented, it should be coupled with training in the production of appropriate crops and input use for the agro-ecological conditions of the district. These can be distributed either free, through input credit schemes or through an "inputs for work" programme. These activities will serve the purpose of increasing the amount of grain harvested as well as building the capacity and improving self-sufficiency of the families in the district.
- Sanitation coverage improvement is essential in this context. Lack of toilets predisposes communities to unsanitary practices and concomitantly sanitation related communicable diseases. Consequently, sanitation improvement coupled with health and hygiene education has the potential to reduce diarrhoeal disease prevalence and eventually to improve nutritional status.
- The current and envisaged future conditions may result in increasing significance and necessity of health centre based therapeutic feeding. In fact, SAM levels were found to be 2.1%. In spite of this, therapeutic feeding in the District Hospital is inferior to the conditions stipulated in the WHO recommendations in Management of Severe Malnutrition in Children, mainly due to reported budgetary constraints. This may have the effect of delaying or inhibiting recovery of patients and consequently impacting on child mortality. As such, action is

necessary, at implementation or advocacy level to improve the treatment of such children.

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SC (UK), in collaboration with partner organisations and with funding from DFID, has published a series of food security and livelihood assessment and nutrition survey reports over the last 12 months:

- *Binga Household Economy Assessment – June 2001*
- *Kariba (Nyaminyami) Household Economy Assessment – July 2001*
- *Chihwiti & Gambuli Informal Settlements (with FCTZ) – September 2001*
- *Shackleton Mine Compound, Chinhoyi (with IPA) – November 2001*
- *Ingozi Mine, Bulawayo (with IPA) – November 2001*
- *Binga District Nutrition Survey – December 2001*
- *Kariba (Nyaminyami) District Nutrition Survey – February 2002*
- *The Livelihoods of Commercial Sex Workers in Binga – April 2002*
- *Vulnerability in Zimbabwe, 2002-03 – May 2002*
- *Binga District Nutrition Survey – May 2002*
- *Binga District Household Economy Assessment – June 2002*
- *Kariba (Nyaminyami) District HEA – June 2002*
- *Mashonaland Communal, Resettlement, Commercial Farmworkers & Informal Mining Communities HEA – forthcoming August 2002*

These reports are available from Save the Children UK, 10 Natal Road, Belgravia, or by e-mail from infor@scfuk.org.zw.