SNS CONSORTIUM

«Strenghtening Nutrition Security in South Central Somalia»

SMART SURVEY REPORT

Mataban District, Hiraan Region of Somalia

October - November 2016

Save the Children

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List of Acronyms

ARI	-Acute Respiratory Infection
BCG	-Bacillus Chalmette–Guerin
BSFP	-Blanket Supplementary Feeding Program
C.I	-Confidence Interval
CMR	-Crude Mortality Rate
CMU	-Consortium Management Unit
CSV	-Comma Separated Values
DFID	-Department for International Development
ENA	-Emergency Nutrition Assessment
EPI	-Expanded Program on Immunization
FAO	-Food and Agriculture Organization
FEWSNET	-Famine Early Warning System Network
FSL	-Food Security and Livelihoods
FSNAU	-Food Security and Nutrition Assessment Unit
GAM	-Global Acute Malnutrition
GPS	-Global Positioning System
HAZ	-Height for Age Z-score
HH	-Household
IDD	-Iodine Deficiency Disorders
IDP	-Internally Displaced Person
KII	-Key Informant Interviews
LNGO	-Local Non-Governmental Organization
MCH	-Maternal Child Health
MUAC	-Mid Upper Arm circumference
ODK	-Open Data Kit
SAM	-Severe Acute Malnutrition
SCI	-Save the Children international
SFP	-Supplementary Feeding Program
SMART	-Standardised Monitoring Assessment of Relief and Transitions
SNS	-Strengthening Nutrition Security
SPSS	-Statistical Package for the Social Sciences
TFG	-The Federal Government
TSFP	-Therapeutic Supplementary Feeding Program
TWG	-Technical Working group
U5MR	-Under-Five Mortality Rate
UNDP	-United Nations Development Programme
UNFPA	-United Nations Fund for Population Activities
WASH	-Water, Sanitation and Hygiene
WAZ	-Weight for Age Z-score
WCBA	-Women of Child Bearing Age
WHZ	-Weight for Height Z-score
WHO	-World Health Organization
JHNP	-Joint Health and Nutrition Program

EXECUTIVE SUMMARY

Mataban is a district in central Hiran region of Somalia. It has an estimated population of 15,000 households that is predominantly constituted of host population at 95%. The district also has a number of IDPs (internally displaced persons) totalling 5% of the population.

The population in Mataban is largely comprised of pastoralists, who specialise in keeping of goats and camels. Livestock represents the major livelihood for most of the district's population. The livestock are mainly kept for milk production and meat. The failure of rains in 2016 across Somalia has also affected Mataban district in multiple ways. Primarily, the drought has resulted in increase in food and water prices, and reduction in livestock prices. These changes, in turn, have led to cascading adverse effects of the predominantly pastoralist population, including reduced income and food security, reduced health and nutrition outcomes, large-scale displacement, and greater risk of disease outbreaks.

In the above context, the SNS Consortium conducted SMART (Standardized Monitoring and Assessment of Relief and Transitions) surveys in October and November 2016 as both surveillance support to the country and a monitoring tool for the existing SNS program funded by DFID. In Mataban district, Save the Children International is the partner for SNS running eight OTP (Outpatient Treatment Program) sites.

Overall Survey objective

Estimate the prevalence of acute malnutrition among children 6-59 months and estimate retrospective CMR (crude mortality rate) and U5MR (under-five mortality rate) in Mataban District.

Methodology

SMART (Standardized Monitoring and Assessment of Relief and Transitions) methodology was used to conduct the survey. Two stage sampling was employed in the selection of clusters and Households that participated in the survey. Atotal of 33 clusters were visited yielding a sample size of 458 children aged 6-59 months.

Results

Based on WHO classification, the nutrition situation in Mataban is very critical with GAM prevalence of 25.6% and SAM prevalence of 4.4%. This represents an increase compared to the 2015 SNS SMART Survey in the same area.

Results Summary

Indicator	Beletweyn_Summary results
GAM (Global Acute malnutrition)	19.9 % (16.3 - 24.0 95% C.I.)
MAM (Moderate Acute Malnutrition)	15.5 % (12.0 - 19.8 95% C.I.)
SAM (Severe Acute Malnutrition)	4.4 % (2.9 - 6.4 95% C.I.)
U5MR	0.25 (0.06-1.05) (95% CI)
CMR	0.14 (0.05-0.37) (95% CI)
Measles	23.3%
Vitamin A(Last 6 months)	14.5%
Deworming	7%
Morbidity	13.4%
BCG	21%
Polio (By card)	25.4%

Discussion

Mataban has experienced high levels of malnutrition in multiple seasons since the inception of the SNS Consortium. Compared to last survey in 2015 by FSNAU (Food Security and Nutrition Analysis Unit), this is an increase and specifically for SAM rates it is significant moving from 3.2% to 4.4%.

While critical levels of GAM and SAM have been observed before in Mataban during the life of the SNS Consortium, the current results are cause for particular concern given the current projections of intensifying drought. In addition to high GAM and SAM prevalence, morbidity was estimated at 13.4%, while access to proper healthcare services was limited to 22.7% of the population. This is reflected in high rates of ARI and diarrhoeal diseases. Results also show inadequate standards of WASH practices.

Recommendations and priorities

SMART Survey finding	Recommendations
High GAM and SAM rates (critical levels). Significant increase in SAM prevalence.	• The high rates mean that the current caseloads will see a surge and therefore there is need to mobilize additional resources for treatment of SAM. To cover for the increase, there is need to retain the current sites, increase mobilization at community level, and if viable and required increase sites and mobile teams (scale up of treatment). • Bridging the coverage gap in terms of low SFP coverage. • Need for extensive collaboration and consideration of a multisector approach.
Poor WASH (water, sanitation and hygiene) practices at household level. Non-observance of critical hand washing moments.	• To improve WASH practices within the community and households, there is need to increase awareness at all possible platforms on the importance of handwashing. Handwashing campaigns could be a great way of ensuring the whole community have a fresh understanding of this critical issue.
Poor health among the population (with low coverage of immunization, high incidence of morbidity among children under5 and low micronutrient supplementation)	• Immunization campaigns coupled with micronutrient supplementation should be launched immediately for all appropriate ages. • Pharmacists should be taken as a very important stakeholder as 33.3% of the sick population prefer to buy drugs from them when sick. The pharmacists can be used to link serious cases to appropriate health facilities.
Children qualified to be in the program are not admitted: 50% of eligible children are admitted in OTP, while only 17% are enrolled for TSFP	• There is need to set up a linkage that connects the OTP beneficiaries with TSFP services as soon as they exit the former program. In general, low TSFP coverage is linked to limited availability of services.

1. INTRODUCTION

Mataban is a district in central Hiran region of Somalia. It has an estimated population of 15,000 HH that is majorly constituted of Host population at 95%. The district also has a number of IDPs at 5%.

Population in Mataban are largely pastoralists and major in keeping of goats and camels. This is the major livelihood for most of the population. The livestock are mainly kept for milk production and meat. Within 2016, erratic rains observed in Somalia also affected Mataban district.

The terrain in Mataban is of mountains and canyons, the land is pastoral shaped for nomadic life. It has different types of rural plants (trees) suitable for pasture for the livestock which is the source of living for the Mataban community. Like other regions in Somalia Mataban has four climate seasons of winter, autumn, spring and summer. The survey was conducted in Oct- Nov of spring seasons.

The current nutrition services offered in does not cover the whole district according to KII conducted during the survey, there are gaps in coverage and some areas have limited access to both Nutrition and health services. No major outbreaks were reported in Mataban few months preceding the survey. Relief international provides health in Mataban where they run an OPD (Outpatient Department) program that serves the district. WARDI LNGO (Local Non-Governmental Organization) has a health post that mainly serves the town; the rural communities are not able to access the services.

The months of October and November saw the prices of goods increase in the markets. The livestock market prices decreased due to the effect of the drought. The fear of worsening drought situation and reduction in availability of feed for livestock triggered the need to sell. This meant that the market was flooded with livestock causing the prices to drop. Labour market opportunities also reduced over the period.

During the survey in Mataban there were reports of tension. A tense fighting was reported to be running high in central Somalia after the moderate Islamist group Ahlu Sunna has deployed its

fighters in district in Hiraan region. The imminent fight resulted in population movement out of the town.

SMART survey was conducted by SNS (Strengthening Nutrition Security) nutrition consortium. Implementation of SNS project in Mataban district is done by SCI (Save the children international) one of SNS partners. In Mataban SCI eight OTP (Outpatient treatment Program) that offer treatment for severely acute malnourished children between 6- 59 months' age. In addition to treatment, SCI conducts preventive programs that include Health and Nutrition education sessions, care groups, support groups and cooking demonstrations.

1.1 Survey Objectives

- Estimate the prevalence of acute malnutrition among children 6-59 months in Mataban district.
- Estimate retrospective CMR and U5MR
- Estimate coverage of vitamin A and deworming.
- Estimate levels of WASH select indicators
- Make practical recommendations on the utilization of the key findings.

2. METHODOLOGY

SMART (Standardized Monitoring and Assessment of Relief and translation) methodology was used to conduct the survey. Two stage sampling was employed in the selection of clusters and Households that participated in the survey. SMART recommended training package was used for training, data collection, data quality checks and report writing templates based on ENA (Emergency Nutrition Assessment) software2011.

2.1 Sample size

The survey covered the whole of district. The sampling frame was developed by the village elders with the help of staff. In each village the leaders gave the number of HH and estimated populations, this served as the sampling frame. Cluster sampling was used and the district was subdivided into clusters (Villages).

The sample size for anthropometry was calculated using ENA software planning page. Parameters for calculation of the mortality sample was taken from FSNAU records of 2015. SNS had not conducted a survey in 2015 in Matanban and therefore the closest estimations were from FSNAU (Food Security and Nutrition Assessment Unit) surveys.

Table 2.1: The parameters used for calculation of the Antropometric Sample size were as follows:

		Source
Estimated Prevalence%	18.6	FSNAU Survey reprot 2015
+- Desire precision percent%	5	
Design effect	1.5	
Average HH size	6	
Percentage of <5 children	20	
% of non-respondent HH	5	
Total Children	380	
Total HH	370	

ENA automatically estimated the sample size and estimated the number of HH that would have yielded adequate children to be included in the analysis.

Mortality Sample size:

Mortality sample size was calculated using ENA software. Using CMR and <5MR estimation from the FSNAU survey 2015. The parameters below were fed into ENA planning page and the sample was calculated. Sample size was adjusted for non-response by a factor of 5%, the adjustments were as a result of experience in previous surveys in where some Households were not accessible.

Table 2.2: The parameters used for calculation of the Mortality Sample size were as follows:

		Source
Estimated Prevalence%	0.27	FSNAU SMART Survey 2015
+- Desire precision percent%	0.3	
Design effect	1.5	
Recall period	120	
Average HH size	6	
% of non-respondent HH	5	
Total HH to be included	275	
Total Population	1568	

The survey measured both anthropometry ad mortality and this means that the sample at some point had to be reconciled. Looking at the HH estimations above, the number of HH for anthropometry estimation was able to accommodate the HH that were required for the mortality. The HH required for mortality was able to fit well within the anthropometric sample. This meant that using the anthropometric sample as the survey sample was adequate to cover for both Anthropometric and Mortality sample requirements.

Total number of clusters for the survey was determined after calculation of sample size.

Total HH required= 370

Total Clusters= 34

Total HH per cluster=11

2.2 Sampling procedure: selecting clusters

Clusters were selected from a comprehensive list of all sub-districts (Villages) in Mataban (Excluding those that were not accessible). Somalia has had challenges with population data and the most recent UNFPA population estimates have no data broken down to sub-district level (Village). Staffs in the district were provided with estimations and mandated to updates as required. After the update Out of 50 villages, 16 were not accessible due to security related factors. The 16 clusters were not included in the sampling frame.

List of all accessible villages was entered into ENA Planning tab with population. Under the same software, 34 clusters were randomly selected using probability proportion to population. ENA additional selected 3 reserve clusters. In Mataban, the three reserve clusters were not visited as all the 34 selected clusters were accessible.

The list of selected clusters is as shown in Appendix 2

2.3 Sampling procedure: selecting households and children

On arrival in all clusters, the teams met with the elders who were very resourceful in developing of list of all HH within the villages. Each HH in the list had a number. If a list had 100 numbers 100 small pieces were written on small pieces of paper and 11 were randomly picked from the small pieces. The 11 were opened and the HH corresponding with the number in the developed list were visited and data collected within these HH.

Based on the knowledge of the guide the teams managed to reach to all the HH.

All HH were visited and those with no eligible under five children for anthropometric data collection were included in the HH survey which included collection of data on mortality. This process was followed for all the 33 clusters.

Using cluster control form, experiences in each HH were noted. The cluster control formed assisted the teams to identified HH with absent children and aided in planning of re-visits. All HH were visited in Mataban.

Within each HH anthropometric measurement was taken for all eligible children 6-59 months. Oedema were measured for children between 6-59 months.

The survey did not encounter any empty HH. 5 HH were uncooperative, the number of children found for the survey was above planned and therefore covered the required sample adequately.

In each HH the caretaker of the child was the respondent. This in most HH was found to be the mother of the children. In HH where the mother was away, the father was identified as the respondent. Unique situation included HH where the respondent was the eldest child who had been left in charge of the HH. The challenge with such situation was that the respondent was not able to answer all the questions with precision. However; this was a very small percentage of the entire HH visited.

2.4 Case definitions and inclusion criteria

In all selected households, all children from 6-59 months old were included in the anthropometric survey. The age of the children was first determined through available health record documents and secondly by a calendar of events developed and agreed on by the teams during their training.

Where there were no children from 6-59 months old in the household, the household was still interviewed for mortality, by recall. No substitution of houses will be done and if the team completes the cluster without getting enough children, the next village not included in the cluster selection will be visited.

The following case definitions were used in this assessment, in common with previous SNS SMART assessments:

- **Household:** People who live together and eat from the same pot at the time of assessment. If a polygamous family, each mother and her children will be treated as a separate HH.
- **Head of household:** One who controls and makes key decisions on household resources (livestock, assets, income, and food), health and social matters for and on behalf of the household members
- **Respondent:** caregiver of the child, in case not available, the person responsible for the HH at the time of survey will be the respondent.
- **Diarrhoea:** having three or more loose or watery stools per day
- **Malaria:** Presence of periodic chills/shivering, fever, sweating and convulsions
- **Measles:** having more than three of these signs– fever and, skin rash, runny nose or red eyes, and/or mouth infection, or chest infection
- **Measles immunization:** a shot (confirmed by card) in the upper arm given to children after

6 months of age at health clinics or by mobile health teams

For the purposes of analysis, the different types of malnutrition were defined based on WHO (2006) growth standards and WHO was used to report main results from the survey.

- **Oedema:** Swollen limbs leaving depression 3 seconds after pressing on both feet (bilateral)
- **Global Acute Malnutrition (GAM):** weight-for-height Z scores less than -2 and/or presence of oedema (WHZ<-2 and/oedema)
- **Severe Acute Malnutrition (SAM):** weight-for-height Z scores less than -3 and/or presence of oedema (WHZ<-3 and/oedema)
- **Global Acute Malnutrition based on MUAC (GAM MUAC**): Mid Upper Arm Circumference less than 125 and/or presence of oedema (MUAC<125 mm and/oedema); and severe acute malnutrition as MUAC<115 mm and/oedema
- **Wasting:** weight-for-height Z scores less than -2 (WHZ<-2); and severe wasting as WHZ<-3.
- **Underweight:** weight-for-age Z scores less than -2 (WAZ<-2); and severe underweight as WAZ<-3.

Both urban and IDP surveys took place at the same time and the recall period for the Mortality survey was 107 days. The IDD celebration date (i.e. 7th of June 2016) was used as the start of recall period, since it is an important event celebrated across Somalia, which every Somali HH would be able to recall.

Retrospective morbidity was measured for the preceding two weeks before the survey. Morbidity was specifically inquired about in children from birth to 59 months old. The data is presented as symptoms as information was collected based on community observation and not confirmed disease.

EPI (Measles, BCG and Polio) coverage was estimated using immunization cards. Although the option of recall was available, these were analysed differently to indicate the different source of information.

Mortality data was collected in all households. This included HHs that had no eligible children for the anthropometric survey.

2.5 Questionnaire development, training and supervision

2.51 Questionnaire

The questionnaire for the survey was developed in English from the standard questionnaire provided by SMART. Since the survey had additional information to be collected, additional sections were added into the questionnaire including WASH, Immunization, micronutrient supplementation and demographic data for HH. The additional question was based on each of the objectives above.

After developing of the questionnaire, it was then translated to Somali. Experience had shown that the enumerators were comfortable with administering the question in the local language and having both English and Somalia questionnaire brought clarity to what exactly the question inquired.

Translations were completed and the survey questionnaire was uploaded into ONA platform and was shared to all partners that were participating in the training prior to the training period. Using their Smart phones and ODK (Open Data Kit) collect applications, all the teams were allowed to download and practice using the phones. Some feedback was given before the training and incorporated into the questionnaire.

Interviews in the field were conducted in Somalia as this was the language that most respondents were conversant with. Using ODK, the information was relayed in English at the downloading point, this allowed the researcher to get the equivalent of the data collected in Somalia.

2.52 Survey teams and supervision

The survey was conducted by a team of 18 enumerators forming 6 teams. Each team composed of a team leader, two measurers and community guide. The team leader was also the note taker and took the role of administering the questionnaire. To ensure quality, team leaders were taken from staffs and prior experience on SMART survey was considered to be a requirement.
Each team leader had to manage two other enumerators who were employed from the community

Ability to fill the questionnaire was a prerequisite for attending the training; ability to read and prior experience in conducting SMART were among the qualities that were considered during selection of enumerators and team leaders. The guides were useful in identification of the village, acceptability at HH level and to an extend security of the teams.

SNS researcher took the overall role of the survey and supported in the training, validation of quality of enumerators, daily feedback during the survey and final analysis and reporting.

2.5.3 Training

Tow trainings were conducted for the survey. Due to challenges of bringing a complete team for 6 surveys in one location, key team leaders were drawn from each location of survey and centrally trained. This was the first training. The first training was conducted by SNS researcher. The first stage involved team leaders training where they were taken through the survey stages in Mogadishu. was presented with 7 survey team members, 6 were to be team leaders and 1 was to be the coordinator at the district level, the SNS researcher was the overall manager. The content of the first training was a blend of managers training and enumerator training packages of the SMART survey. This included, objectives of the survey, confirmation of populations, sample calculation, cluster selection, taking anthropometrics, field procedures, quality data assurance, sampling techniques, standardization tests and data entry, mortality and interview skills.

Some of the practical section that were real to these training participants was the selection of clusters, calculation of both mortality and anthropometric sample, development of calendar of events, logistics and movement planning. All these were done by the team of 7 with the supervision of the researcher.

After the first training, two attendees were identified to lead the teams to train enumerators back in Mataban district. The second training targeted enumerators and focused on proper collection of anthropometric data and standardization. This included training on taking MUAC, weight, height and checking oedema, field procedures and role allocation for each team member. The

enumerators went through the questionnaire and gave additional feedback which was utilized to get the final version.

During the training a demonstration of conducting standardization test was done practically. The first standardization test for Mataban had issues with age determination, this was rectified and a much better accuracy and precision was achieved in the second standardization test.

A pilot survey was conducted to test the instruments in two villages which were randomly picked from the accessible villages not included in the actual survey sample. A total of 45 HH were visited during the pilot. The Pilot data was analysed and final feedback on the questionnaire was given to team leaders in the field.

2.6 Data analysis

Android mobile technology was used in the collection of data. Open Data Kit (ODK) an android application was used as the platform for data entry. A number of quality control measures were used to ensure that the data was of high quality. The programming of the questions in ODK ensured accompanying notes for questions to aid enumerators. Error feedback was also built into the system where, variables like age for children were capped at 59 months for anthropometry and an error would popup whenever a figure outside the limits would be entered. Some entries were compulsory and the data collection could not proceed without the specific sections being filled.

The smart phones also ensured that the location (GPS) of the HH was taken before data collection begun and this assisted to map the daily data to see the location where data was being collected as compared to the planning. On daily basis data was downloaded, plausibility run using ENA and feedback given to the teams. This allowed the teams to rectify any challenges they were facing in the field, the SNS researcher was also available on the phone for support until all the teams had completed work for the day.

Data was exported into CSV files and cleaned in the same format; Anthropometric data was read into EPI ENA, plausibility run and anthropometry run in the same software. Analysis was done

using ENA for the anthropometric data and mortality data. Data on EPI, HH demographics and morbidity were analysed using SPSS v20. SPSS.

After cleaning, coding and having feel of the data collected, descriptive analysis was done where frequencies of each question was calculated within the different response options. Inferential statistics was done for both anthropometric data with confidence intervals developed for key indicators of interest including GAM, SAM and mortality.

Comparison of the results to earlier similar surveys was done and the survey results was explained within the context of factors that have direct effect on nutrition based on nutritional causal framework.

3. RESULTS

3.1 Anthropometric results (based on WHO standards 2006)

In analysis of anthropometric data, the following definitions are used:

Global acute malnutrition is defined as <-2 z scores weight-for-height and/or oedema
Severe acute malnutrition is defined as <-3z scores weight-for-height and/or oedema

Distribution of age and sex of sample

Ratio of boys to girls was 1.0 indicating equal representation. A ratio of 0.9- 1.1 indicate no sex bias in the selection.[1]

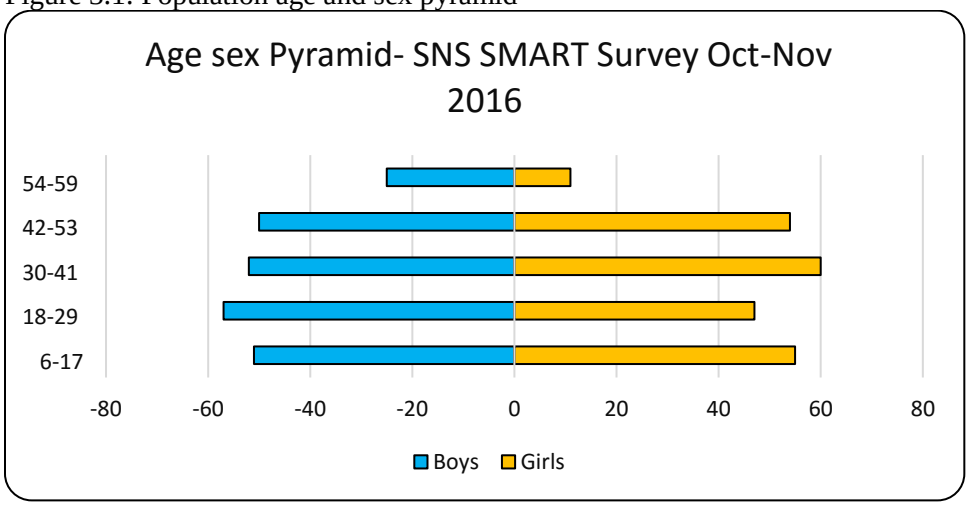
Table 3.1: Distribution of age and sex of sample

	Boys		Girls		Total		Ratio
AGE (mo)	**no.**	**%**	**no.**	**%**	**no.**	**%**	**Boy: Girl**
6-17	51	48.1	55	51.9	106	22.9	0.9
18-29	57	54.8	47	45.2	104	22.5	1.2
30-41	52	46.4	60	53.6	112	24.2	0.9
42-53	50	48.1	54	51.9	104	22.5	0.9
54-59	25	69.4	11	30.6	36	7.8	2.3
Total	235	50.9	227	49.1	462	100.0	1.0

3.1.1 Population age and sex pyramid

This shows the representation of age within groups and general sex ratio graphically. The chart looks balanced on either side, there is reduction of girls in the age group 54-59.

Figure 3.1: Population age and sex pyramid



[1] Emergency Nutrition Assessment Guidelines for field workers- Save the children

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

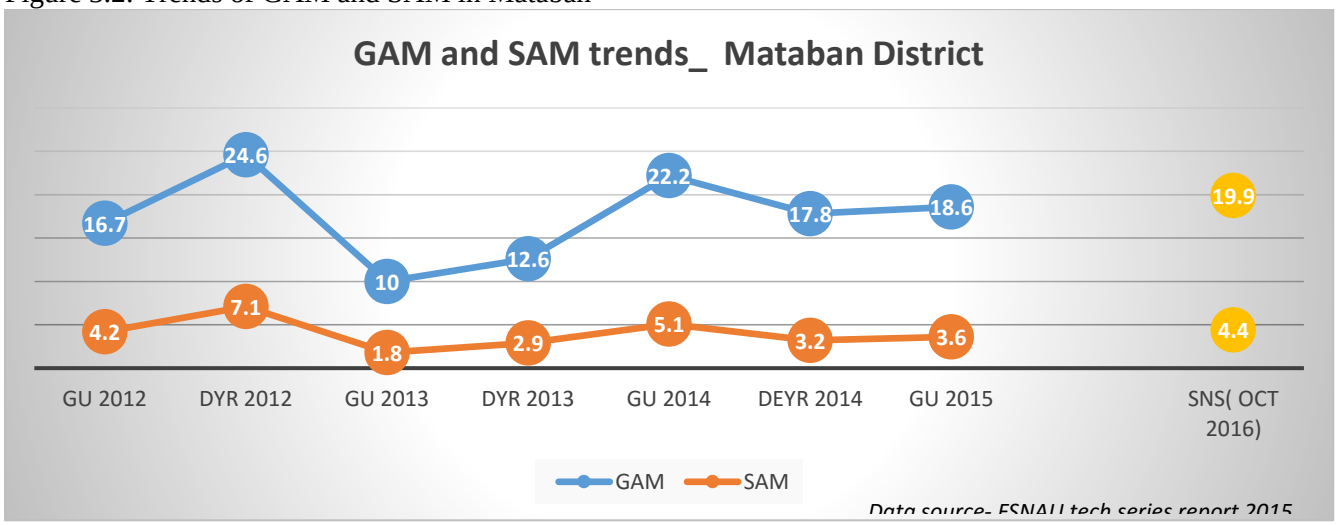
GAM rate was estimated at 19.9% and SAM was 4.4%. These are classified as Critical levels for both GAM and SAM. Undernutrition has also affected both boys and girls at equal proportion. In 2015, FSNAU did a SMART survey in Mataban which estimated GAM and SAM at 18.6 and 3.6 respectively[2]. The current result is an indication of worsening situation.

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

	All n = 458	**Boys** n = 233	**Girls** n = 225
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(91) 19.9 % (16.3 - 24.0 95% C.I.)	(47) 20.2 % (15.7 - 25.6 95% C.I.)	(44) 19.6 % (15.1 - 24.9 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(71) 15.5 % (12.0 - 19.8 95% C.I.)	(37) 15.9 % (12.4 - 20.1 95% C.I.)	(34) 15.1 % (10.7 - 20.9 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(20) 4.4 % (2.9 - 6.4 95% C.I.)	(10) 4.3 % (2.4 - 7.7 95% C.I.)	(10) 4.4 % (2.1 - 9.0 95% C.I.)

The prevalence of oedema was 0.0 %

Figure 3.2: Trends of GAM and SAM in Mataban



[2] Somalia Nutrition analysis- Post Gu 2015 Technical Series Report No. VII 61 October 16, 2015

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

No specific pattern is observed; SAM cases are observed in all age categories.

Data shows that older children are more affected than younger children (6-29 months). The program data for showed also that old children were the one admitted more compared to young children.
This is finding is really intersting.

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

		Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	105	4	3.8	12	11.4	89	84.8	0	0.0
18-29	102	3	2.9	21	20.6	78	76.5	0	0.0
30-41	111	5	4.5	18	16.2	88	79.3	0	0.0
42-53	104	6	5.8	17	16.3	81	77.9	0	0.0
54-59	36	2	5.6	3	8.3	31	86.1	0	0.0
Total	458	20	4.4	71	15.5	367	80.1	0	0.0

No Oedema cases were observed during the survey

Table 3.4: Distribution of acute malnutrition and oedema based on weight-for-height z-scores

	<-3 z-score	>=-3 z-score
Oedema present	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 0 (0.0 %)
Oedema absent	Marasmic No. 20 (4.4 %)	Not severely malnourished No. 438 (95.6 %)

3.1.4 Prevalence of acute malnutrition based on MUAC cut off (and/or oedema) and by sex

MUAC is a more sensitive predictor of mortality and in SNS it is used in community for active case finding and for referring SAM cases in the community. The MUAC rates in the survey indicate a GAM and SAM less than that observed by WHZ score. Prevalence of SAM in some locations has been observed to be lower when measured by MUAC as compared to WFH.

Table 3.5: Prevalence of acute malnutrition based on MUAC cut off (and/or oedema) and by sex

	All n = 462	**Boys** n = 235	**Girls** n = 227
Prevalence of global malnutrition (< 125 mm and/or oedema)	(57) 12.3 % (9.0 - 16.7 95% C.I.)	(25) 10.6 % (6.8 - 16.2 95% C.I.)	(32) 14.1 % (9.3 - 20.7 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(52) 11.3 % (8.2 - 15.3 95% C.I.)	(23) 9.8 % (6.4 - 14.7 95% C.I.)	(29) 12.8 % (8.4 - 19.0 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(5) 1.1 % (0.5 - 2.4 95% C.I.)	(2) 0.9 % (0.2 - 3.1 95% C.I.)	(3) 1.3 % (0.4 - 4.3 95% C.I.)

Table 3.6: Prevalence of acute malnutrition by age, based on MUAC cut off's and/or oedema

		Severe wasting (< 115 mm)		**Moderate wasting (>= 115 mm and < 125 mm)**		**Normal (> = 125 mm)**		**Oedema**	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	106	4	3.8	22	20.8	80	75.5	0	0.0
18-29	104	1	1.0	16	15.4	87	83.7	0	0.0
30-41	112	0	0.0	11	9.8	101	90.2	0	0.0
42-53	104	0	0.0	3	2.9	101	97.1	0	0.0
54-59	36	0	0.0	0	0.0	36	100.0	0	0.0
Total	462	5	1.1	52	11.3	405	87.7	0	0.0

3.1.5 Prevalence of underweight based on weight-for-age z-scores by sex

Weight for age is a composite index which reflects either stunting, wasting or both. Underweight was estimated at 21.1%, while severe underweight was 5.2%. Underweight uses age in calculation of the index and it is important to note that age determination in Somalia is mainly through seasonal calendar. Age determination by seasonal calendar was 95.8% of all children in the survey. It is therefore important to put this in perspective when interpretation is made.

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

	All n = 460	**Boys** n = 234	**Girls** n = 226
Prevalence of underweight (<-2 z-score)	(97) 21.1 % (17.5 - 25.2 95% C.I.)	(53) 22.6 % (17.9 - 28.3 95% C.I.)	(44) 19.5 % (14.4 - 25.8 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(73) 15.9 % (12.7 - 19.7 95% C.I.)	(36) 15.4 % (12.0 - 19.6 95% C.I.)	(37) 16.4 % (11.5 - 22.8 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(24) 5.2 % (3.7 - 7.3 95% C.I.)	(17) 7.3 % (4.5 - 11.6 95% C.I.)	(7) 3.1 % (1.4 - 6.7 95% C.I.)

3.1.6 Underweight Trends[3]

From available data, the current results show an increase from 2015 and the highest rates since 2012.

Figure 3.3: Underweight Trends in Mataban

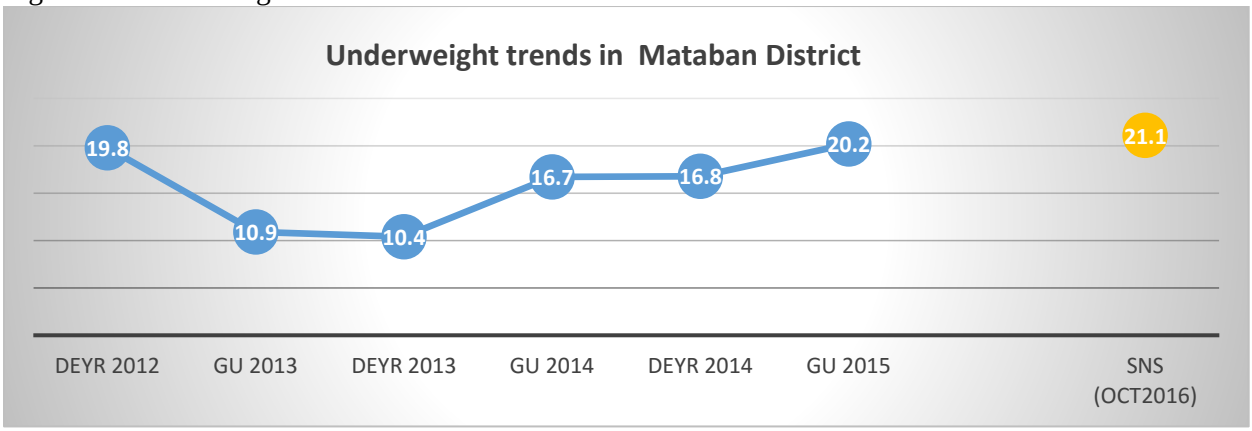


Table 3.8: Prevalence of underweight by age, based on weight-for-age z-scores

		Severe underweight (<-3 z-score)		**Moderate underweight (>= -3 and <-2 z-score)**		**Normal (> = -2 z score)**		**Oedema**	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	105	3	2.9	19	18.1	83	79.0	0	0.0
18-29	104	12	11.5	21	20.2	71	68.3	0	0.0
30-41	111	6	5.4	18	16.2	87	78.4	0	0.0
42-53	104	3	2.9	10	9.6	91	87.5	0	0.0
54-59	36	0	0.0	5	13.9	31	86.1	0	0.0
Total	460	24	5.2	73	15.9	363	78.9	0	0.0

[3] Data courtesy of FSNAU technical series- Post Gu 2015 Technical Series Report No. VII 61 October 16, 2015

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

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	458	-1.19±1.04	1.00	0	4
Weight-for-Age	460	-1.31±0.92	1.00	0	2
Height-for-Age	453	-0.86±1.15	1.29	0	9

* contains for WHZ and WAZ the children with edema.

3.2 Mortality results (retrospective over 120 days prior to interview)

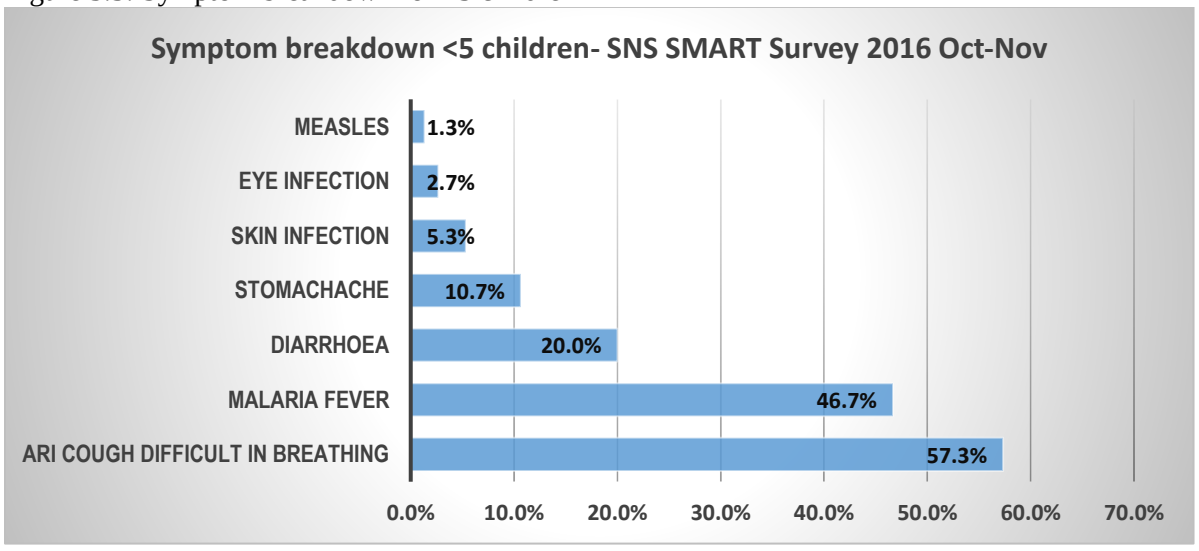
Table 3.12: Mortality rates[4]

CMR (total deaths/10,000 people / day): 0.14 (0.05-0.37) (95% CI)
U5MR (deaths in children under five/10,000 children under five / day): 0.25 (0.06-1.05) (95% CI)

3.3 Children's morbidity and Health seeking behaviour

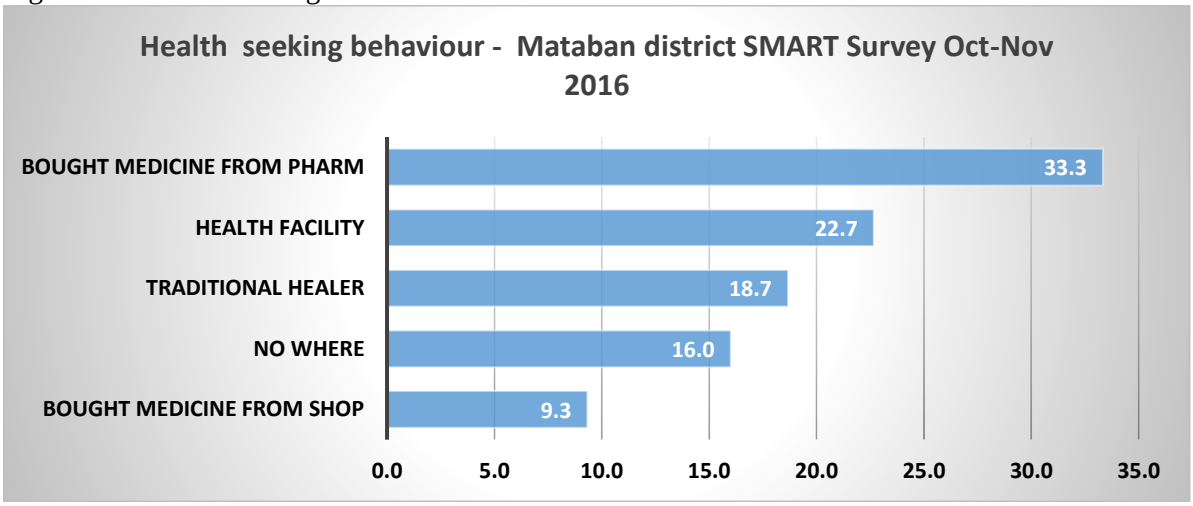
Data on child morbidity was collected and the respondents were asked if any of the children 0-5 years had fallen sick 2 weeks prior to the interview. ARI, malaria and Diarrhoea are the main diseases affecting children in Mataban. 13.4% of children were sick 2 weeks prior to the survey.

Figure 3.5: Symptom breakdown for <5 children



[4] Mortality rates results showed estimations within acceptable standards of <1/10000 for U5MR and <05/10000/day for CMR based on WHO standards. The rates were calculated using the following formula:
CMR = total deaths/10,000 people/day
U5MR = deaths in children under five/ 10,000 children under five/day

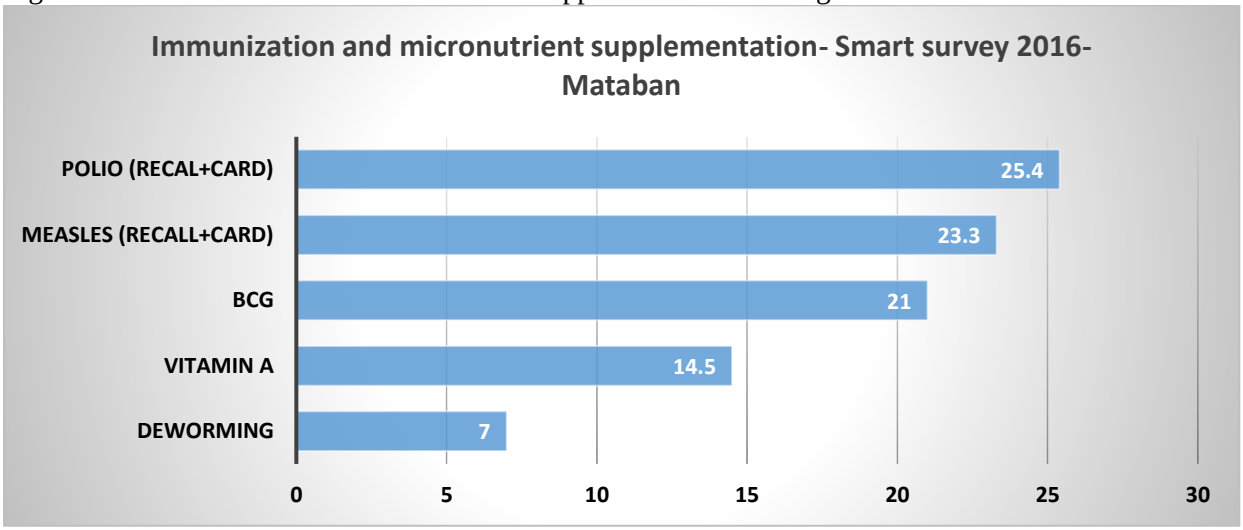
Figure 3.6: Health Seeking Behaviour



3.4 Vaccination Results

Vaccination ideally should cover 100% of children in a properly coordinated system and should be above 89% to have an impact in the population. The coverage in Mataban is very low pointing to a challenge in access to services.

Figure 3.7: Immunization and Micronutrient Supplementation coverage in Mataban

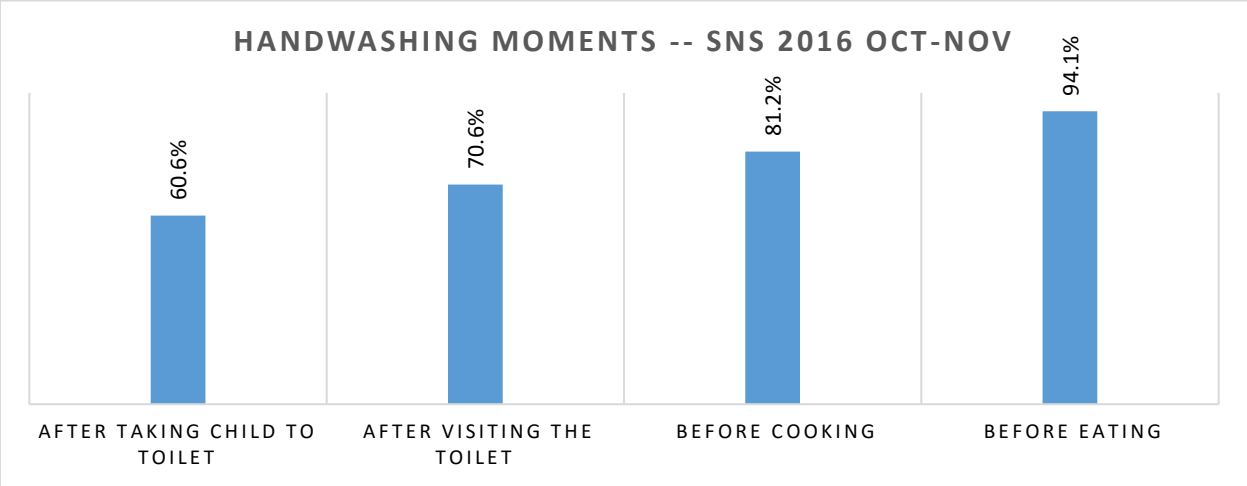


Note: Vaccination coverage: BCG for 6-59 months and measles for 9-59 months

3.5 WASH

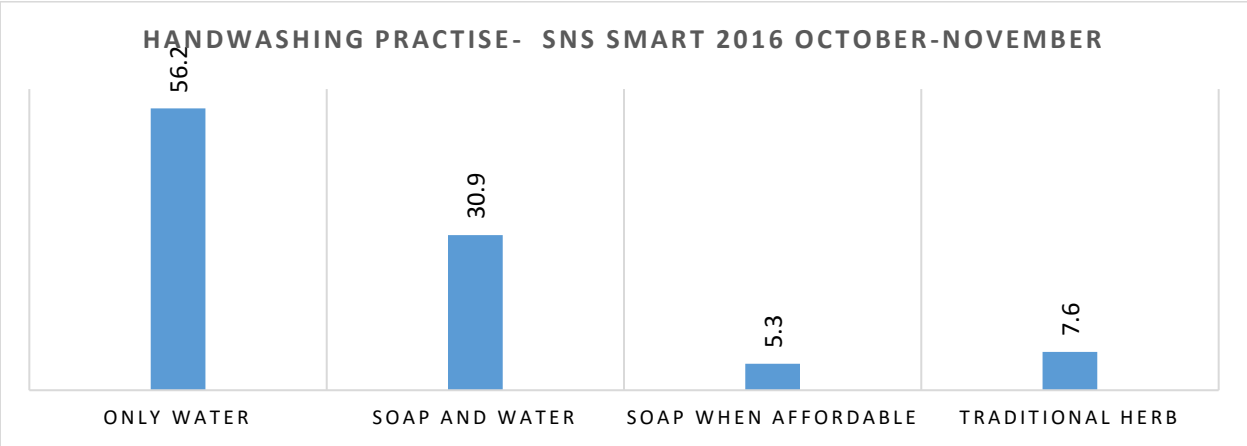
3.5.1 Hand washing moments

As in the diagram below, a significant protion of population in are not able to practise hand washing during critical moments. The survey resuts showed that there were still gaps in adapting the critical hand washing moments which is key in vector control and have been founf to be a low cost effect method of preventing infection.



3.5.2 Handwashing practise

The result indicated 30.9% of population washing hand using soap and water. Majority uses only water. And with the reported water reduction, the low avilability of water is likely to reduce the practise.



3.5.3 Programme access

Comprehensive coverage survey methodology was not used in coverage estimations. The SMART survey looked into children qualified to be in the program and compared this to the percentage who have been admitted. This is basically the gap between all children with MUAC <12.5cm and those admitted within the same group based where they are OTP or SFP qualified.

Out of the total children who qualified to be in OTP 50% were registered into nutrition treatment program. Out of the total children qualifying for TSFP treatment, only 17% were enrolled in treatment program. This depicts a situation where majority of malnourished children at the time of survey were not in treatment program.

The difference in coverage between OTP and SFP in access is significant and points to the different in provision and access to these two key treatment programs within the district.

4. DISCUSSION

4.1 Nutritional status

Malnutrition contributed to 35% of all under five deaths globally both directly and indirectly. The survey sex ratio was 1.0 indicating no bias in sex selection and representation of boys and girls within the sample. A GAM of 19.9% is classified as critical same as the estimation of 4.4% SAM. Adjacent districts like Beletweyn recorded even higher rates.

Mataban district experienced such high levels of malnutrition some seasons in 2012 and 2014. Compared to last survey in 2015 by FSNAU, this is an increase and specifically for SAM rates it is significant moving from 3.2% to 4.4%.

Critical levels of GAM and SAM has been observed before in 2012 and 2014. For majority of the time has maintained GAM rates lower than the current estimations.

4.2 Mortality

Representation of male and female was as expected although the age category 54-59 did not have full representation in numbers as compared to other groups. All other groups were represented as expected and this might have very little effect on representation.

Mortality rate was within acceptable WHO standards (<0.5/10,000/day for CMR and <1%/10000/day) and showed improvement from the last survey conducted in September 2015.

4.3 Causes of malnutrition

Interpretation using the conceptual framework indicates presence of factors related to inadequate intake (Average HH meals 2.0 for adults and 2.4 for children). Morbidity is also observed as a contribution factor with 13.4% of children having been sick 2 weeks prior to the survey with 22.7% seeking health in appropriate health facilities in cases of illness. The environment integrity also seems to be compromised looking from a perspective of water sanitation and hygiene, the critical moment of hand washing is not observed leaving room for vector transmitting bacteria. Diarrhoea is one of the diseases affecting most children who are sick. Diarrhoea causes malabsorption, loss of nutrients and reduced appetite. ARI causes metabolic effect that leads to muscle breakdown, ARI is also one of the diseases affecting children.

4.4 Prospects over coming months:

Tensions/Population movement

Currently tensions are running high in Mataban district in Hiiraan region where Sufi militias were deployed in large numbers to protect the district from imminent invasion by the newly established administration Hirshabelle, KNN reports[5]. The sufi group accuses government of marginalization and latest reports indicate populaiton are fleeing homes due to the imminent fighting.

Conflicts in somalia over the years has had an impact in the effectiveness of the program, limiting access and coverage. Conflict has also disrupted local livelihoods and markets (flow of goods).

Possibility of conflict being high means there is a possibility of the current situation worsening. With conflict there might be possibility of limited access to the population already critically malnourished.

4.5 Programme access

Access proxy indicated a coverage of 50% for OTP and 17% for TSFP. Although proxy, there is a huge difference between TSFP and OTP, this is due to challenges with service provision for TSFP. Sphere standards puts acceptable coverage for rural at 50% and for urban 75% respectively. However, it is important to note that the estimations methodology was not the standard SQUEAC survey recommended for coverage assessment. The calculation of the sample for anthropometry did not factor in the coverage assessment and therefore this is indicative.

[5] http://radiokulmiye.net/index.php/2016/12/13/sufi-militias-deployed-in-large-numbers-in--district-in-central-somalia/

5. CONCLUSIONS

Undernutrition

Malnutrition in Mataban is currently above the critical threshold with GAM prevalence of 19.9% and SAM prevalence of 4.6%. This shows an increasing trend from the survey in 2015 and does not depict the seasonal normal. Mortality is within acceptable range, but with multiple aggravating factors and a potential increase in conflict, there is a strong likelihood of further deterioration in the situation.

Aggravating factors

Poor WASH practises

There is a challenge with implementation of proper hygiene practises and to that fact the very basic. Handwashing is a challenge and the critical moments of handwashing is yet to be adopted by the community. Only 30.9% of the population practises handwashing with water and soap.

Health access and seeking behaviour

Linked to the poor health and sanitation, there is incidences of diseases that are linked to poor metabolism functions. This includes diarrhoea and ARI. Only 22.7% of population were found to seek health services from health facility.

6. RECOMMENDATIONS

SMART Survey finding	Recommendations
High GAM and SAM rates (critical levels). Significant increase in SAM prevalence.	• The high rates mean that the current caseloads will see a surge and therefore there is need to mobilize additional resources for treatment of SAM. To cover for the increase, there is need to retain the current sites, increase mobilization at community level, and if viable and required increase sites and mobile teams (scale up of treatment). • Bridging the coverage gap in terms of low SFP coverage. • Need for extensive collaboration and consideration of a multisector approach.
Poor WASH (water, sanitation and hygiene) practices at household level. Non-observance of critical hand washing moments.	• To improve WASH practices within the community and households, there is need to increase awareness at all possible platforms on the importance of handwashing. Handwashing campaigns could be a great way of ensuring the whole community have a fresh understanding of this critical issue.
Poor health among the population (with low coverage of immunization, high incidence of morbidity among children under5 and low micronutrient supplementation)	• Immunization campaigns coupled with micronutrient supplementation should be launched immediately for all appropriate ages. • Pharmacists should be taken as a very important stakeholder as 33.3% of the sick population prefer to buy drugs from them when sick. The pharmacists can be used to link serious cases to appropriate health facilities.
Children qualified to be in the program are not admitted: 50% of eligible children are admitted in OTP, while only 17% are enrolled for TSFP	• There is need to set up a linkage that connects the OTP beneficiaries with TSFP services as soon as they exit the former program. In general, low TSFP coverage is linked to limited availability of services.

Future nutrition monitoring

The high risk of conflict in Mataban needs to be monitored. There is need also to monitor the movement of populations and its impact on nutrition treatment of children. Admission rates within treatment sites need to be monitored to be able to effectively address any fluctuations in numbers. A follow-up SMART survey needs to be conducted after few months of implementing the recommendations to evaluate the extent of change in the nutrition status of the population.

7. REFERENCES

- Emergency Nutrition Assessment Guidelines for field workers- Save the children
- Somalia Nutrition analysis- Post Gu 2015 Technical Series Report No. VII 61 October 16, 2015
- Data courtesy of FSNAU technical series- Post Gu 2015 Technical Series Report No. VII 61 October 16, 2015
- http://radiokulmiye.net/index.php/2016/12/13/sufi-militias-deployed-in-large-numbers-in--district-in-central-somalia/

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5. SCI Nutrition team
6. CMU for the support
7. SNS TWG for supporting planning and availing competent teams to support the survey

9. APPENDICES

Appendix 1: *Plausibility Report*

Plausibility_mataban_Final.rtf

Appendix 2: *Assignment of Clusters*

Mataban_Cluster_list.xlsx

Appendix 3: *Evaluation of Enumerators- standardization test results*

Mataban_Standardization test.xlsx

Appendix 4: Table 3.11: Mean z-scores, Design Effects and excluded subjects

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	462	-1.33±0.91	1.00	0	0
Weight-for-Age	462	-1.54±0.87	1.00	0	0
Height-for-Age	460	-0.70±1.17	1.19	0	2

* contains for WHZ and WAZ the children with edema.

Appendix 5: Questionnaires

SMARTSurveyONA_2016_formfinal.xlsx