



Preliminary Report

SMART NUTRITION Survey

**Maungdaw and Buthidaung Townships,
Maungdaw District,
Rakhine State,
Republic of the union of MYANMAR**

September 2015 - October 2015

ACF Nutrition Programme

Funded by

EUROPEAN COMMISSION



Humanitarian Aid

I. INTRODUCTION

Myanmar is composed of 7 States and 7 Divisions. The Rakhine State is the second poorest after Chin State. Rakhine State has 14 townships of which Maungdaw and Buthidaung are two of them.

The first ACF projects in Myanmar were implemented in Eastern Rakhine in 1994 with the aim of reducing morbidity and mortality through water and sanitation activities. From 1995 activities were expanded in the Maungdaw District through supporting returnees from Bangladesh with water and sanitation activities. Activities aiming to support household food security started later on in 2000. The positioning was then re-centred on therapeutic nutrition in Maungdaw District in 2003 and evolved gradually to Community Management of Acute Malnutrition (CMAM) integrating Wash, Food Security, Reproductive Health and Care Practices projects to tackle the underlying causes of malnutrition.

The SMART survey conducted by ACF in late 2013 has shown that the overall situation in Maungdaw and Buthidaung townships remains critical with global acute and chronic malnutrition rates, as well as underweight prevalence remaining higher than the WHO emergency thresholds of respectively 15%, 40% and 30%.

In Maungdaw Township, the Global Acute Malnutrition (GAM) prevalence was recorded at **20.0% [15.1% - 26.1%]** and **3.0% [1.5% - 6.0%]** of Severe Acute Malnutrition (SAM).

In Buthidaung Township, the GAM was **21.4% [17.9% - 25.3%]** and **3.7% [2.3% - 6.0%]** of SAM.

In order to see if there has been any significant change during the past two years in these two townships, an additional SMART anthropometric nutrition surveys is planned to be conducted in each township at the similar period of the year as previous surveys, thereby allowing comparison of results with previous SMART surveys.

II. OBJECTIVES

II.1. Main Objectives

To determine the nutritional status of children aged 6 to 59 months living in Maungdaw & Buthidaung townships, Maungdaw District, Rakhine state.

II.2. Specific Objectives

- To evaluate the prevalence of global and severe acute malnutrition among children aged from 6 to 59 months
- To evaluate the prevalence of global and severe chronic malnutrition among children aged from 6 to 59 months
- To evaluate the prevalence of global and severe underweight among children aged from 6 to 59 months
- To assess the Pregnant & lactating woman nutrition status.
- To assess mortality, vitamin A supplementation and measles coverage.
- To assess WASH, Food security and livelihood indicators.
- To compare current data with those of previous nutrition surveys to evaluate any significant change
- To propose recommendations in terms of program implementation and nutritional surveillance according to the findings.

III. METHODOLOGY

Two separate Standardized Monitoring and Assessment for Relief and Transition (SMART) nutrition surveys were conducted in Maungdaw Townships, from the 15th of September to the 3rd of October 2015, and Buthidaung Townships from the 8th to the 17th of October 2015. A two stage random clustering method¹ was applied for the data collected.

The anthropometric survey has focused on children aged 6 to 59 months. This is widely accepted that the prevalence of acute malnutrition among children aged 6-59 months is a sensitive and objective crisis indicator, reflecting the situation of the whole population, including their food security, livelihoods, public health and social environment.

Some additional data were collected about health child, morbidity, food security and livelihood as well as water, sanitation & hygiene (WASH) indicators.

The entire population has been targeted for mortality data. Food security and WASH data involved all households with a specific data on children dietary diversity aged 6 to 23 months.

The following assumptions were used to calculate the sample size in number of children, which were then converted into number of households to survey. All calculations were made using ENA² for SMART 2011 software (version July 2015).

Table 1: Calculation of the anthropometric sample size (Maungdaw & Buthidaung Township, Rakhine State, Republic of the union of MYANMAR, September/October 2015)

Parameters for Anthropometry	Value for Maungdaw	Value for Buthidaung	Assumptions based on context
Total population	437,658	274,460	General administration Department Source, May 2014
Estimated Prevalence of GAM (%)	20.0 %	21.4%	Based on SMART survey 2013 results
± Desired precision	5 %	5%	Based on the SMART methodology
Design Effect	1.5	1.3	Based on SMART survey 2013 results
Children to be included	401	366	
Average HH Size	5.9	5.9	Based on SMART survey 2013 results
% Children under-5	20,2 %	17.7%	Based on SMART survey 2013 results
% Non-response Households	7.5 %	7.5%	On SMART survey 2013 results, 3.3% of Non-response but it was decide to increase the percentage linked to the potential population movement after floods.
Households to be included	405	421	

Table 2: Calculation of the mortality sample size (Maungdaw & Buthidaung Township, Rakhine State, Republic of the union of MYANMAR, September/October 2015)

Parameters for Mortality	Value for Maungdaw	Value for Buthidaung	Assumptions based on context
Estimated Death Rate /10,000/day	0.3	0.5	Based on SMART survey 2013 results
± Desired precision /10,000/day	0.2	0.3	Based on the SMART methodology
Design Effect (if applicable)	1.2	1.3	Based on SMART survey 2013 results
Recall Period in days	108	88	Maungdaw: From the Lai La Tul Barat (4 th of

¹ Sampling Methods and Sample Size Calculation for the SMART Methodology

² Emergency Nutrition Assessment

			June) to middle of the survey (22 nd September 2015) Buthidaung: From the Lai La Kadar (14 th of July) to the middle of the survey (10 th October 2015)
Population to be included	3485	3432	
Average HH Size	5.9	5.9	Based on SMART survey 2013 results
% Non-response Households	7.5 %	7.5 %	On SMART survey 2013 results, 3.3% of Non-response but it was decide to improve the percentage linked to the potential population movement after floods..
Households to be included	639	629	

The selection of clusters was done by ENA for SMART software according to the probability proportional to size (PPS). The selection of households in one cluster was done by simple random sampling.

Anthropometric and mortality data analysis was done using ENA for SMART, July 2015 version and Excel. All additional data were analysed with Excel.

IV. RESULTS

Note: only anthropometric results are presented in this preliminary report to give a quick view on nutritional status. Mortality, morbidity, food security and water and sanitation results will be analysed and presented in the final report.

In **Maungdaw Township**, 646 children were surveyed. 9 children were absents during visit of surveyors in selected households. The nutritional analysis is based on 637 children.

In total, 136 pregnant and lactating women were surveyed. The analysis is based on these 136 Pregnant and Lactating Women (PLW).

In **Buthidaung Township**, 519 children were surveyed. 12 children were absents during visit of surveyors, 4 children were not measured because their parents refused and 1 child cried so much that it was impossible for data collectors to take measurement, except oedema. The nutritional analysis is based on 502 children.

In total, 123 pregnant and lactating women were surveyed. 3 women were absents during the visit of teams. The analysis is based on these 120 PLW.

IV.1. Prevalence of acute malnutrition on children aged 6 to 59 months

All results are expressed with a confidence interval of 95%.

IV.1.1. Prevalence of acute malnutrition according to Weight-for-Height (WHO)

Table 3: Prevalence of global, moderate and severe acute malnutrition for children aged 6 to 59 months according to WHO standards in Z-score, (Maungdaw & Buthidaung Township, Rakhine State, Republic of the union of MYANMAR, September/October 2015)

Reference	Indicator	Results			
		Maungdaw		Buthidaung	
		N (= 637)	%	N (=502)	%

WHO (Z-scores)	Global Acute Malnutrition (GAM) <i>W/H < -2 z and/or oedema</i>	121	19.0% [14.7% - 24.2 %]	76	15.1% [11.8% - 19.2 %]
	Moderate Acute Malnutrition (MAM) <i>W/H < -2 z et >= -3 z, no oedema</i>	96	15.1% [11.5% - 19.6%]	66	13.1% [10.0% - 17.1 %]
	Severe Acute Malnutrition (SAM) <i>W/H < -3 z and/or oedema</i>	25	3.9% [2.4% - 6.4%]	10	2.0% [1.1% - 3.6%]

IV.1.2. Prevalence of acute malnutrition according to Middle Upper Arm Circumference (MUAC)

Table 4: Prevalence of global, moderate and severe acute malnutrition for children aged 6 to 59 months according to MUAC (Maungdaw & Buthidaung Township, Rakhine State, Republic of the union of MYANMAR, September/October 2015)

Reference	Indicator	Results			
		Maungdaw		Buthidaung	
		N (=637)	%	N (=502)	%
MUAC	Global Acute Malnutrition <i>MUAC < 125mm and/or oedema</i>	95	14.9% [11.0% - 19.9 %]	53	10.6% [8.2% - 13.5%]
	Moderate Acute Malnutrition <i>MUAC < 125mm and >= 115mm, no oedema</i>	74	11.6% [8.4% - 15.9%]	45	9.0% [7.0% - 11.4%]
	Severe Acute Malnutrition <i>MUAC < 115mm and/or oedema</i>	21	3.3% [2.0% - 5.3%]	8	1.6% [0.8% - 3.3%]

IV.2. Prevalence of chronic malnutrition on children aged 6 to 59 months

It is important to take in consideration, no accurate birthday documents were found to estimate the age of children. The age estimation was done with an event calendar.

All results are expressed with a confidence interval of 95%.

Table 5: Prevalence of global, moderate and severe chronic malnutrition for children aged 6 to 59 months according to WHO standards in Z-score (Maungdaw & Buthidaung Township, Rakhine State, Republic of the union of MYANMAR, September/October 2015)

Reference	Indicator	Results			
		Maungdaw		Buthidaung	
		N (=637)	%	N (=502)	%
WHO (Z-scores)	Global Chronic Malnutrition <i>H/A < -2 z</i>	291	45.7% [38.8% - 52.7%]	234	46.6% [39.5% - 53.8%]
	Moderate Chronic Malnutrition <i>H/A < -2 z et >= -3 z</i>	157	24.6% [20.5% - 29.3%]	138	27.5% [23.0% - 32.4%]
	Severe Chronic Malnutrition <i>H/A < -3 z</i>	134	21.0% [16.5% - 26.4%]	96	19.1% [15.5% - 23.5%]

IV.3. Prevalence of underweight on children aged 6 to 59 months

All results are expressed with a confidence interval of 95%.

Table 6: Prevalence of global, moderate and severe underweight for children aged 6 to 59 months according to WHO standards in Z-score, (Maungdaw & Buthidaung Township, Rakhine State, Republic of the union of MYANMAR, September/October 2015)

Reference	Indicator	Results			
		Maungdaw		Buthidaung	
		N (=637)	%	N (=502)	%
WHO (Z-scores)	Global underweight W/A < -2 z	268	42.1% [35.4% - 49.0%]	210	41.8% [35.6% - 48.4%]
	Moderate underweight W/A < -2 z et >= -3 z	162	25.4% [22.8% - 33.2%]	155	30.9% [26.0% - 36.2%]
	Severe underweight W/A < -3 z	106	16.6% [11.8% - 22.9%]	55	11.0% [8.0% - 14.8%]

IV.4. Prevalence of malnutrition on Pregnant and Lactating Women (PLW) based on MUAC

While there is very limited literature available on optimal targeting cut offs, data from a recent global mapping exercise indicates that for targeted supplementary feeding, over 90% of countries implementing targeted supplementary feeding programs for PLW were using MUAC as the anthropometric admission criteria; with an even split between countries using cut-offs for admission of <210 and 230mm³.

These two MUACs cut-off to define acute malnutrition have been used by ACF in this survey.

Table 7: Prevalence of pregnant and lactating women aged 15-45 years old based on MUAC cut off (Maungdaw Township, Rakhine State, Republic of the union of MYANMAR, September/October 2015)

Reference	Indicator	Maungdaw Results					
		PLW		Pregnant		Lactating	
		N (=136)	%	N (=77)	%	N (=59)	%
MUAC	MUAC <210 mm	13	9.6 %	8	10.4 %	5	8.5 %
	MUAC ≥210 and <230 mm	34	25.0 %	24	31.2 %	10	16.9 %
	MUAC ≥230 mm	89	65.4 %	45	58.4 %	44	74.6 %

³ WFP/Valid 2013- Ververs et al, in press

Table 8: Prevalence of pregnant and lactating women aged 15-45 years old based on MUAC cut off (Buthidaung Township, Rakhine State, Republic of the union of MYANMAR, September/October 2015)

Reference	Indicator	Buthidaung Results					
		PLW		Pregnant		Lactating	
		N (=120)	%	N (=67)	%	N (=53)	%
MUAC	MUAC <210 mm	13	10.8%	8	11.9 %	5	9.4 %
	MUAC ≥210 and <230 mm	41	34.2%	22	32.8 %	19	35.9 %
	MUAC ≥230 mm	66	55.0%	37	55.2 %	29	54.7 %

V. DISCUSSION

In **Maungdaw Township**, according to WHO 2006 Standards expressed in z-score, the prevalence of global acute malnutrition is **19.0 % [14.7% - 24.2%]** with a prevalence of severe acute malnutrition of **3.9 % [2.4% - 6.4%]**. However no oedema case was found during the survey. Statistically, the results do not show any discrepancy with results found in 2013 (GAM= 20.0% and SAM=3.0%).

The prevalence of global acute malnutrition according to the MUAC is **14.9% [11.0% - 19.9%]** and the prevalence of severe acute malnutrition is **3.3 % [2.0% - 5.3%]**. The prevalence of GAM is close than 2013 GAM prevalence (17.9%) but a significant difference⁴ is found for the prevalence of SAM (5.8 %). MUAC cases seem to decrease since 2013, even if the prevalence stays high. It is important to remind that MUAC is a good indicator for mortality risk on children. Children with a MUAC below than 115 mm have a mortality risk 10 times higher than other children⁵ and are the result of a late detection. Since April 2015, nutrition program uses WHO standards. The numbers of admissions have been increased and detection of cases seems earlier. This may have an influence on the decrease of the prevalence.

In June 2015, WFP⁶ did a nutritional assessment and the results were close (GAM= 16.8% and SAM=2.1%).

According to WHO 2006 standards, the prevalence of global chronic malnutrition is **45.7% [38.8% - 52.7%]** with **21.0% [16.5% - 26.4%]** of severe chronic malnutrition. The prevalence of underweight is **42.1% [35.4% - 49.0%]** with **16.6 % [11.8% - 22.9%]** of severe underweight. Statistically, these results do not have any difference with results found in 2013 (Global Chronic Malnutrition=47.6% and Severe Chronic Malnutrition=22.4%; Global Underweight=42.9% and Severe Underweight=15.6%).

On the 136 PLW surveyed, **34.6%** of them were found with **MUAC < 230 mm** (included 9.6% with MUAC <210mm) and 65.5% with MUAC ≥230mm. In 2013, 44.3% of PLW were found with MUAC <230 mm. No significant difference is found between 2013 and 2015.

In **Buthidaung Township**, according to WHO 2006 Standards expressed in z-score, the prevalence of global acute malnutrition is **15.1 % [11.8% - 19.2%]** with a prevalence of severe acute malnutrition of **2.0% [1.1% - 3.6%]**. No oedema case was screened during the survey. The prevalence of global acute malnutrition decrease in comparison with results of 2013 (GAM=21.4%)⁷. However, statistically, the severe acute malnutrition rate remains the same, compared to 2013. The situation remains critical.

⁴ P<0.05

⁵ WHO/UNICEF Joint Statement 2006

⁶ World Food Program

⁷ P<0.05

The prevalence of global acute malnutrition according to the MUAC is **10.6% [8.2% - 13.5%]** and the prevalence of severe acute malnutrition is **1.6% [0.8% - 3.3%]**. No significant difference was found with results found in 2013 (GAM= 14.2% and SAM=2.8%)⁸.

In June 2015, WFP⁹ did a nutritional assessment and the results were statistically the same (GAM= 10.1% and SAM=1.4%).

According to WHO 2006 standards, the prevalence of global chronic malnutrition is **46.6% [39.5% - 53.8%]** with **19.1% [15.5% - 23.5%]** of severe chronic malnutrition. A difference¹⁰ is found with the result of the SMART survey done in 2013 (Global Chronic Malnutrition = 58.6% and Severe Chronic Malnutrition = 28.6%). The prevalence of chronic malnutrition decreases even if it stays high.

The prevalence of underweight is **41.8% [35.6% - 48.4%]** with **11.0% [8.0% - 14.8%]** of severe underweight. A difference¹¹ is found with the result of the SMART survey done in 2013 (Global underweight = 51.9% and Severe Underweight = 17.2%).

On the 120 PLW surveyed, **45.0%** of them were found with **MUAC < 230 mm** (included 10.8% with MUAC <210mm) and 55.0% with MUAC ≥230mm. In 2013, 53.5% of PLW were found with MUAC <230 mm. No significant difference is found between 2013 and 2015.

The nutritional situation seems stable in Maungdaw Township. An improvement is observed in Buthidaung Township since the previous SMART survey but the results remain worrying and should stay a cause of concern. The overall situation in both Townships remains critical with global acute malnutrition, chronic malnutrition and underweight prevalence remaining above the WHO emergency thresholds of 15%, 40% and 30%, respectively.

Almost the half of children surveyed was suffering of chronic malnutrition. Stunting is the result from a variety of factors that can negatively affect child growth. It is admitted after two years, chronic malnutrition is irreversible. The repercussion is serious with severe consequence as a vulnerability to infection, low physical and intellectual capacities, consequences which affect the child for the rest of its life.

These highlight the fact that a multisectorial approach is needed including food security, child and young child feeding practices, hygiene practices and water and sanitation.

The results of the survey are on children aged 6 to 59 months and pregnant and lactating women, however with such prevalence; malnutrition does not end with these groups and can also touch children above 5 years as well as adults.

VI. RECOMMENDATIONS

(Recommendations will be further developed at final report)

- To continue implementing emergency nutrition programmes in both Townships including prevention, detection and treatment activities for acute malnourished children and pregnant and lactating women.
- To improve the coverage of nutrition program by the opening of new distribution points in both Township.
- To conduct nutrition programme coverage survey every two years to evaluate current coverage, impact of the nutrition programme and evaluate the barriers and boosters that impact on the nutrition programme.
- To conduct SMART surveys every two years to monitor and compare nutrition anthropometric indicators over time.

⁸ No significant difference

⁹ World Food Program

¹⁰ P=0.000

¹¹ P<0.001

- To pursue interventions with integrated approaches through Food Security and Livelihoods, WASH, Health, Mental Health and Care Practices and nutrition activities in Maungdaw and Buthidaung Townships.
- To improve the communication with community leaders in order to contribute to their better understanding of NGOs' activities.