



Semi –Quantitative Evaluation of Access and Coverage (SQUEAC) Assessment of the Out-patient Therapeutic Programme for Severe Acute Malnutrition

Kupang district, Nusa Tenggara Timur (NTT) Province Indonesia

18th August to 9th September 2016



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Cover photo: Focus group discussions with Kaders in Tablolong - Batakte.

Abbreviations

ACF-I	Action Contre La Faim International Action Against Hunger International
BBQ	Barriers, Boosters and Questions
CHW	Community Health Worker (Kader)
CMAM	Community based Management of Acute Malnutrition
CMN	Coverage Monitoring network
CU5	Children Under 5 years old
DHO	District Health Office
DNA	Did Not Attend
DO	Drop-Out (Defaulter)
GAM	Global Acute Malnutrition
ITP	Inpatient Treatment Programme
LoS	Length of Stay
M3A3	M3A3 smoother line reflects the 'moving average'
MAM	Moderate Acute Malnutrition
MoH	Ministry of Health
MUAC	Mid-Upper Arm Circumference
NR	Non Responder
NS	No Service
NTT	Nusa Tenggara Timur province
ORS	Oral Rehydration Salt
OTP	Out-patient Therapeutic Programme
PGBM	Program Pemulihan Gizi Berbasis Masyarakat, CMAM in Bahasa Indonesia
PKK	Local women association
PMT	Pemberian Makanan Tambahan. Supplementary Feeding Programme
PNPM	Program Nasional Pemberdayaan Masyarakat, National Program for Community Empowerment in Bahasa Indonesia
PNS	Pegawai Negeri Sipil / Civil servant
PTT	Pegawai Tidak Tetap / Temporary employed health staff
Posyandu	Pusat Pelayanan Terpadu/ Integrated Service Post
RISKESDAS	National Basic Health Research Survey 2013
RUTF	Ready-to-Use Therapeutic Food
SAM	Severe Acute Malnutrition
SMART	Standardised Monitoring and Assessment of Relief and Transitions
SQUEAC	Semi-quantitative Evaluation of Access and Coverage
UNICEF	The United Nations Children's Fund
WASH	Water Sanitation and Hygiene

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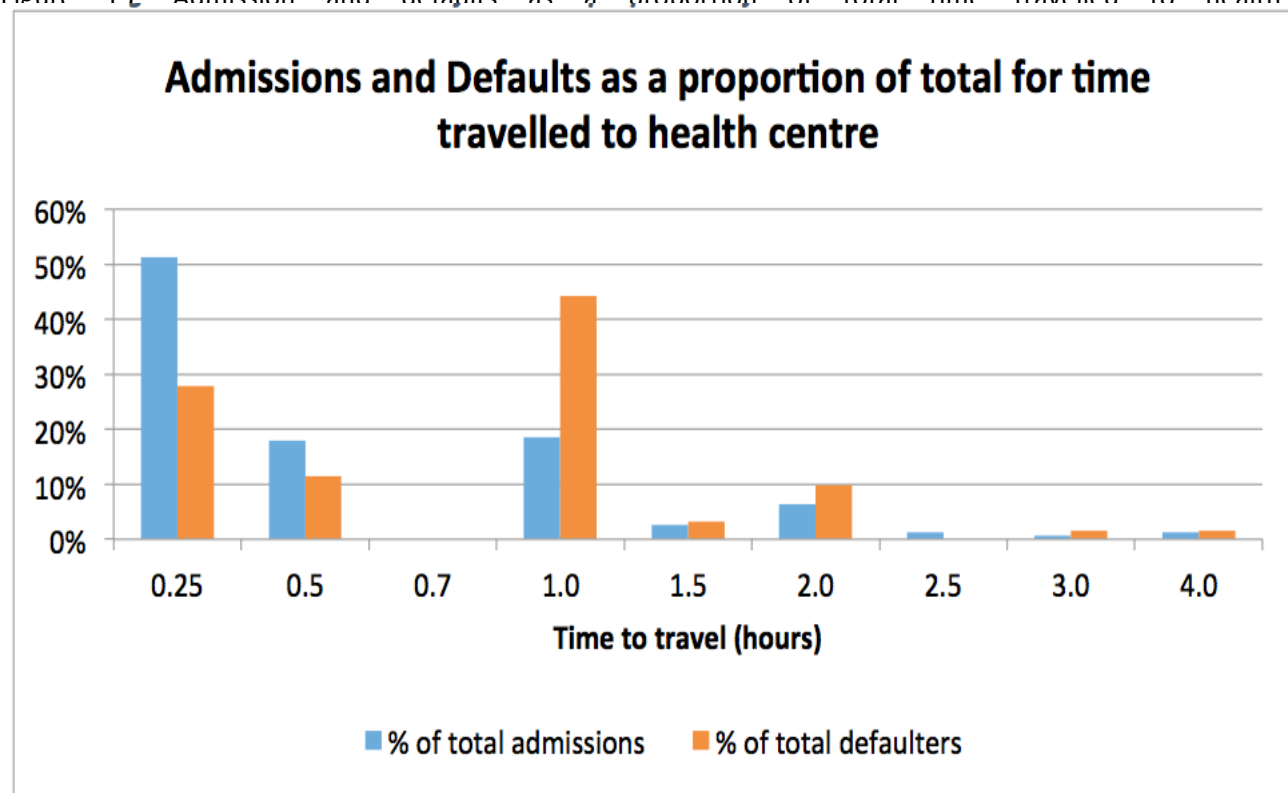
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Executive Summary

In August 2016, a coverage assessment of services to treat Severe Acute Malnutrition (SAM) was conducted in 2 sub-districts where CMAM has been implemented the longest time period in Kupang district, Nusa Tenggara Timur (NTT) province, Indonesia. The assessment used the **SQUEAC** (Semi-Quantitative Evaluation of Access and Coverage) methodology and covered services delivered by the Ministry of Health with the technical partnership of Action Contre la Faim (ACF).

The assessment identified a single coverage estimate of **25.0% [CI 16.7% - 33.3%]** for the outpatient therapeutic programme (OTP).

The quantitative and qualitative data analysis revealed a series of boosters and barriers to access, giving us information on what factors have been positively and negatively influencing coverage. Positive factors included the motivation of community volunteers (Kaders), motivation of health staff to screen and monitor the volunteers and also the fact that the health centre is situated nearby. At health centre level, staff recognised the support provided by ACF for the CMAM programme. Finally, the trust of the families in the programme or health system in general, when aware of its presence, contributed to children accessing services.

Factors that affect coverage negatively (or barriers) were found to be more numerous. Those that were found to have the greatest impact on coverage included the long distances required travelling in order to get to treatment sites and the lack of available transport or the high cost of transport. Rejection of cases for admission into the programme was not found to have a strong impact on coverage.

The **community aspect of the programme was found to be very limited.** Although there was some screening and referral occurring at community level, sensitisation on health and nutrition was found to be very weak and one of the main barriers. This means that the programme is not raising enough awareness to overcome poor understanding of malnutrition and treatment, which delays admission. The lack of parent's knowledge about both the programme and malnutrition in general lead to them not considering malnutrition to be a disease. Opportunity cost was high and parents always favoured work and were found to be busy instead of going to the health centre.

At a **health centre level, certain aspects were found to be in need of improvement.** Tarus area was found to have the same number of health centres as Batakte, while having more than triple the population. This obviously has a direct impact on the time the health staff can spend taking care of SAM children. Motivation of the health staff and volunteers in the field is also an issue, with CMAM not taken seriously up until recently, even by local authorities of the district.

In collaboration with ACF and District Health Office (DHO), the following recommendations were developed to address these barriers and build on the boosters:

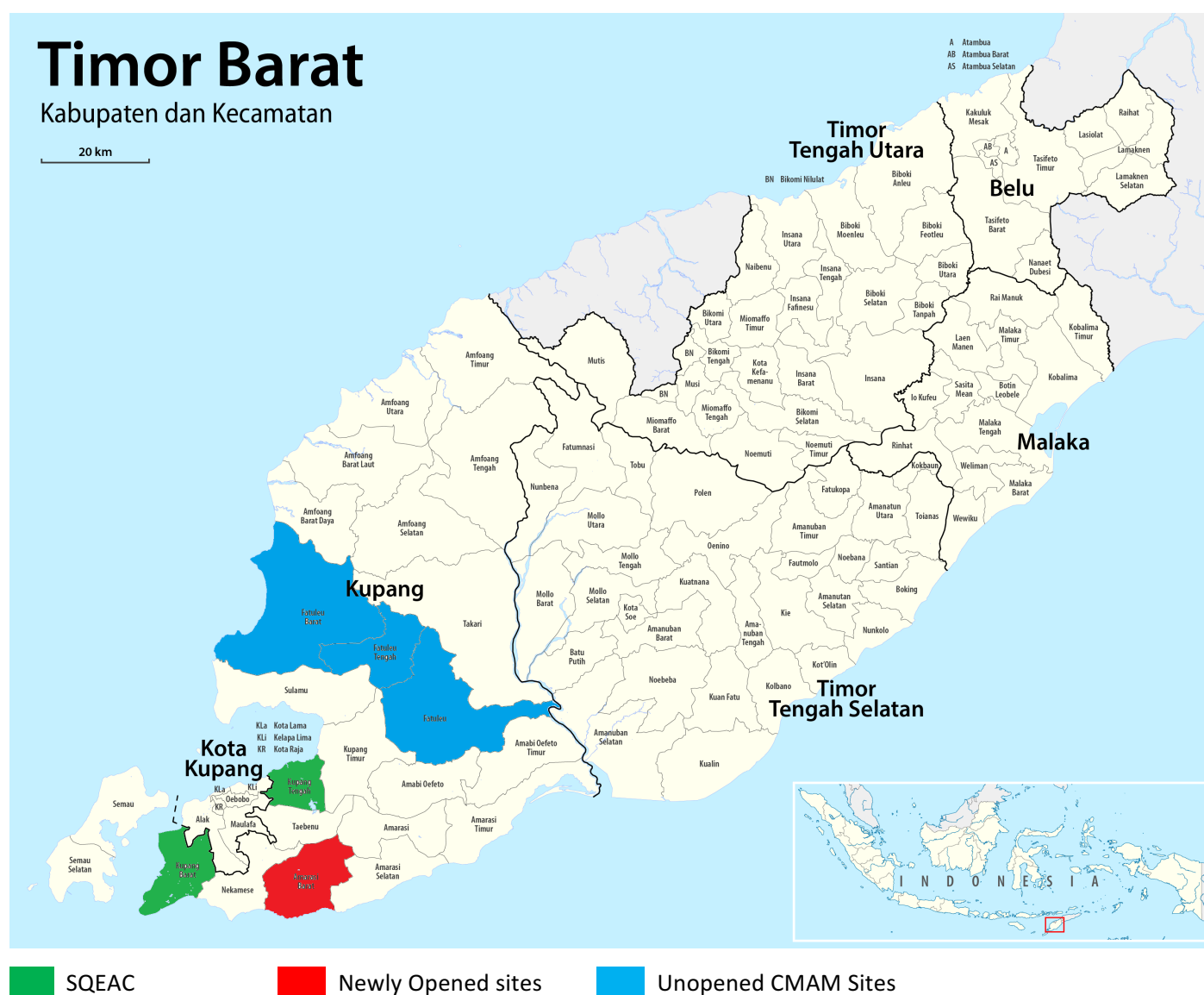
- Improve community mobilisation through better engagement with existing community structures and actors
- Increase internal and external capacity to improve technical support at all levels
- Increase the network of people able to screen and refer children
- Increase support provided to caregivers to enable access to the OTP
- Create and implement an advocacy plan at the district level
- Increase ownership of programme at the local level

These recommendations were coupled with a series of specific actions, with those responsible and the levels of priority identified in an action plan. ACF staff should ensure the implementation and follow-up of these activities in order to improve access and coverage of SAM treatment services in Kupang district.

1. Introduction

Action Contre la Faim (ACF) Indonesia mission has been the technical partner of DHO and UNICEF for delivering treatment of acute malnutrition in Kupang district, Nusa Tenggara Timur (NTT) province, Indonesia since 2015. The number of outpatient therapeutic programme (OTP) sites has increased from October 2015 to now include the technical support to 26 OTP sites in 4 sub-districts covered by the programme in Kupang at the end of August 2016. See Annex 1 for a map showing locations of OTP sites in the SQUEAC area. Figure 1 shows a map of the CMAM coverage area in Kupang highlighting the SQUEAC areas.

Figure 1: Map of the CMAM area in Kupang – 2016



See context paragraph below for more explanation on the different areas mentioned on the map Figure 1.

This is the first coverage assessment since treatment services started in October 2015.

A new 27 month funding period started in January 2016, which will create the benefit of long-term commitments for the improvement of the programme. After 6 months with the new funding, ACF staff were conscious of the difficulties faced at the field level in terms of coverage and treatment. Therefore, a coverage assessment was deemed appropriate; first to clarify and deepen the understanding of the difficulties people face to access the programme and secondly to provide analysis of the present programme to guide the development of better activities.

Since not only a coverage estimation is required but also in-depth analysis of programme performance and boosters and barriers to access, it was decided that a semi-quantitative evaluation of access and coverage (SQUEAC) would be the most appropriate methodology to use.

Therefore the objectives for the assessment were as follows:

1. To gain a better understanding of the barriers and boosters faced by the beneficiaries in accessing CMAM services in the sub-districts of Tarus and Batatke
2. To estimate the treatment coverage of the CMAM programme
3. To better understand the community profile
4. To develop an action plan to improve access and coverage of the CMAM programme

2. Methodology

The SQUEAC methodology¹ was chosen in order to determine the coverage rate in 2 of the sub-districts of Kupang district and to provide recommendations to improve coverage and a rich body of evidence to underpin them. The SQUEAC took place in the following stages:

Stage 1: An analysis of all quantitative data, collection and analysis of qualitative information and the identification of negative and positive factors affecting coverage.

Stage 2: Development and testing of hypotheses to confirm (or deny) assumptions related to areas of high or low coverage, and to ascertain whether coverage is uniform throughout the sub-districts.

Stage 3: Wide-area survey to determine sub-district wide coverage estimate using Bayesian techniques.

The core SQUEAC team consisted of 5 people from ACF Indonesia, and an additional team of 12 enumerators were recruited who had already knowledge of the programme and participated in previous SMART surveys. The entire team participated throughout the evaluation, including throughout the data collection, analysis and training, with further specific data analysis sessions with ACF staff only.

The assessment took place over the course of three weeks from 18th August to the 9th September 2016.

While the assessment took place without major problems, there were certain limitations that should be highlighted.

The team was not accustomed to qualitative methodology and it took them some time to effectively probe for more information during interviews and Focus Group Discussions (FGD).

Gender equality was highlighted through the recruitment process, but only 40% of the interviewers hired were women. However, there were no explicit limitations with men speaking to women, therefore we do not expect the data collected (especially during the qualitative stage) to be limited by the fact that 2 teams only had male investigators to converse with female informants.

It was found that questions related to sexual relationship during pregnancy were not appropriate in this context and therefore have been removed from all the questionnaires.

In general, the teams were advised not to ask any questions they do not feel comfortable with or think is inappropriate at the time of the interview.

¹ M Myatt et al 2012 Semi-Quantitative Evaluation of Access and Coverage (SQUEAC)/Simplified Lot Quality Assurance Sampling Evaluation of Access and Coverage (SLEAC) Technical Reference. Washington, DC: FHI 360/FANTA.

3. Context

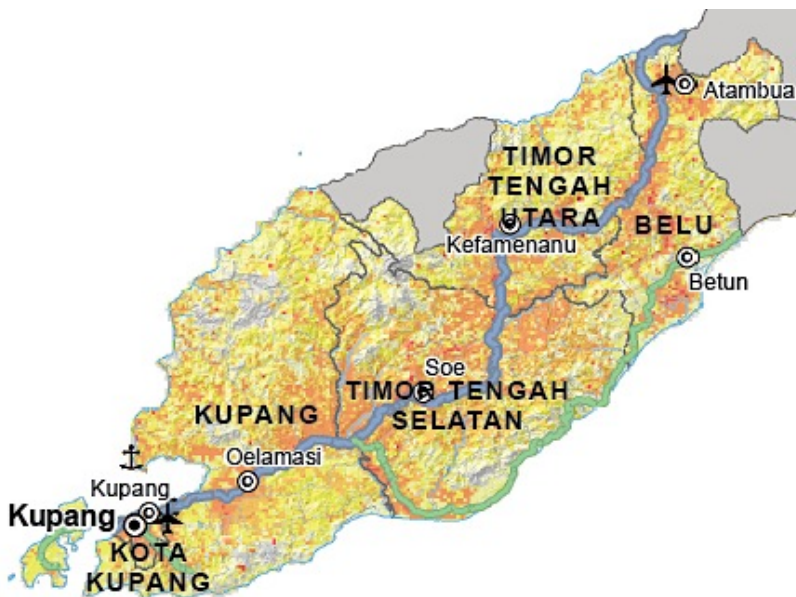
3.1. Overview of the Area

Indonesia is a country of over 264 million people living on more than 17,000 islands. Although Indonesia in the past decades has made impressive economic gains to become classed as a lower-middle income country, poor wealth distribution, especially to remote areas continues to plague the country.

Severe acute malnutrition (SAM) is affecting 5.3%² of children in the country. Indonesia has the fourth largest number of acutely malnourished children in the world; the estimated number of cases of SAM a year is approximately 3 million³.

Nusa Tenggara Timur (NTT) province is one of the poorest provinces in Indonesia (ranked 31st out of 34 provinces in terms of poverty) with 991,880 people (19.6%) living below the national poverty line in 2013, out of a population of 4.6 million people (ADB 2015⁴). Many communities within the province are vulnerable to food insecurity; 9 out of 21 districts in NTT are considered to be severely vulnerable to food insecurity and a further 4 are considered to be moderately vulnerable (WFP FSVA 2015). Statistics on access to water are also troubling, with 30% of the population within the province using unsafe drinking water sources in 2011 (BPBD n.d.)

Figure 2: District Boundaries within West Timor (BPBD, Indonesia, n.d.)



Picture 1: Fataleu Barat - Village head Yakob Pellokilla shows the dry rice crop. Image Saskia van Zanen.



NTT Province has a Human Development Index of 0.68, the 3rd lowest for the country. Poverty levels continue to increase due to the impact of the 2015/2016 El Niño weather event which has directly impacted on NTT. There has been a drop in water availability of 50% for the area, which has resulted in widespread crop failures, livestock death and diarrhoeal outbreaks affecting young children, resulting in an increased number of deaths. The occurrence of the El Niño resulted in a major drought lasting 2 years, where the end of the El Niño coincided with the start of the long 8-month dry season in Kupang, where temperatures can reach 40°C.

² Data collected from SMART survey by ACF staff 2015

³ RISKESDAS 2013

⁴ Indonesia has two poverty lines: Rp 326,853/capita/month in urban areas and Rp 296,681 in rural areas (WFP 2015).

UNICEF and Action Contre La Faim International (ACF-I) are supporting the government to strengthen the community-based management of acute malnutrition (CMAM) in Kupang District in Nusa Tenggara Timur (NTT) province. The overall goal of the project is to reduce mortality and improve the recovery of children with SAM. The expected results are (i) children with SAM receive appropriate treatment through CMAM, and (ii) implementation model for CMAM is documented to inform scale-up.

It is expected that the lessons learned in Kupang district will be used to support other districts in the scale-up of CMAM services.

There is no district representative data on undernutrition in Kupang District. According to the National Basic Health Research Survey⁵, the prevalence of GAM in NTT Province is 15%, higher than the national prevalence of 12%. ACF SMART Survey results for 2016, for the area targeted by the SQUEAC show extreme rates of acute undernutrition, with rates of 22.0% and a severe acute under-nutrition rate of 4.7%. Kupang District is mostly hilly, mountainous and partly lowland with the slope averaging 45 degrees. The district occupies an area of 543,772 hectares, with 24 sub-districts and 177 villages; each village has up to 6 sub-villages. Kupang District has a population of around 328,688 people with an average household size of 4.6 people. The estimated percentage of children under 5 years of age is 9.2%⁶.

In consultation with the government health offices and planning offices at both provincial and district level, six sub-districts were selected for the CMAM programme in Kupang District as follows:

Intervention areas:

- 1) Amarasi Barat Sub District/Baun Health Centre
- 2) Kupang Tengah Sub District/Tarus Health Centre
- 3) Kupang Barat Sub District/Batakte Health Centre
- 4) Fatuleu Sub District/Camplong Health Centre
- 5) Fatuleu Tengah Sub District/Oelbiteno Health Centre
- 6) Fatuleu Barat Sub District/Poto Health Centre

Tarus and Batakte were selected for investigation during the SQUEAC for the following reasons:

- They were the first sub-districts to begin CMAM implementation
- Data starting from October 2015
- Easily accessible and reachable
- Poto was kept aside as it was too far and difficult to access (no proper road). The possibility remained to visit Poto if time allowed but it was found not possible during Stage 1 (too long to reach there and come back for the afternoon meetings) (Listed in the recommendations to the next SQUEAC – Annex 9)

3.2. Population in SQUEAC area and water access

In Kupang regency, SQUEAC investigation was undertaken in the 2 sub-districts of Kupang Tengah (Tarus Health Centre) and Kupang Barat (Batakte Health Centre). These 2 sub-districts have a total population of 56,859 (16,891 households), with 5,257 children under 5 years old (CU5) i.e. 9.2%.

The population in Tarus and Batakte area is organised into villages (21) and sub-villages (74) with population sizes ranging from 75 to 3,528 per sub-village (the great range of population size was taken into consideration during sampling).

⁵ RISKESDAS 2013

⁶ Data collected through villages authorities and Posyandu (CU5) for SMART surveys by ACF staff

The average population per sub-village is 729 (considering both sites) with important differences between Batakte (347 people) and Tarus with an average 1092 people per sub-village. Population density per square Km is 117 in Batakte and 502 in Tarus⁷. (See impact on the health system in paragraph below)

Kupang is a multi-ethnic district comprised of many different ethnic groups: Timor, Rote, Sabu, Flores, Helong and several other groups.

West Timor's main religions/faiths are Catholicism (56%), Protestantism (35%) and Islam (8%). The economy is mainly agricultural, using slash-and-burn methods to produce corn, rice, coffee, copra and fruit. Some timber harvesting is undertaken, producing eucalyptus, sandalwood, teak, bamboo and rosewood.

Consultations with communities in Kupang District have revealed widespread problems with water shortages in the villages. Approximately 51% of shallow wells⁸ are reported to be empty during the dry season. Of concern is the fact that 50% of boreholes are also reported to be empty during the dry season. Check dams, water reservoirs, lakes and rivers are also reported to run dry, although some do retain water during the dry season⁹.

3.3. Nutrition situation

Two SMART surveys have been conducted in the CMAM area of Kupang district in 2015 and 2016. The last SMART survey conducted by ACF-I in March 2016 showed a GAM rate of 22.0% according to WHO criteria (weight-for-height z-scores, MUAC and oedema). This significantly exceeds the WHO emergency threshold of 'critical' (>15%¹⁰) therefore requiring continued investment in an effective response.

It is to be noted that differences between the two years are not statistically significant as shown by the p-value in Table 1 below.

Table 1: Comparison of 2015 and 2016 Kupang CMAM area SMART surveys

SMART surveys in CMAM area, Kupang			
Indicator	Year 2015 n = 541	Year 2016 n = 591	P-value
WHO (MUAC + WHZ + oedema)	95% C.I.	95% C.I.	
Prevalence of global acute malnutrition (GAM)	(120) 22.2 % (18.6 - 26.2)	(130) 22.0 % (19.0 - 25.3)	0.94
Prevalence of moderate acute malnutrition (MAM)	(101) 18.7 % (15.3 - 22.5)	(102) 17.3 % (14.2 - 20.8)	0.57
Prevalence of severe acute malnutrition (SAM)	(19) 3.5 % (2.0 - 6.1)	(28) 4.7 % (3.0 - 7.3)	0.34
No case of oedema were identified			

⁷ Source: Proyeksi Penduduk 2015. Website accessed August 2016.

<https://kupangkab.bps.go.id/Subjek/view/id/153#subjekViewTab3|accordion-daftar-subjek1>

⁸ Up to 10 meters in depth.

⁹ Addressing Water and Food Insecurity in West Timor, Indonesia, Field Report, Mark Wolfsbauer 2016, ACF Indonesia.

¹⁰ WHO, 2003, "The Management of Nutrition in Major Emergencies"

3.4. Nutrition and health services

Health system in the SQUEAC coverage area

Kupang district has one main hospital, 21 Puskesmas (at sub-district level), 47 Pustus at village level and 226 Posyandus at sub-village level. (See Table 2 below)

In Tarus and Batakte sub-districts there are 2 Puskesmas (one for each sub-district) and 20 Pustus. OTP sites are implemented in 18 of these Pustus. The decision for opening of OTP site is left to the Puskesmas in charge. 2 sites were being withheld from opening an OTP as midwives were said to have a “lack of confidence”. These 2 OTP are both in Tarus: Noelbaki, which is not implementing OTP and Oelnasi, which only opened end of July. Both health centre staff in these 2 places received training but did not want to open an OTP. Children identified as SAM in Noelbaki are referred to the Puskesmas nearby.

CMAM treatment is delivered every week in these OTPs.

Table 2: Hierarchy of the health system in NTT province

Type	Name or number	Population	Health structures	Staff	Treatment
Province	Nusa Tenggara Timur, NTT	4.6 million people (2015)			
District	Kupang regency	349,344 (2011)	Hospital		Inpatient
Sub-district Kecamatan	6 in the programme of the 24		Puskesmas	Doctor, nutritionist, midwife, nurse	OTP sites in Puskesmas
Villages	47 in the programme	- 81,900 people - from 2 to 6 sub-villages	Pustu Poskesdes Palindes (Village birthing post)	1 Nurse or 1 midwife 1 or 2 people / Pustu	OTP in Pustu
Sub-village	226	75 to 3500 people	Posyandu	5 volunteers 2 kaders trained / 5 in general	Referred to Pustu Screening during Posyandu day

Kaders (health volunteers) are in charge of the detection and referral of malnourished children in the villages with MUAC tape.

Midwives at each Pustu manage Kaders, and report to the nutritionist in Puskesmas.

Batakte has 12 OTP sites with an average of 1,099 people covered per OTP, while Tarus has 6 OTP sites with an average of 7,278 people per OTP sites (6.6 times more people per OTP than Batakte)

This is confirmed by the health system data from the government in Table 3 below, with less health centres in Tarus (7) than Batakte (10) despite the population in Tarus being 3 times more.

Table 3: Health services in CMAM area, Kupang¹¹

Number of Health Services by Type and District in Kupang Regency, 2015						
Sub- District	Health Services					
	Public Health Center	Sub-Public Health Center	Health Clinic	Rural Polyclinic	Integrated health service	village health service
03. Kupang Barat (Batakte)	1	10	-	5	38	-
05. Kupang Tengah (Tarus)	1	7	2	3	47	1

The official figures for the number of health staff is presented in Table 4 below with almost equal number of nurses in Batakte (17) and Tarus (16)

Table 4: Health personnel in CMAM area, Kupang¹²

Number of Health Personnel by Health Personnel Status and District in Kupang Regency, 2015							
Sub-District	Status Tenaga Kesehatan						
	General Practitioner		Dentist		General Nurse or Midwife	Dental Nurse	
	PTT	PNS	PTT	PNS			
03. Kupang Barat (Batakte)	1	1	1	-	17	3	
05. Kupang Tengah (Tarus)	1	3	-	1	16	2	

PTT: Pegawai Tidak Tetap/ Temporary employed; PNS: Pegawai Negeri Sipil/ Civil servant

Midwives are said to be more active in other programmes than CMAM. They compare ACF with other programmes that are giving more incentives for trainings, for example.

This point might change in the near future with the use of a letter from the DHO pushing for the effective implementation of CMAM in the health centres. However, this letter refers to the usage of W/H and oedema only. The usage of MUAC is not well recognised at the district level, despite being a government programme. Therefore, advocacy for changes within this letter will need to occur, for the addition of MUAC as an admission criteria. MUAC tape was often presented by ACF staff as “not accepted in the country”, resulting in difficulties (at least in term of confidence) to push for it in the district.

From the perspective of the midwives and nurses, it is clear that having 3 times more population to care for in Tarus sub-district compared to Batakte sub-district, will put additional burden to the health system in general and CMAM in particular. See distance paragraph below for more information about the perception of travel time to health centre.

In Tarus and Batakte district, only 2 of the 5 Kaders in each Posyandu have been trained on CMAM. This problem has been corrected already in the newly covered districts of Baun for example (all Kaders trained) but new trainings have not been implemented yet in Tarus and Batakte districts.

All OTP sites are opened 6 days a week and only in the morning, sometimes open only 10am to 12pm in some centres.

¹¹ Extract. Source: Dinas Kesehatan Kabupaten Kupang. Number of Health Services by Type and District in Kupang Regency, 2015. Accessed August 2016: <https://kupangkab.bps.go.id/linkTabelStatis/view/id/71>

¹² Extract. Source: Dinas Kesehatan Kabupaten Kupang. Number of Health Personnel by Health Personnel Status and District in Kupang Regency, 2015, Accessed August 2016. <https://kupangkab.bps.go.id/linkTabelStatis/view/id/72>

ACF staff members have also in mind previous experiences in providing incentives to the Kaders (volunteers in the field) not working.

Among the staff there was also the belief that screening in the community (sweeping, see paragraph below) would not work in the communities, as people would not come to Posyandu after such a sweeping. This has been shown as not true during the investigation and many Kaders were using MUAC after Posyandu day to see if children who did not come to the Posyandu are malnourished.

Sweeping/screening

Screening happens at each Posyandu once a month, with “screening” the name given to passive screening (measurement of MUAC and checking oedema) at Posyandu level. Sweeping is the screening happening at village level, outside of the Posyandu, to the children not attending and done only with MUAC/oedema checking. There are no mass screenings or sweepings of entire villages happening in the field. Only in places where Kaders are motivated, sweeping is done once a month for the absent children of the Posyandu day.

One important note from the field was the strong hierarchy in the health system and also in the villages: one has to go through the hierarchy to pass a message to the intended recipient (for example, health staff to go through DHO first, community mobilization through the head of the village and leaders before reaching women).

All actions have to be approved by multiple levels to get to the concerned people. This was one of the reasons for ACF to take responsibility for the making of authorization letters (for trainings etc.) and their distribution in the field to the concerned staff (for example to the Puskesmas staffs to attend the training).

4. The investigation

4.1. Stage 1: Quantitative Analysis

Quantitative data analysis was performed for the CMAM programme using both monthly reporting systems collected using Excel database and an analysis of defaulter questionnaires that was collected by ACF staff. Data was analysed for October 2015 to July 2016.

Data per individual case admitted was available for 182 treatments for the entire dataset and 156 treatments in Tarus and Batakte. Admissions and discharge data for each OTP was available, as well as the population and distance/time to travel to the nearest OTP for all of the sub-villages.

Admissions over time

A total number of 156 SAM children were admitted from October 2015 to July 2016 in Tarus and Batakte sub-districts. The progression over this time period can be seen in Figure 3.

Figure 3: Admissions over time for OTP programme in Batakte and Tarus from Oct. 2015 to July 2016

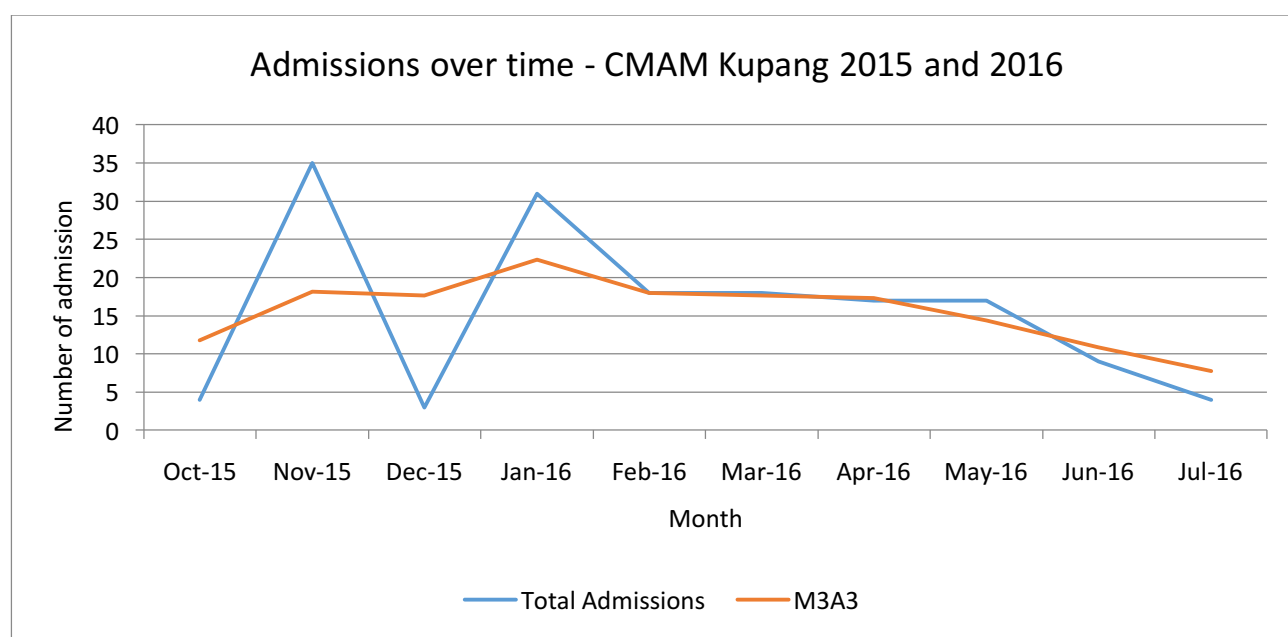
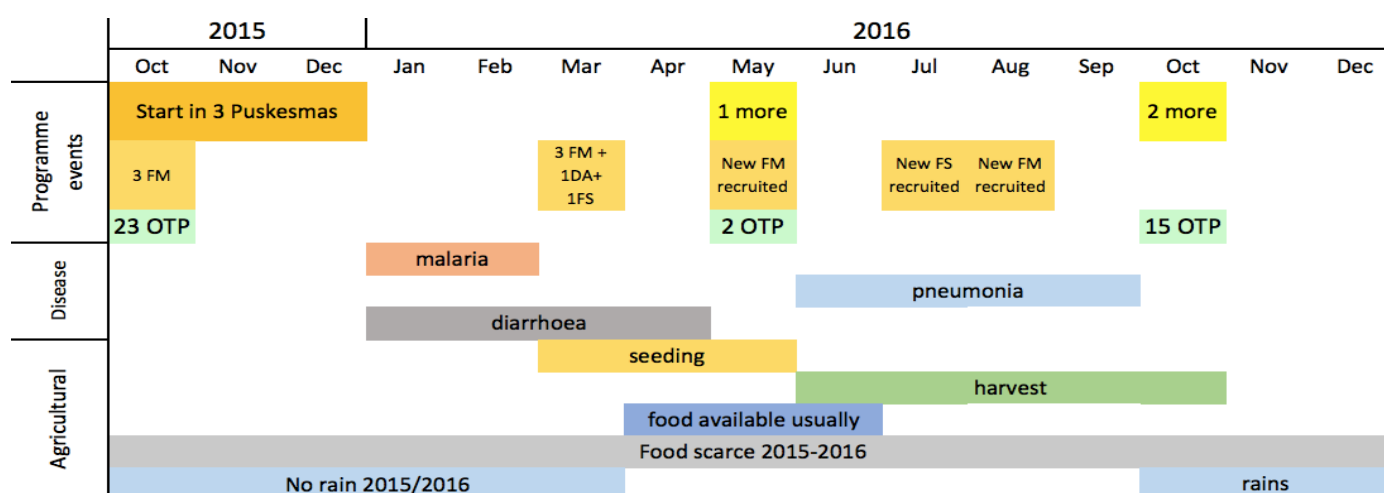


Figure 4: Summary of seasonal calendar constructed during qualitative data collection¹³



For a more in depth seasonal calendar see Annex 8

The steady drop in admission in December 2015 is reportedly due to Christmas and Christmas preparations that people must do in churches and at home during the 3 weeks prior Christmas.

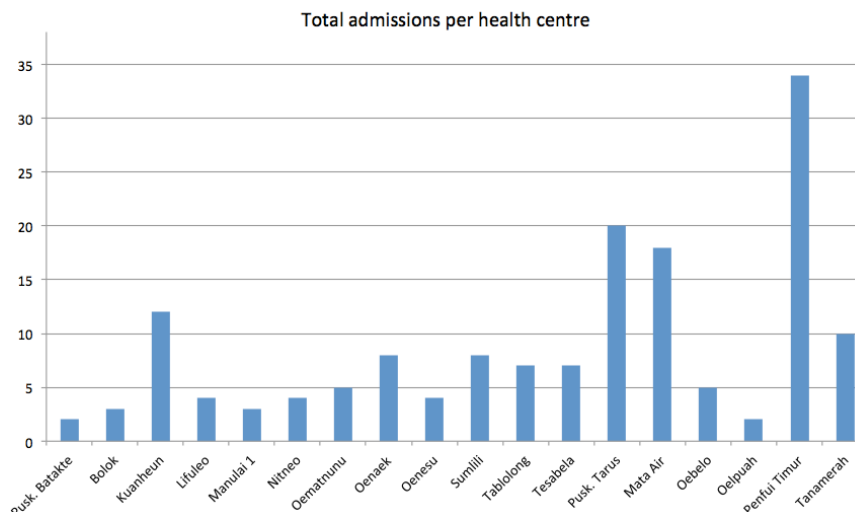
The first peaks of admissions are related to the start of the programme and the screenings/sweepings happening in the field at the beginning of the programme.

The absence of sweeping in the village is the clear cause of the flat admission trend in 2016 and its decrease by July.

¹³ The programme seasonal calendar was collected during interviews with ACF staff.

Admissions were also disaggregated by OTP site, which allowed us to identify any OTPs that had particularly high or low admissions, and then to question why. See hypotheses at Stage 2.

Figure 5: Total admission per health centre



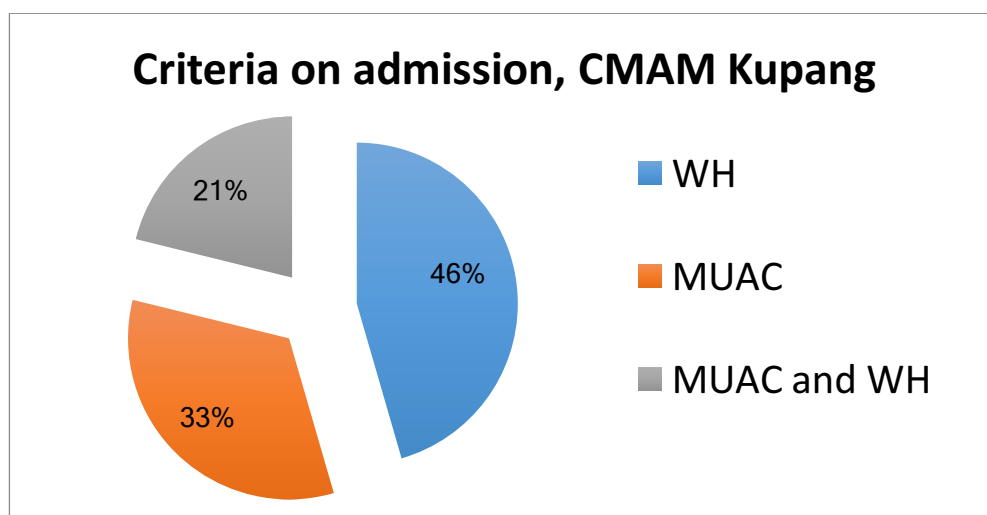
Criteria on admission

Criteria on admission were extracted from the database of the programme for the data for Tarus and Batakte from October 2015 to July 2016 (n=156).

Figure 5 shows that most of the children (46%) are admitted on Weight for Height (WH) only and one third (33%) are admitted on MUAC only. One fifth (21%) of SAM are admitted with both criteria.

As a result of this information the survey team decided to identify cases using WH, MUAC and oedema admission criteria.

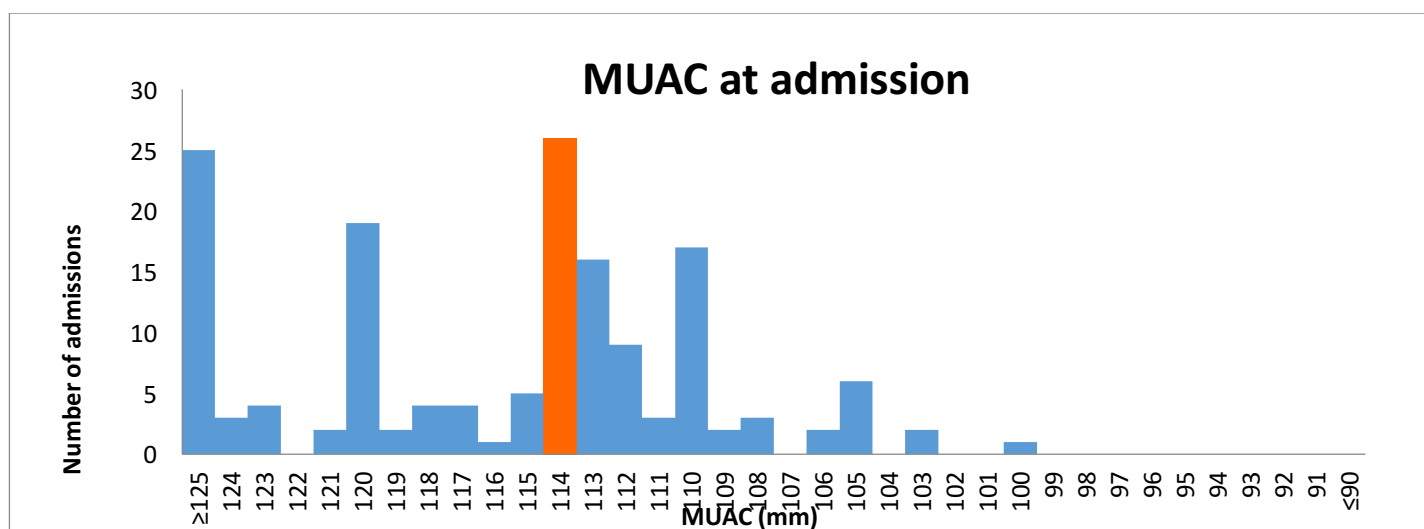
Figure 6: Criteria on admission from Oct. 2015 to July 2016



MUAC on admission

MUAC on admission analysis was conducted from the electronic database. Only MUAC admissions were analysed in this section.

Figure 7: MUAC on admission for OTP admissions between Oct. 2015 to July 2016 (n=156)



Median is in orange colour.

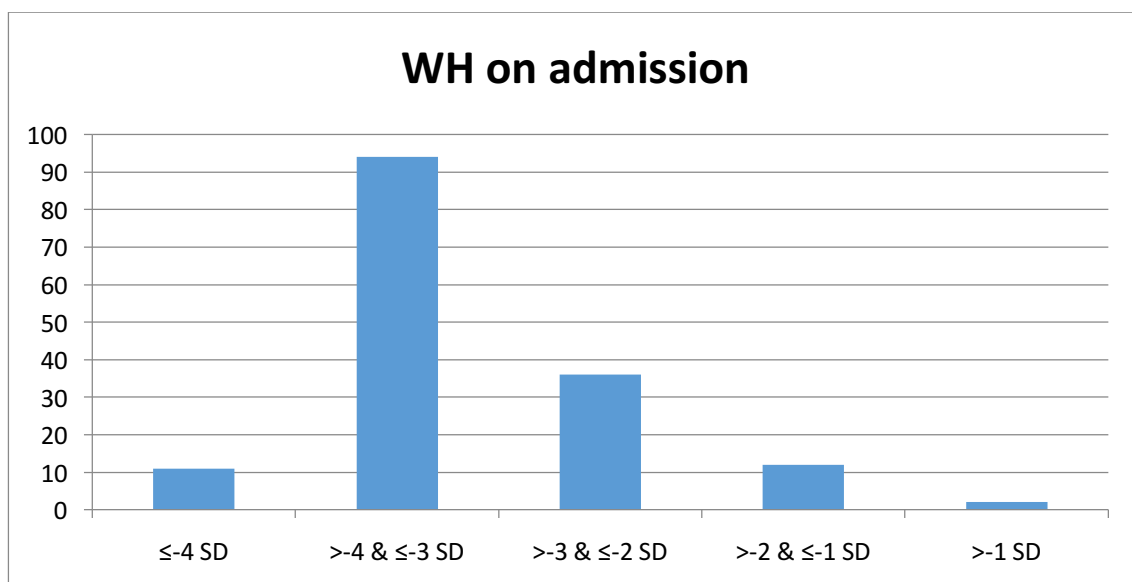
The median MUAC on admission is 114mm, which indicates that generally cases are being admitted early. Figure 7 shows that the majority (90%) of cases were admitted in the early stages of the SAM episode (≥ 110 mm). This is encouraging and shows that SAM cases are usually being admitted before the condition becomes critical. That said, 8% of admissions came in late (105-109mm) and 6% were admitted in a critical condition (MUAC < 105 mm). This indicates that there is still important work to do in case-finding and increasing awareness amongst the population to ensure that cases are admitted before they develop to critical.

MUAC on admission also allows us to assess the accuracy of MUAC measurements. Here we can see a significant preference for a MUAC of 114mm. This indicates that measurers are likely pulling the MUAC tape tighter to ensure the case qualifies. In a normal population we would not see such a preference. There is also a preference for measurements of 120, 110 and 105, which indicates measurers are rounding measurements to the nearest multiple of 5.

WH on admission

Weight for Height (WH) on admission in **figure 8** shows that most children are admitted with WH between -4 and -3 and that very few are admitted with WH less than -4 Z-score. This indicates that children are generally admitted at early stage of malnutrition.

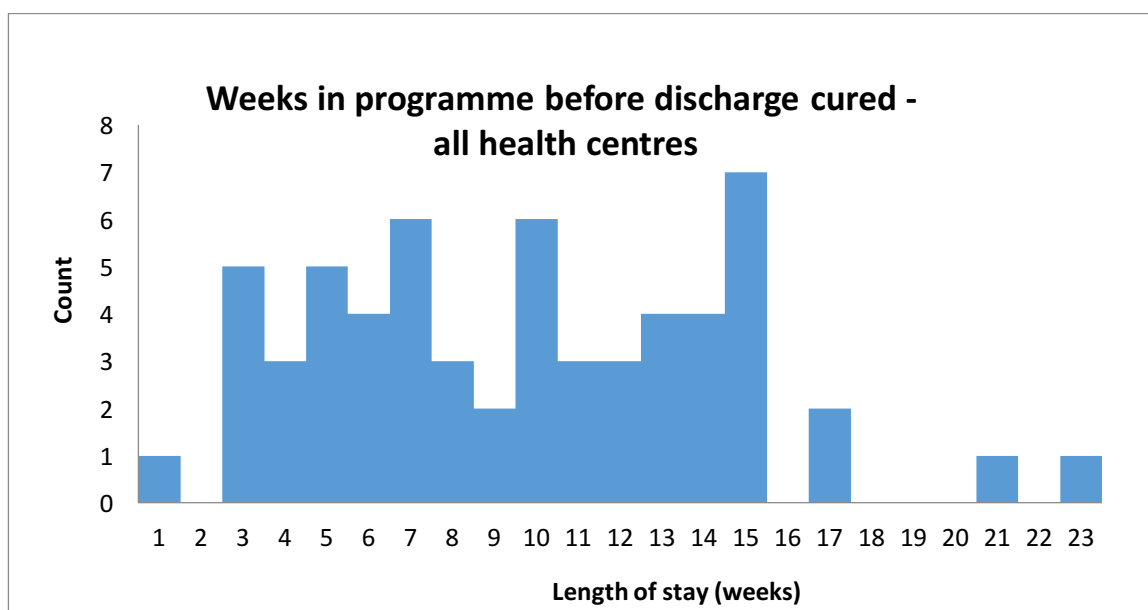
Figure 8: WH on admission to the CMAM programme



Length of stay

Length of stay analysis was also conducted for all OTPs via the programme electronic database. Length of stay is collected for all cured cases and presented in Figure 9.

Figure 9: Graph showing length of stay for cured cases from OTPs in 2015-2016 (n= 60)



The median Length of Stay (LoS) is 68 days (10 weeks), which is high, compared to international standards. The maximum LoS was defined as 4 months (16 weeks) before April 2016. In April 2016, conversations with the Nutrition Expert led to the change in maximum LoS in the programme to 3 months (12 weeks) maximum.

The median LoS in the last 2 months of the programme has improved to 42 days (6 weeks). This is showing that teams have improved their understanding of the treatment and the follow-up of the children on the field. Other factors may have improved the LoS in the programme, as explained in following paragraph on programme outcomes. CMAM programmes should endeavour to keep lengths of stay low in order to decrease the likelihood of defaulting and to decrease costs (in RUTF). Therefore, if a child is not recovering at an expected rate, programme staff should investigate reasons (often through a home visit by a Kader).

Discharge Outcomes

Discharge outcomes are an important indicator of performance that allows us to see what proportion of cases recover after treatment. This information was available for all OTPs each month from the end of 2015 to July 2016 (see Figure 10).

Figure 10: Discharge outcomes over time in 2015-2016

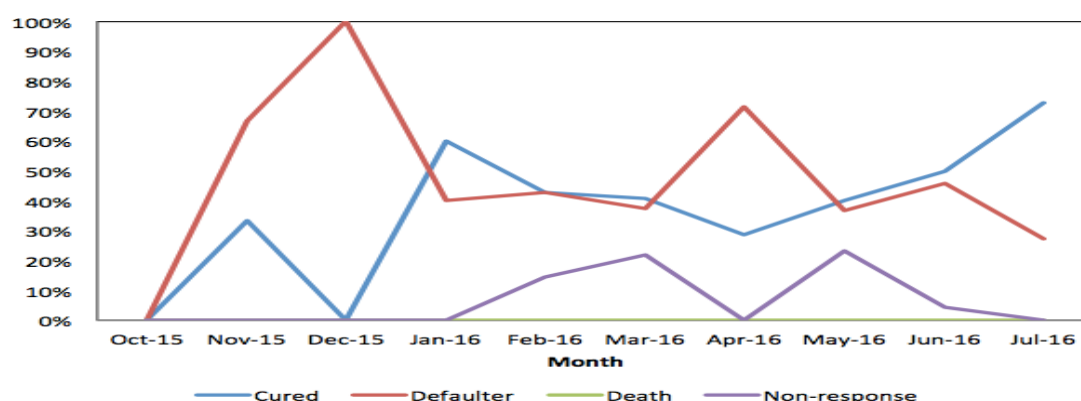
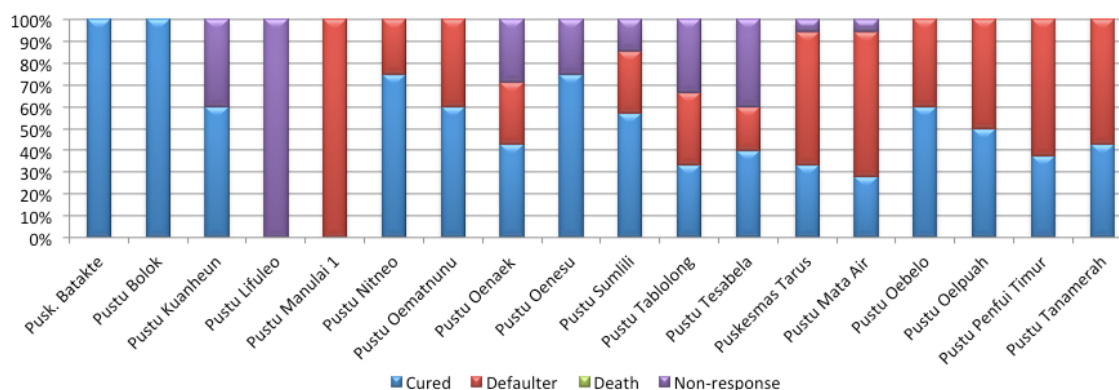


Figure 11: Discharge outcomes per OTP



The first chart shows that the cured rate is improving over time and is the highest in the month of July 2016, since the inception of the data collection in October 2015. Non-response and defaulter rate are also decreasing in the last months.

It was found that compliance to the treatment was very low for reasons inherent to the programme: consequences of malnutrition were not clearly explained to the health staff during training and therefore not explained to the caretakers, maximum Length of Stay (LoS) was set at 4 months and only from April onward reduced to 3 months maximum.

Defaulting

The level of defaulting was always noted as problematic by the field staff. Numbers of defaulters over time (Figure 12), time to default (Figure 13), MUAC on default (Figure 14) and the reason for defaulting (extracted from the database), were analysed.

Figure 12: Chart showing numbers of defaulters over time

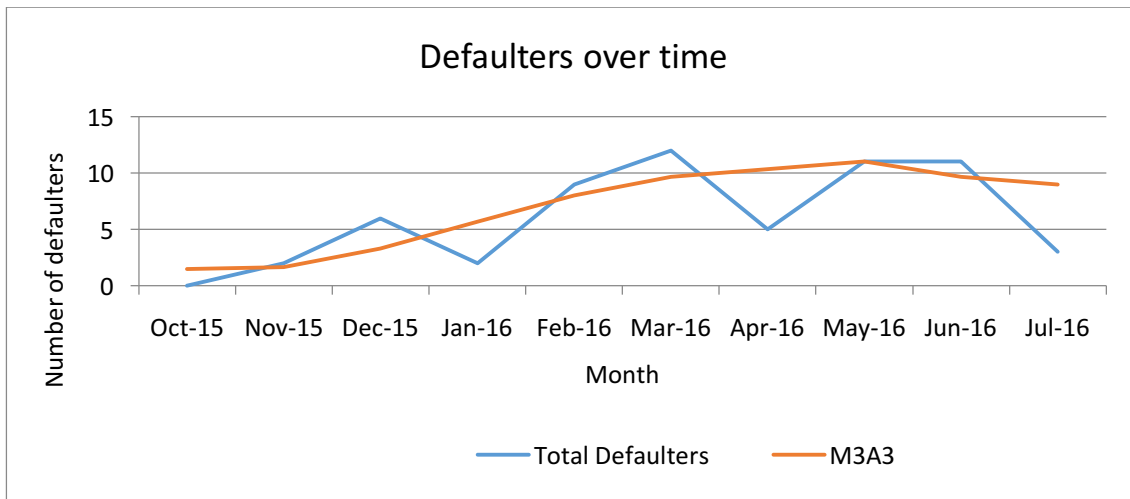


Figure 12 shows the number of defaulters going up and down, depending on the month. The small peak in December is well explained above (see seasonal calendar), but other peaks are not yet clarified but can be explained with the following data on reasons for defaulting.

Figure 13: Admission and defaults as a proportion of total time travelled to health centre.

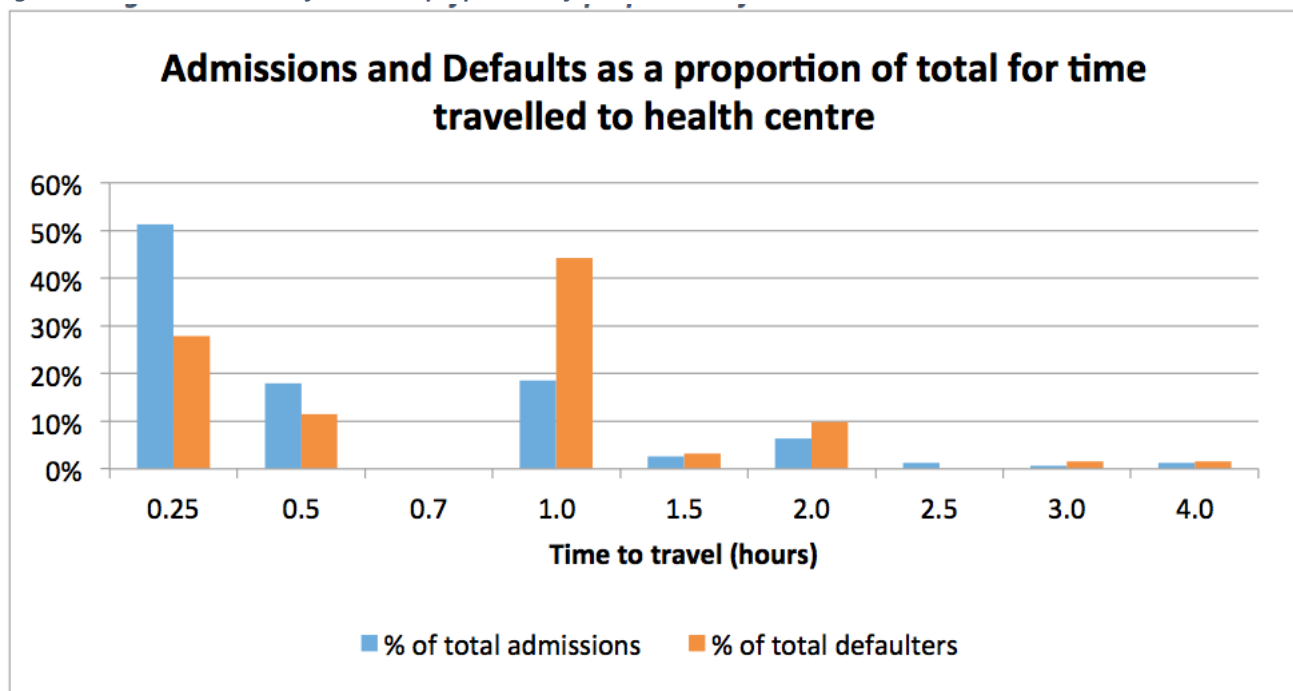


Figure 13 shows that time to travel can be an important factor as also revealed by Stage 1 qualitative data. For travel time greater than one hour to the health centre, defaulters rates become more important than admission numbers.

Figure 14: Length of stay before default analysis for those cases recorded as defaulter (n=61)

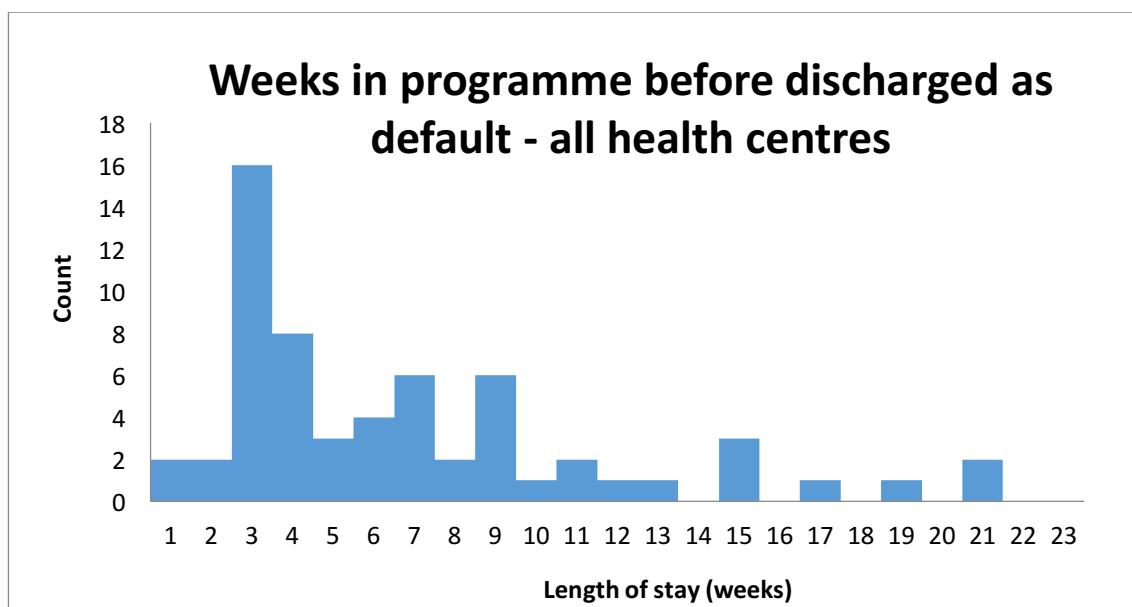
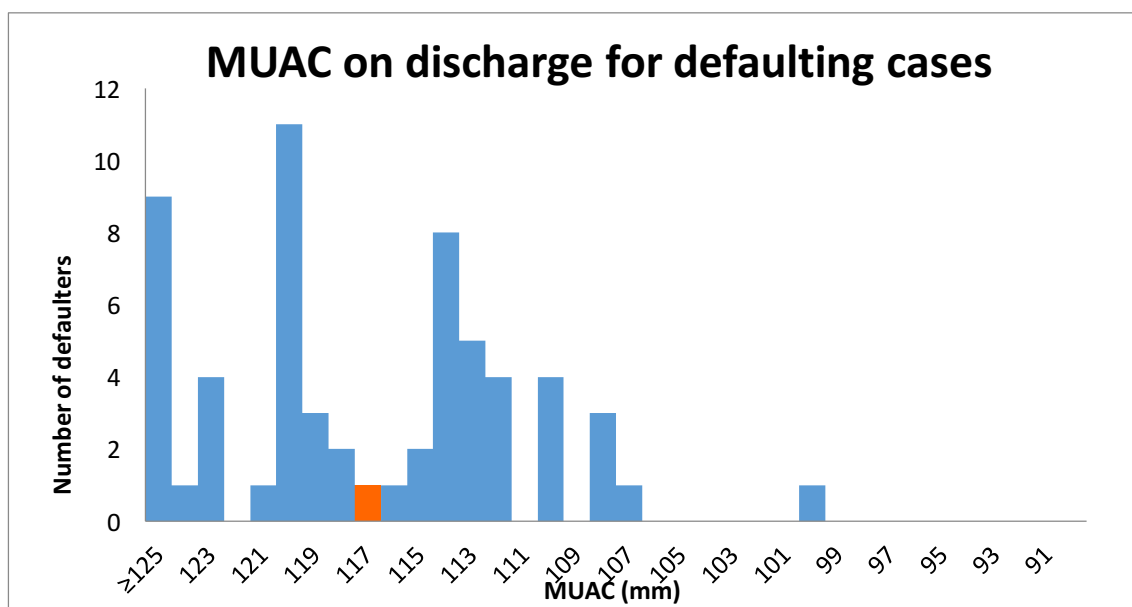


Figure 14 shows that most defaulting happens after undergoing treatment for at least 3 weeks. This could indicate that mothers, having seen an improvement in their child's condition, cease to go to the OTP. This interplays with the long length of stay seen with some cases. The longer the stay (potentially due to poor compliance), the more likely we are to see defaulting. If length of stay is reduced, then defaulting is likely to reduce also.

A further look at defaulting cases, this time in terms of their MUAC on the last visit, allows us to see at what stage in the treatment cases are defaulting. In Figure 15 we can see that 43% of cases defaulted when they were still SAM and 47% before that had developed out of MAM. Both figures are concerning since these children remain malnourished and with risks associated with this condition.

On the 61 defaulters recorded in the database, 58 had data at discharge and 3 were missing discharge data.

Figure 15: MUAC on discharge for defaulting cases (n=58) median in orange colour



From the day-to-day collection of data of the programme into the electronic database, it was possible to extract the reasons given by the caretakers for defaulting. Figure 16 is showing the importance of each stated reason, listed by order of importance. The main reason is the lack of trust in the treatment from the caretaker. This is related to the lack of information given to the staff and beneficiaries on the risks associated with malnutrition. See paragraph below on understanding of malnutrition.

Figure 16: Stated reason by caretaker for defaulting (by order of importance)

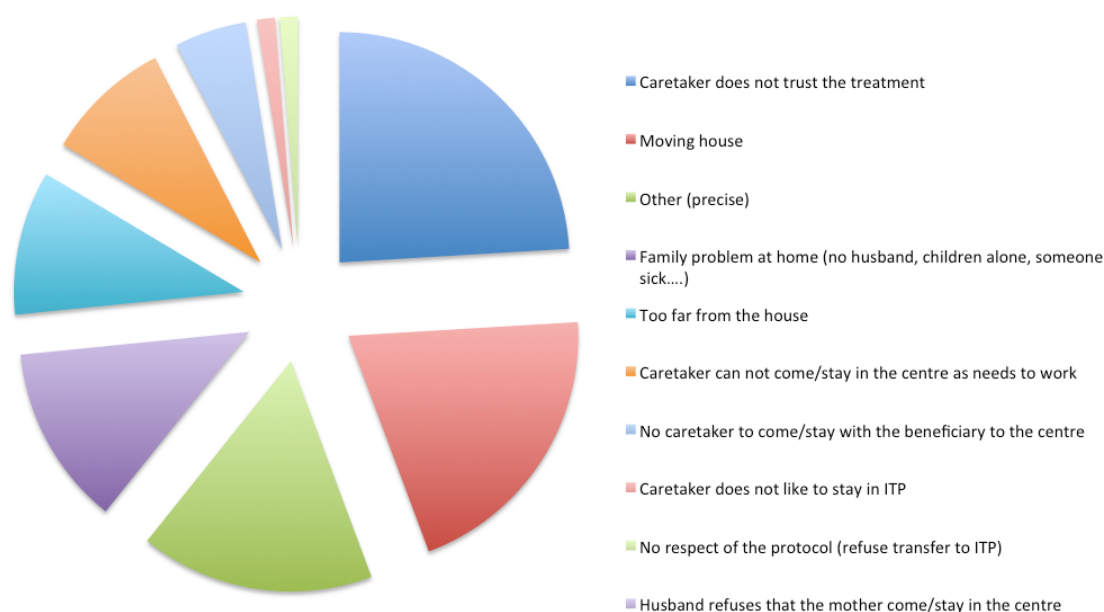
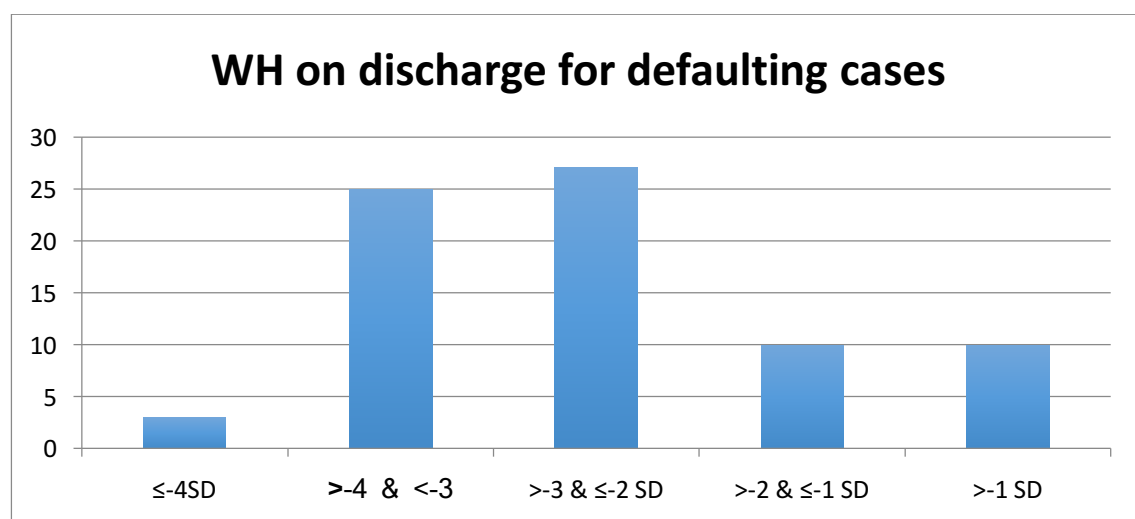


Figure 17: WH on discharge for defaulting cases



The median for WH on discharge for defaulting cases is -2.8 SD showing a clear need for continuing treatment.

Table 5: Drop Outs (DO) in Tarus and Batakte sub-districts.

	#Drop Outs (DO)	% DO / total	# admission	% DO / admission
Batakte	11	18%	67	16%
Tarus	50	82%	89	56%
Total	61	100%	156	

Table 5 shows that 82% of the total DO are in Tarus and in this sub-district 56% of admissions become DO. Tarus sub-district is certainly facing difficulties in term of health system and should be highlighted in future actions to tackle defaulter problem. See Nutrition and Health services paragraph above.

4.2. Stage 1: Qualitative data collection and analysis

In order to complement the information taken from the quantitative data sources, the team set out to collect qualitative data.

Sampling

To start, the programme stakeholders were identified. These included programme participants (carers of SAM children), community members (village leaders, church leaders, CBDs, traditional healers, men, women) and programme staff (management staff, ACF staffs, CHWs (Kaders))¹⁴.

OTP sites and residential locations were chosen for the qualitative research. Residential locations for the qualitative data collection were chosen based on the following factors: locations in both Tarus and Batakte, and locations close and far from OTP sites, to ensure a good spatial coverage throughout the district. OTP sites were chosen depending on time constraints.

Methodology

Two days were spent training the team in qualitative research techniques, including focus group discussions and semi-structured interviews. Six different interview guides were used and the team were collectively trained to use them all. For the first day of qualitative data collection, the entire team went to the same village to allow for close supervision from the survey lead as well as on-the-job training and feedback. Following this first day, an additional 4 days of qualitative research was conducted.

The team worked in pairs allowing for one person to ask the questions and manage the discussion and the other to take notes. At the end of each day, the teams return to discuss their findings, which were recorded and organised by type of informant.

In total, 21 Focus Group Discussion (FGD), 44 Semi-structured interviews and one informal interview were conducted in 32 different sub-villages and nine different OTP sites¹⁵.

It is to be noted that answers could vary from one place to another, with informants easily talking about the opposite of what was said by another group in another location. Below is the summary, trying to be as complete and accurate as possible by mentioning both points of view and the sources.

Understanding of malnutrition - Parents lack of knowledge

Awareness of the existence of malnutrition as a condition associated with being very thin (sangat kurus) in Tarus and Batakte districts is generally high amongst all informant groups. Most informants were also able to cite at least some signs and causes of the condition, but knowledge on the effects of malnutrition were more limited or non-existent in most cases. All the terms used to describe malnutrition or the treatment programme were collected and are presented in Table 6.

It was found that most informants do not consider malnutrition as an illness in the same way that they do malaria and diarrhoea (for example) and therefore did not list it as one of the important illnesses in the district, despite the high prevalence and knowledge of the condition.

Those that knew about malnutrition were generally able to identify some of the signs for malnutrition such as loss of body weight (kehilangan berat badan) or being very thin (sangat kurus). Kwashiorkor, being a condition more rare, was less cited however was identified by some as “buut”. Every place had different name for kwashiorkor from “anak

¹⁴ See Annex 3 for a full list of the key informants interviews performed

¹⁵ ibid

badan babangka”, to “beri beri”. Despite differences in wording in every community, malnutrition was understood as “gizi buruk” everywhere.

Informants were usually able to identify at least one cause of malnutrition, such as poor sanitation, lack of food, lack of vitamins or diarrhoea. Causes related to general morbidity were not well known. Skipping meals and eating snacks was also cited as a cause of malnutrition. A very common perception for the cause of malnutrition was that it is simply the effect of the genes and because parents are very thin, also is the child. Furthermore, the fact children are still playing and active while under SAM criteria results in parents not seeking any help.

The effects of malnutrition were not well known. Midwives generally had more insight about the risks associated with malnutrition, but caretakers did not have a good understanding of it. The lack of awareness amongst mothers related to the possible effects is likely to underpin their willingness to default from the programme.

Naturally, amongst OTP staff, knowledge of the signs, causes and effects of malnutrition were superior to the other informants. However, the knowledge amongst OTP staff was still overall low, for example, a midwife talking about her CMAM training last year “I do not remember anything”.

During a FGD with women, it was found they know about MUAC and red colour target, as well as the treatment being RUTF sachets, but were not clear about the consequences or risks of malnutrition.

Table 6: Terms associated with malnutrition and the treatment of malnutrition collected during Stage 1

Type	Bahasa	English	Further explanation (if needed)
Malnutrition	malnutrisi	malnutrition	In the community
	gizi buruk		
	sangat kurus	malnutrition	For health staffs / official
	kanker otak		
	kusta (leprae)		
	frambusia		
Signs and symptoms	kehilangan Berat badan	loss of body weight	badan turun
	kwashiokor	kwashiorkor	burung langgar
	anak badan babangka		bunik (picture no.2)
	beri beri		puru puru (picture no.2)
	patao (Rote)		pae (bangka) picture no.3
	burung isap		
	otes		
	perut buncit	abdominal extension	
	otot pantat berlipat seperti lipatan celana	small buttocks	pantat kurus dan keriput
			krempeng peot
			penyok
			busung lapar
	mata cekung	sunken eyes	
	mata tadolong		
	kulit berubah warna	the skin has changed colour	warna kulit berubah
	pucat	the body is "lacking blood"	pucat kurang darah
	rambut kehilangan warna	decoloured hair	rambut jagung
	sangat kurus	very thin	talalu kurus
			kurus kering
			kurang gizi

			malona
	kurus dan tempat tua	thin and resembles an old man	kurus dan muka tua
Causes	kurang ASI	lack of breast milk	Mama kurang kasi tetek
	tidak cukup makanan beragam	not enough variety of food	makan itu itu sa
	diare	diarrhea	mencret
Programme related	LILA	MUAC	
	obat gizi	RUTF	
	relawan lokal	local volunteer	Kader
	rawat jalan	OTP	Pos PGBM (Pustu/Puskesmas)

Some mothers mentioned that they want more information and community mobilisation about malnutrition and the programme.

Lack of community mobilisation

In order for good coverage to be maintained, communities need to know at minimum when a child is malnourished and where to refer the child. Typically, this is ensured through communication (for example mass media) and sensitisation (for example with mother-to-mother support groups or sensitisation sessions at health centres). Here in the CMAM area, sensitisation is limited to community mobilisation sessions, which happened last year for Tarus and Batakte sub-districts. There are some rare cases where midwives do sensitisation sessions in their Pustu and Posyandu.

In general, at the CMAM site level (Pustu), there are no health and nutrition sensitisation sessions taking place.

A clear lack of sensitisation was noticed at the Posyandu level, with mothers of SAM not aware of malnutrition and also trained Kaders (2 out of 5 generally) sometimes not sharing their knowledge of malnutrition to other Kaders (there was the example of a Kader with a malnourished child, because she did not know about the program)

Many midwives clearly stated that they are too busy and cannot do sensitisation.

At the community level, sensitisation is limited to the Kaders simply informing the mother that the child is malnourished and that they must go to the clinic. Informants did not report any other information sharing or communication from other staff. However, it was frequently reported that information on malnutrition and the programme is received from neighbours who have already a malnourished child. This is encouraging as it indicates that the programme has a good reputation and that communication strategies can be developed to take advantage of this word-of-mouth information sharing.

The existence of the treatment programme was generally poorly known amongst the informants, and even more limited amongst men (although Village leaders who participated in the community mobilisation were aware). Very few informants had the understanding about Pustu or Puskesmas that gives out RUTF (*obat Gizi*) for malnourished children. For groups of men for example, upon showing the sachets, it was evident they had never seen one before.

For the volunteers in the community (Kaders), only the one who had been trained on the programme had a better understanding of the programme, whilst the ones not trained had heard sometimes about malnutrition, MUAC and RUTF through their colleagues during a Posyandu day. The case of a malnourished child of a Kader that had not heard about malnutrition from her trained colleagues is an example of the lack of knowledge of malnutrition in the village, even by people nearest to the treatment.

Knowledge related to the admission criteria was non-existent except by the trained staff (trained midwives and Kaders). Mothers did not have a good understanding as to why some children were admitted and others not, while some sites were known to have absent or not motivated OTP staffs (See 3.4 Nutrition and health services).

Some informants thought that the programme was costing money so they did not want to be involved.

Informants listed meetings in church as the most effective communication channel, even Posyandu day is announced in church. Other effective channels are others meetings or parties.

Because the village governments have a “good influence on their community”, village heads and fathers should participate too, even informally.

Informants highlighted also the lack of physical material, posters and banners in the Posyandu as being a barrier to knowledge.

See rejection paragraph to have more insight about the rejection.

Mothers who had experience in the programme generally had a good knowledge of how to treat their children (wash hands, give water, frequency of consumption etc.).

Informants were asked whether they had seen the MUAC tape in the community, in order to determine the occurrence and likely frequency of screening at community level. Very rarely did informants report on seeing Kaders in their village with a MUAC tape. And most informants said that they had only ever seen the MUAC tape at the Posyandu site. Furthermore, the Kaders that were interviewed expressed dissatisfaction with the level of supervision and motivation that they receive from midwives and requested more training. That said, they were generally able to clearly describe the process for sweeping that happened once a month after Posyandu day for the children not attending Posyandu, using only MUAC.

Given the low coverage level, this type of sweeping, once a month, is insufficient.

Although there is evidence indicating that sweeping is conducted at community level, the lack of supervision of Kaders and lack of clear information about activities indicates that there is space for a more coordinated and systematic effort at community level screening, to ensure all villages are covered (and therefore households) allowing children to be screened every month.

A PKK (local women association) mentioned that PNPM is bringing socialisation on malnutrition. However, PNPM has been cited as potentially harmful to the programme, because it incentivises attendance of Posyandu day for mothers with money, and also distributes clothing for pregnant mothers. The sustainability of this empowerment program has been criticised, as well as people asking questions RE the repercussions of offering a care package to pregnant mothers (i.e. does this undermine family planning services and encourage pregnancy?)

There appears to be no regular meetings in the community, and decision-making is the responsibility of all leaders at the sub-sub village level. Door-to-door is used to pass information, because it's most effective and most understood.

A community leader also suggested that the government works with ACF to make a big banner at each Posyandu (physical information about the program) to persuade people to come for screening/join program, and inform that it's free.

Parent busy working

The workload of the mothers was raised as an important reason why they have difficulty going to the OTP site. Interviews revealed that mothers take care of a large bulk of the workload at the household level. This includes care for the children, housework, collection of firewood and water, and often taking care of a small business. Even if a mother is required to spend a few hours travelling and waiting at an OTP site, she is still required to fulfil her other responsibilities at home, with no extra support from the father. This makes it difficult for the mother to choose to access the OTP site, and therefore has a negative effect on coverage.

From the informants point of view it is clear that “parents have no time to care for their children”, which is also a cause of malnutrition as when parents are busy, children do not get appropriate meals (as seen by a community leader).

A caretaker who would not go to the Posyandu but would go to see the doctor in Kupang highlighted a lack of trust in the local health system.

Only one midwife explained that there are no obstacles with taking care of children, as relatives take care of children if parents are busy. This point was not triangulated by other sources.

Distance

Average distances from the village to the health centre are quite low, ranging from 0.1 to 10 Km, or 0.25 to 4 hours with 95% of sub-villages closer than 5km to the OTP site.

It was nonetheless found to be sometimes a factor affecting coverage. Despite the 19 OTP sites throughout Tarus and Batakte, there are still sub-villages up to (and likely over) 4 hours walk away. Mothers seemed reluctant to travel much, and even 2km can be considered far by many mothers.

Other sub-districts in the CMAM coverage area are more affected by distance than Tarus and Batakte, with Poto sub-district for example having impassable roads during the rainy season. The further the site and the longer it takes to get there, the less likely caretakers are to go and the more likely they are to default.

The cost for travel was sometimes highlighted as a barrier.

Health worker not trained enough

Many Kaders did mention that they are not trained enough and needed “more advanced training” and guidebooks so that they do not forget what they have learnt and can easily refresh their knowledge.

In the field, 2 trained Kaders were found to have a SAM child, and one of them did not receive information about malnutrition from her trained colleagues.

Some Kaders seemed unsure about the relationship between malnutrition and diarrhoea.

There was the case of a midwife not confident enough to give treatment at Pustu, who then referred SAM cases to the nearest Puskesmas.

The Pustu in Mata Air had 20 admissions at the beginning of the programme, with 50% dropping out. With the help of ACF, the health worker finally did home visits to convince them all to come back in the programme: all of them then were cured, highlighting the importance of good follow up by health workers.

Village government/Community leaders are not active

Many times, PKK (women association) and Kaders suggested that villages heads/leaders and all community leaders should give more attention to the programme and be more heavily involved.

Local government can have a great influence on communities, and community members also expecting a lot from the leaders.

There is an opportunity here for the programme to engage more closely with community leaders and ensure their empowerment (through knowledge of malnutrition and training on screening) and active participation for greater impact.

Kaders were happy and motivated when they were invited and involved in meetings organised by the village heads (VH), and noted it to be effective when the VH visited the DO children.

Poor delivery of service

The welcoming and service delivery at health centres has been mentioned frequently as difficulty caretakers may face when visiting the health centres.

See rejection paragraph below.

In a mothers' FGD with children in the programme, they mentioned the midwife as being ill tempered and not smiling – making them reluctant to attend. However, because their child was seen to be improving, they continued to attend, showing the importance of trust in the program.

Some mothers also mentioned that their child did not get the measurement of weight and height during a confirmation after referral.

Treatment (Therapeutic Food) was sometimes explained to mothers as a medicine to *improve the appetite*, neglecting to mention the importance of the risks of malnutrition.

Responsibility of screening was not well defined among some midwives stating that it is their only responsibility and not the one of the Kaders.

In many cases the Kader complained about not being helped by the midwife and there being a lack of information from HW to kaders about the referral system (HW doesn't give information back to kaders about the referred child, i.e. admitted or not, making follow up with children difficult)

It was very common for mothers to give other foods during the treatment (often rice/snacks) before RUTF. Once, a mother explained that midwife asked her to provide porridge in the morning before RUTF. This is a major concern and could be the reason as to why there are so many non-responders in the programme. It is important for SAM to get out of the "danger zone" of SAM as soon as possible; therefore it is the recommendation that RUTF is the only food/medicine during the whole treatment. The 7 sachets distributed at the end of the treatment help the child to go back to family food gradually with only one sachet per day for one week.

Similarly, sometimes the de-worming treatment was not explained by midwife and parents decided not to give it to the child.

The absence of staff in OTP or absence of trained staff has been seen often because of staff relocation, going back to study, or absence for maternity leaves. Staffs working in shift at Puskesmas do not work the day after in their OTP. This situation led to many cases of No Service (NS) reported during the month of July. Activity was on-going to refer these SAM to the nearest Puskesmas.

In one village the lack of confidence of Kaders to measure MUAC forced the midwives to do all measurements.

This poor delivery of service seems to be limited to some particular places only, as in other places midwives are dedicated and managed to convince mothers to keep trying while the child was not motivated eating RUTF or advising a mother to give RUTF little by little as the child was vomiting taking too much at a time. Health worker motivation and service delivery appears to have a strong impact on the program.

Kaders that are proactive are seen to be those that visit children under treatment and also perform sweeping (including at a party with MUAC) or going to the health centre with the mother to see the confirmation. Kaders also appear to trust RUTF.

A mother of a cured child was happy with the treatment as there was no long waiting in Puskesmas, and also happy that midwives came to visit at her house.

Fathers' lack of knowledge about undernutrition

The lack of knowledge of fathers about malnutrition is more widespread than the lack of knowledge of mothers. A group of fathers did not know anything about malnutrition/RUTF/CMAM, however they did know that Kaders were responsible for taking MUAC, but did not know why.

Again, from one community to the other, the differences could be important, with some communities mentioning that only mothers are in charge of the health of the children while in other communities, fathers have the power to make decisions and were blocking the referral of children to Pustu. One example of this is 5 cases who were identified as SAM, but fathers have not allowed the cases to be referred to the Pustu, in Lifuleo and Oenaek.

Suggestion was to invite fathers to Posyandu day.

Mother absent / no longer primary caregiver

Informants sometimes highlighted the fact that SAM children come from the family of women that are absent (some mothers go abroad and others go to Kupang to work). Fathers or grandmothers then taken care of the child and mothers send money home.

In theory, mothers are supposed to be 17 years old or older and have a letter from the head of village to go to work outside of NTT/Indonesia.

This is interesting background information that should be studied further to know the importance that such a situation has on malnutrition in Kupang.

Screening and sweeping

The sweeping in the villages (see paragraph above about sweeping/screening) happens once a month in some places where Kaders are motivated, and every 2 months in some other places. Apart from this monthly exercise of sweeping the absent children from Posyandu days, no other sweepings were happening.

This highlights the importance of Kader motivation to influence sweeping.

Rejection/refusal from CMAM site

Most of the time, rejections are not explained and caretakers return home without knowing why they have been referred and rejected. Most caretakers did not find this a problem, but some did mention being disappointed by the refusal and the waiting time of 2 hours to get their child screened for confirmation, only to be rejected.

When children are not admitted, even though it may be done correctly (not meeting admission criteria for example) it is paramount that a full and justified explanation is given. Similarly, it is important to reduce the number of children being referred incorrectly, by ensuring proper screening is done at the Posyandu level.

RUTF not accepted

This particular reason is not considered as important as others, as we found positive feedback about RUTF with mothers who liked the program because it improves the child's weight "because of ingredients".

In addition, Kaders stated that they would be happy to distribute RUTF directly from Posyandu.

Some informants mentioned the sweet taste of RUTF being a barrier. Seeing the general taste for sugar in the district and the fact that a majority of mothers were happy with RUTF, this point should be kept in mind for future investigations.

Alternative health practitioner preferred

It is important to investigate health-seeking behaviour, since if treatment for SAM cases is not immediately sought from the CMAM programme, this indicates low coverage.

In Tarus and Batakte sub-district, alternative health seeking behaviour was not found to be very important with only few cases mentioning it. The two main alternatives found were prayer meeting and traditional medicine, sometimes received from these prayer meetings.

Kaders stated that people accept they must to go to the Pustu to seek help with the sickness of the child like diarrhoea. It is important to mention here that Oral Rehydration Salt (ORS), common treatment for diarrhoea, is not available in the village at the Posyandu level, it is only available from the Pustu.

Collaboration with religious leaders presents an opportunity in promoting the CMAM in the community.

Many informants said that when a child is ill they go straight to the local Pustu. This is encouraging because there is a reliable mechanism for referring children to the CMAM programme.

In terms of beliefs detrimental to health, the belief in some communities that pregnant women are not allowed to eat nutritious food because baby gets large and it is then harder to deliver, has an impact on the health of the child and can lead to low birth weight. Fathers in some communities also assume pregnant women should work more to make it easier to deliver a baby.

It was noted that pregnant women usually get examination from Pustu (“get vitamins and medicine for strengthening their babies and their blood”), and then they go to traditional masseuse to position the baby.

RUTF stock breaks

RUTF stock-out was only cited 3 times during the interviews and FGDs, and is therefore not a major cause of concern so far. ACF team has been very much involved in the management of RUTF stocks especially at Puskesmas and Pustu level. This will change in the near future with the incremental handover of this responsibility to local authorities. This topic will be of interest in the next SQUEAC when handover will be completed.

Stock-out of RUTF was cited in Batakte, Tesabela Pustu.

Stigmatisation

People feel pity for malnourished children and believe sickness is evil because it can cause death quickly. However, stigmatization was found to be less of an issue, and most SAM carers and children have good relationships with people in their community.

However, there are some rare occasions where stigma was found to be detrimental to children. One family was mentioned to have left their village because they felt ashamed that the child was SAM. Similarly, upon meeting the family of a cured child, it was found they got bad comments from their neighbours about the child only eating RUTF, however they ignored and followed medical instructions.

4.3. Stage 2

Stage 2 is intended to first determine whether we are on the right track in terms of what we think about coverage in the survey area and second, to ensure coverage is likely to be homogenous. It is important that there are no factors likely to cause coverage to be heterogeneous (or ‘patchy’) in order for us to conduct the wide-area survey. In addition, Stage 2 also provides useful information to add when building the prior. Table 7 below shows the case definition for SAM children during the investigation.

Table 7: Case definitions for SAM children (6-59 months)

SAM child	WH < -3 SD And/or MUAC < 115mm And/or Bilateral pitting oedema
SAM recovering	MUAC > 115mm and WH ≥ -3 SD and still undergoing OTP treatment
SAM uncovered	SAM not admitted in the treatment / not receiving RUTF

Since the discharge criteria for OTP is 2 weeks with either MUAC ≥ 125mm and/or WH ≥ -2SD (See discharge criteria in Annex 3), some non-SAM cases may still be receiving OTP treatment. This is referred to as recovering cases.

The team collectively decided that coverage was likely to be poor (<50%) across the survey area, however they believed that there were at least 2 factors that should be tested, to see their influence on coverage: distance to the OTP site and involvement of the health staff in the field work. Therefore it was decided that the following hypothesis should be tested:

Hypothesis 1: Coverage will be higher than 50% in OTP sites where health staff actively manage Kaders¹⁶

Hypothesis 2: Coverage will be higher than 50% in villages that are less than 2 km/30 minutes walk from the nearest OTP

Results

A total of 26 SAM cases and 13 recovering cases were found across the 38 villages of Stage 2. For hypothesis 1 (involvement of the health staffs), in the 17 villages visited, 11 SAM and 7 recovering cases were found (Table 8). For hypothesis 2 (distance to OTP site), 14 SAM and 5 recovering were found in 21 sub-villages (Table 9).

Table 8: Results from small area survey for Hypothesis 1: Involvement

District	OTP site	Place / village	Involvement	Total SAM	SAM uncovered	SAM covered	Recovering Cases
Batakte	Lifuleo	Tuadale	No	0	0	0	0
Batakte	Lifuleo	Nefo	No	2	2	0	0
Tarus	Oebelo	Dahlia 1	No	2	2	0	0
Tarus	Oebelo	Dahlia 2	No	2	1	1	0
Tarus	Penfui Timur	Rindu Sejahtera	Yes	0	0	0	0
Tarus	Penfui Timur	Kaniti	Yes	0	0	0	1
Batakte	Sumlili	Sumlili	No	0	0	0	0
Batakte	Sumlili	Sumlili oebatu 2	No	0	0	0	0
Tarus	Penfui Timur	Tuameko A	Yes	0	0	0	1
Tarus	Penfui Timur	Tuameko B	Yes	1	0	1	2
Batakte	Kuanhuen	Aomina	Yes	2	2	0	0
Batakte	Tablolong	Tunas Baru	Yes	1	1	0	0
Batakte	Manulai 1	teratai	No	0	0	0	0
Batakte	Manulai 1	melati	No	0	0	0	1
Tarus	Mata Air	Seroja	Yes	1	0	1	2
Tarus	Mata Air	Mata Air Mawar	Yes	0	0	0	0
Tarus	Mata Air	Yerusalem	Yes	0	0	0	0
Total				11	8	3	7

Table 9: Results from small area survey for Hypothesis 2: Distance

District	OTP site	Place / village	Distance	Total SAM	SAM uncovered	SAM covered	Recovering Cases
Batakte	Oematnunu	Boneana 1	Far	1	1	0	0
Batakte	Oematnunu	Boneana 2	Far	0	0	0	0
Batakte	Sumlili	Batulesa	Far	0	0	0	0
Batakte	Oenesu	Nait	Nearby	2	2	0	1
Batakte	Oenaek	Dusun I	Nearby	1	0	1	0
Batakte	Oenaek	Oleii Rote	Nearby	1	0	1	0
Batakte	Tesabela	Tuanak Dusun IV	Nearby	0	0	0	1

¹⁶ The sites were chosen based on prior knowledge of health staff management, based on FM conversations with Kaders and complemented with data. These sites were then asked a series of questions, to confirm the management style of health staff

Batakte	Sumlili	Oebatu I	Nearby	1	0	1	0
Batakte	Lifuleo	Salupu	Far	1	1	0	0
Batakte	Lifuleo	Lifuleo Panaf	Far	0	0	0	0
Tarus	Oelpuah	Flamboyan 4	Far	2	1	1	0
Tarus	Oelpuah	Flamboyan 3	Far	2	2	0	0
Tarus	Noelbaki	Kuanoa A&B	Far	1	1	0	0
Tarus	Tarus Puskesmas	Sasando	Nearby	0	0	0	0
Tarus	Tarus Puskesmas	Melati I	Nearby	0	0	0	0
Tarus	Mata Air	Kelapa Tinggi	far	0	0	0	1
Tarus	Mata Air	Betlehem/PAM	far	0	0	0	0
Tarus	Noelbaki	Air sagu	far	1	1	0	2
Tarus	Pustu Tanamerah	Asal selamat	Nearby	0	0	0	0
Tarus	Pustu Tanamerah	Sedang mekar	Nearby	0	0	0	0
Tarus	Pustu Tanamerah	Tecat maju	Nearby	1	0	1	0
Total				14	9	5	5

Analysis

Hypothesis 1 was tested through a series of questions to the Kaders in the villages. It appeared that either the questions were not well formulated or the Kaders did not want to talk negatively about the health staff, as the hypothesis was denied. Places with high coverage were sometimes not receiving support from health staff and places with low coverage were sometimes receiving good support by the health staff. The support Kaders are receiving does not lead to motivation and more sweeping in the field, as it does not lead to better coverage.

The following formula was used to determine the decision rule for both the hypotheses:

$$d = \left\lceil n * \frac{p}{100} \right\rceil$$

For the analysis of the results of the hypotheses, simplified Lot Quality Assurance Sampling (LQAS) was done in order to obtain a classification of coverage, and to determine whether the hypothesis was confirmed or denied. The SPHERE standard for coverage of CMAM programmes in rural areas of 50% was used.

d = decision rule

n= number of cases found

p= coverage standard defined.

For hypothesis one, the following data was collected and hypothesis calculated:

Health workers actively manage Kaders		Conclusion	Health workers do not actively manage Kaders		Conclusion
n=	5	The number of covered cases was not higher than the decision threshold; therefore the hypothesis was NOT confirmed.	n=	6	Covered cases was lower than the decision threshold; therefore the hypothesis was confirmed.
d=	2		d=	3	
Covered cases	2		Covered cases	1	
Meets d?	No		Meet d?	No	

However, as mentioned above, as the questions were not well formulated or well asked, health worker management of Kaders was unable to be accurately measured, and due to this, the hypothesis was not able to be tested well.

For hypothesis two, the following data was collected and the hypothesis calculated:

Far from OTP (SAM cases only)		Conclusion	Near to OTP (SAM cases only)		Conclusion
n=	8	The covered cases found was lower than the decision threshold; therefore the hypothesis was confirmed.	n=	6	The covered cases found was higher than the decision threshold; therefore the hypothesis was confirmed.
d=	4		d=	3	
Covered cases	1		Covered cases	4	
Meets d?	No		Meet d?	Yes	

Therefore the hypothesis 2 for distance to OTP (*villages near an OTP site have high coverage*) is accepted since villages near to OTP sites had high coverage, and villages far from OTP sites had low coverage.

We can then conclude that the coverage standard is met when a village is situated near the OTP site and that distance does have a significant effect on coverage.

4.4. Building of the Prior

A prior belief of coverage was developed using all the information collected during Stages 1 and 2. This was done using weighted boosters and barriers. See Table 11 for the list of barriers and boosters and the weighing done by the team.

Weighted scoring of booster and barriers

The method to calculate the prior took the list of barriers and boosters that were given a weighted score (between one and five) depending on their relative importance. The team worked together having analysed all the evidence from Stage 1 and 2 to allocate a score that represented the relative effect that each factor has on coverage. The team considered the following questions: How prevalent is this issue? Does it relate to only certain areas or is it applicable across the entire survey area? How much of an effect does the factor have on coverage? How strong is the evidence? The team reflected on all the evidence presented in the mindmap in order to allocate a suitable score. Using the total scores of the positive factors (42) and the negative factors (44) the same formula as above was used to calculate a prior mode:

$$\begin{aligned} \text{prior mode} &= \frac{42 + (100 - 44)}{2} \\ &= 49\% \end{aligned}$$

As it is the first time the programme under-gone a SQUEAC investigation credibility interval of 25% was used.

With a mode of 49% and a credibility interval of 25%, $\alpha = 17.5$ and $\beta=17.5$ shape parameters were deducted from the uncertainty table (See Table 10).

Table 10: Uncertainty table

Prior mode	Uncertainty			
	± 25 percentage points		± 20 percentage points	
	α_{prior}	β_{prior}	α_{prior}	β_{prior}
20%			7.0	28.0
25%	6.5	19.5	10.3	30.9
30%	8.8	20.5	13.9	32.4
35%	11.1	20.6	17.6	32.6
40%	13.4	20.1	21.2	31.8
45%	15.6	19.1	24.6	30.1
50%	17.5	17.5	27.6	27.6
55%	19.1	15.6	30.1	24.6
60%	20.1	13.4	31.8	21.2
65%	20.6	11.1	32.6	17.6
70%	20.5	8.8	32.4	13.9
75%	19.5	6.5	30.9	10.3
80%			28.0	7.0

Table 11: Boosters and barriers to access OTP services with sources and scores

Positive Factors (Boosters)	Scores		Sources	Negative Factors (Barriers)	Scores		Sources
	Simple	Weighed			Simple	Weighed	
Neighbour example (SAM treated)	5	3.2	S5, F2, S5	Parents busy working	5	4.3	S5, S1, F2, F1, F2, F2, F4, S3, I5, F5, S3, S5, S5, S5, S5
Health facility nearby	5	4	S5, F2, S4, F1, F5, F5, S5, S5, S5, S5, M, R, Sv	Poor delivery of service	5	4.1	S3, S4, F1, F2, F2, , S5
Health worker Dedicated / motivated	5	4.6	S3, S3, S3, S3, S5, S5, F1, F5, S5, S5, S5 S5, S5, F2, S4, S3, S5, F4, S5, S5, S5, S3, S5, S5, S5, S5	Parents lack of knowledge	5	4.1	S5, I5, S3, S3, S5, S3, F2, F2, F5, F7, S5, S4, F1, F1, F4, F6, S3, , S5, S5, S5, S5, S5, Sv
Kader motivated	5	4.6	S5, F2, F1, F2, S3, F5, F5, F2 F2, S3, S3, S5, S5, S5, S5, S5, S5, S5	Health worker not trained enough	5	4.3	S3, S5, S7, S5, S3, F2, F2, Sv
ACF Good support	5	3.9	S3, S3, S3, S3, S3, S3, S3	Lack of community mobilisation	5	4.8	S1, S5, F1 F5, F4, F6, S1, F2, S5, F5, F6, S7, F7, S3, S3, Sv
RUTF trusted / well accepted	5	4	F4, F2, S5, S5, S5	Alternative health practitioner preferred	5	2.1	F7, S7, F4, F1, S3
RUTF always available	5	3.7	F5, S3, S3, F7	RUTF stock breaks	5	3.1	F2, S5, S3,
Families trust the program/health system	5	3.7	S7, S5, S5, F4, S5, S5, S5, S5	Distance	5	3.5	F2 F2, S3, S3, S5, S5, S5, M, R, Sv
Fathers support the program	5	3.4	F6, F4, S5, F4, S5, F6, S5	Mother absent / no longer primary caregiver	5	3.7	F2, F5, S3, S3, S5
Village head motivated	5	3.3	F2, S1, F6, S3	Fathers lack of knowledge about malnutrition	5	3.1	F2, F2, F2, F4, F5,
Awareness of SAM	5	3.4	S5, F4, F5, S5	Village government/Community leaders are not engage in the program/not active	5	3.5	S3, S3, S3, F2, S3, S3, S3
				RUTF not accepted	5	3	S3, S3, S3, S3, S5
Totals	55	42			60	44	

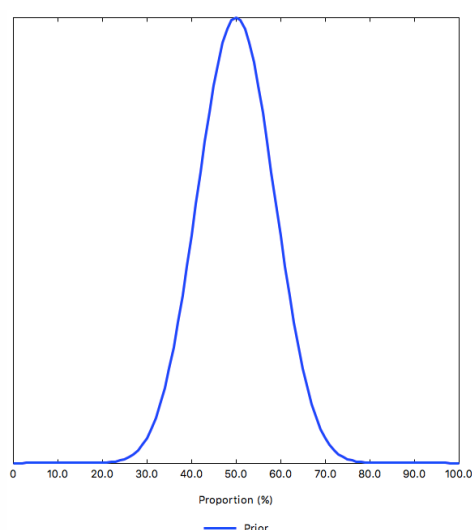
Table 12: Legend for triangulation of boosters and barriers

	Source
1	Village Head / Community Leader
2	Kader
3	Health Worker (Midwife)
4	Men
5	Women
6	Community based organisation / NGO
7	Traditional Leader

	Methodology
S	SSI
F	FGD
I	Informal
R	Routine programme data analysis
M	Mapping
Sv	Small area survey

Using the BayesSQUEAC calculator our estimation of coverage, based on our prior information, is represented by the following curve:

Figure 18: Representation of the prior probability



4.5. Stage 3

The principal objective of Stage 3 is to provide an estimate for coverage across the district. This firstly requires the development of a *likelihood* by way of a wide area survey, and then, using a Bayesian conjugate analysis, combine the prior and the likelihood to produce the *posterior* coverage estimate.

A total of 49 villages were visited during Stage 3.

Sample size calculation

For the prior described above, and a precision of 9%, the Bayes SQUEAC calculator specified a minimum sample size of **n=74** SAM children was needed.

The following calculation was used to determine how many villages we were required to visit in order to achieve a sample size of 74:

$$n \text{ village} = \left\lceil \frac{n}{\text{average population per village} \times \frac{\% \text{ population } 6 - 59 \text{ months}}{100} \times \frac{(\text{prevalence of SAM})}{100}} \right\rceil$$

- n = 74

- % population 6-59 months = 9.2%¹⁷
- Prevalence of SAM = 3.1%¹⁸
- Average population of each village = 810¹⁹

$$n \text{ villages} = \left(\frac{74}{810 \times .092 \times .031} \right) \\ = 32$$

During Stage 2 a large number of sub-villages had been covered already and only 49 were remaining. Practically speaking it was possible to sample the 49 villages remaining during the allotted time. The number of SAM found during Stage 3 has been very low (only 30). This is due to the fact that Stage 2 was focused on low and high coverage places to test the hypotheses.

Sampling framework

A two stage sampling method was used, the first stage ensured the selection of a spatially representative sample of villages throughout Batakte and Tarus sub-districts, and the second stage employed adaptive case finding or door-to-door case finding for smaller villages, to find all SAM children in each village selected.

First Stage: The 32 villages were selected using the spatially stratified sampling method (or list method) (this random selection proved to be useless as the 49 remaining sub-villages were finally covered in the allotted time). The definition of a village or sub-village was well understood on the field and there were no difficulties to get the boundaries of their responsible area from the head of village of each sub-village. During the preparation of Stage 3 it became clear that we had the possibility to cover all the remaining sub-villages, it was thus decided to cover all of them.

See Annex 1 for the maps of the sub-districts of Tarus and Batakte.

Second Stage: In each village a sampling process identical to that employed in the small area survey was employed. For small villages, door-to-door sampling was employed to ensure all children meeting the case definition (SAM children) were found. Survey teams used local language and local terms describing malnutrition.

A questionnaire for both covered and non-covered cases was employed in order to ascertain the reasons for both cases. The questionnaires can be found in Annex 5 and 6 respectively.

The wide-area survey was done with 8 teams of two over the course of four days. Each team was able to cover one to three sub-villages per day depending of the size of the village. If the village was small and there was still time for more case finding, the team was advised to go and help the neighbouring team.

¹⁷ Based on the population data collected by the team from the villages and the under 5 population data collected at the posyandus.

¹⁸ The prevalence from the SMART March 2016 of 4.7% (CI 95%: 0.9-3.2) was taken and the mid-point between the SMART prevalence and the estimation of the prevalence of the villages surveyed in Stage 2 (1.5%), was used. This is because the prevalence calculated for the villages surveyed during Stage 2 was so low (village population known) that the prevalence was adjusted to cover more villages.

¹⁹ Population figures were available from the SMART survey. It has appeared not completely reliable and up-to-date for some villages during the investigation.

Figure 19: Active and adaptive case-finding during the wide-area survey



Results of the wide-area survey

The wide-area survey found a total of 30 SAM cases. The total cases found are presented below, and the cases found by village can be found in Annex 7.

4.5.1. Coverage estimations

The most reliable, and widely suited, coverage estimator currently available is the single coverage estimator²⁰ and should be used for estimating OTP coverage, estimates coverage using SAM cases as well as recovering cases still being treated (as found during the assessment) and estimates recovering cases not being treated. The following formula is used where C_{in} = covered SAM cases, C_{out} = uncovered SAM cases, R_{in} = recovering cases in the program and R_{out} = recovering cases not in the programme:

$$Single\ Coverage = \frac{C_{in} + R_{in}}{C_{in} + C_{out} + R_{in} + R_{out}}$$

The C_{in} , C_{out} and R_{in} are all collected during the wide-area survey however R_{out} must be estimated. The number of recovering cases not in the programme (R_{out}) is calculated using the formula below. A critical element of this is a correction factor (3) that has been with knowledge of the length of time an untreated case of SAM takes to recover.

$$R_{out} \cong \frac{1}{3} \times (R_{in} \times \frac{C_{in} + C_{out} + 1}{C_{in} + 1} - R_{in})$$

Combination of Stage 2 and 3 data

The combination of Stage 2 and 3 data is normally not possible during a SQUEAC investigation as they refer to different hypothesis and purposes. However, in this case, as all villages in the target area were sampled the combination is possible.

Table 13 presents the cases found during the wide area survey and the small area survey and the calculation of R_{out} .

Table 13: Total SAM cases found during the wide-area survey

Type of case	Number found
SAM cases in the programme (C_{in})	8
SAM cases not in the programme (C_{out})	47
Recovering cases in the programme (R_{in})	18
Recovering cases not in the programme (R_{out})	31

²⁰ For more information see Myatt, M et al, (2015) A single coverage estimator for use in SQUEAC, SLEAC, and other CMAM coverage assessments, p.81 Field Exchange 49.

Total cases	104
-------------	-----

With single coverage the sample size required includes recovering cases (both in an out). Therefore the total sample achieved (the denominator) was 104 (8+47+18+31) and the numerator was 18+6 = 26 (SAM cases and recovering cases in the programme).

With these figures the single coverage was also calculated with the formula above and produced the following result:

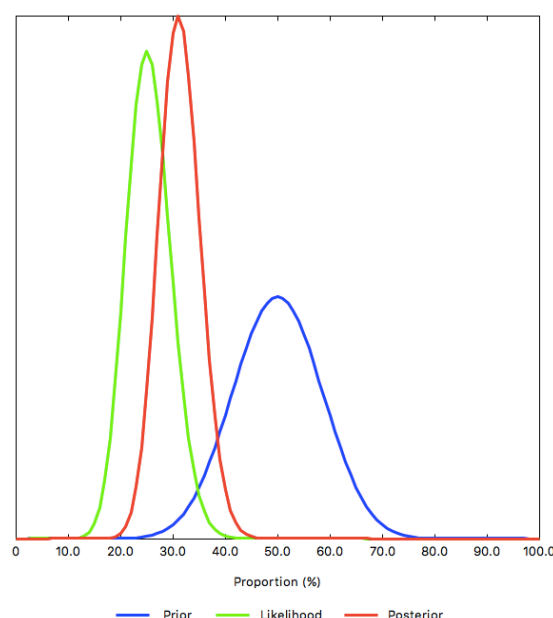
$$25.0\% [CI\ 95\%: 16.7\% - 33.3\%]$$

This coverage estimation is well below the SPHERE standard for rural community based SAM treatment programmes (50%).

The Bayes SQUEAC calculator presents the following posterior curve (red), based on both the prior (blue) and the likelihood (green) information (through a Bayesian conjugate analysis).

See maps of the sub-districts with coverage per OTP site in Annex 10 and 11.

Figure 20: Graphic representation of the single coverage estimate including the prior, likelihood and posterior information



The conjugate analysis presents conflict between the prior and the likelihood. There is very little overlap between the prior estimation of coverage (the blue curve) and the likelihood (the green curve). This means that there is not sufficient coherence between what we thought about coverage based on our analysis in Stage 1 and 2, and the estimation indicated with the data from the wide area survey.

This conflict is indicated by the Bayes SQUEAC calculator in terms of a p-value. The p=0.0069 being < 0.05 the conflict is too great to accept. Therefore we are not supposed to use the precise estimation provided confidently.

That said, since the area has been surveyed entirely we can estimate coverage reliably with acceptable errors and confidence intervals using only the likelihood information.

In order to calculate the upper and lower confidence the following formula was used:

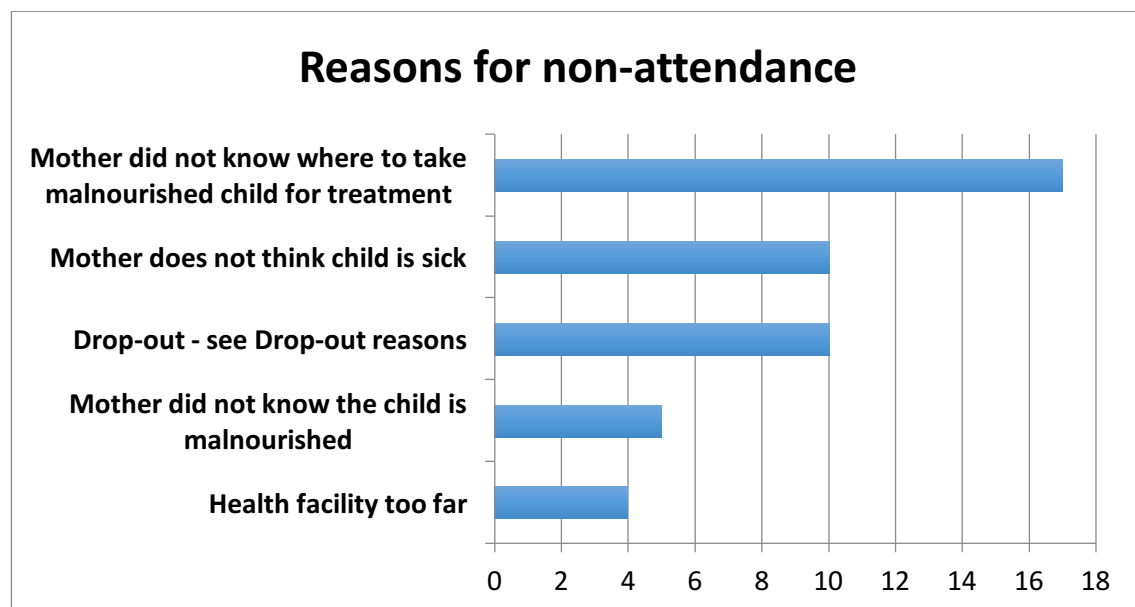
$$\text{Lower and upper confidence intervals} = \text{coverage} \pm 1.96 \times \sqrt{\frac{\text{coverage} \times (1 - \text{coverage})}{\text{Total cases } (C_{in} + C_{out} + R_{in} + R_{out})}}$$

4.5.2. Reasons for non-attendance

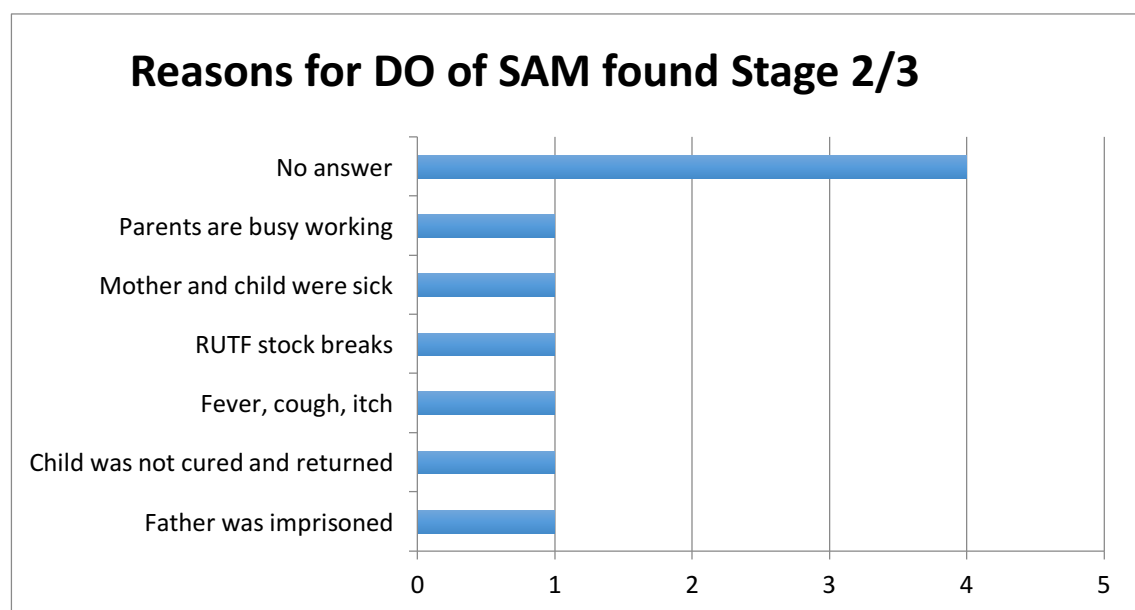
As with the small area-survey the mother of each uncovered case was administered with a questionnaire in order to determine the reason why they were not under going treatment. The most important reasons were carer is busy or the health centre is too far.

Other important reasons for the child not being covered include defaulting due to lack of RUTF (n=1), mother and child being sick (n=1) and parents too busy working (n=1)

Figure 21: Reasons for non-attendance



The above table summarises the reasons for non-attendance as found in the “non-covered” questionnaires (Annex 6 asked to parents who did not bring their child to an OTP site. The children who dropped out of the program, were asked the covered questionnaire, and reasons for DO are below.



The 10 DO children found during the SQUEAC during Stages 2 and 3 were asked the ‘covered’ questionnaire (see Annex 5). Unfortunately, probing was not done well, with four questionnaires not completed for this question. The other

reasons varied – parents busy working, RUTF unavailable, mother ill, father imprisoned and other illnesses being prioritised.

4.5.3. Immediate recommendations

A list of immediate recommendations was discussed with ACF team to focus on in the coming weeks:

- To make sure all SAM found during the SQUEAC are referred and treated
- To make sure the Did Not Attend (DNA) and No Service (NS) found before the SQUEAC are all visited and confirmed
- To redistribute Posyandu places per staff to be fairer with the same number per staff

5. Conclusions

The assessment estimates that coverage of SAM treatment (OTP) in Kupang district's CMAM programme is **25.0% [CI 16.7% - 33.3%]**. Therefore coverage of the programme is well below the SPHERE standard of 50% for rural CMAM programmes and indicates the need to invest in reform to improve coverage.

The investigation was able to not only identify the main barriers to access but also to investigate these in more depth, allowing for the development of recommendations and actions to overcome the barriers and to build on the boosters.

Despite the differences between Tarus and Batakte sub-districts (particularly in terms of health system), the reasons for a low coverage were found to be similar in both places.

Awareness of malnutrition and the programme is typically a key reason for low coverage in CMAM programmes. Kupang district and the sub-districts of Tarus and Batakte are no exception. That said, there was a basic awareness of malnutrition and the existence of the CMAM programme, but the details were found to be lacking. This indicates the need for a communication and sensitisation strategy that responds to the specific misunderstandings and builds on existing knowledge. The effects of malnutrition (potential death and growth inhibition) should be strongly highlighted to increase prioritisation of treatment. Malnutrition needs to be promoted as an illness, with consequences that need to be correctly treated. This should all be done with the aim of facilitating early identification and referral and increasing the priority for treatment amongst caregivers. Programme awareness is largely limited to knowledge of a place that gives out *obat gizi* (RUTF). A lack of knowledge on the function of the programme and reasons for rejection were found to be a key area of deficit in awareness. When mothers do not have a clear understanding of why children are turned away, this can be damaging for reputation of programme. Socialisation and community mobilisation should be done as comprehensively as possible, while delegating the responsibilities to people in the village. This includes the possibility to train mothers to have and use MUAC to be able to follow the status of their child as frequently as a weekly basis. As mention by a midwife: "ownership of the CMAM programme is at the community level."

Activities needed in order to reduce defaulting need to be performed more systematically. These include better information given to caretakers at admission about malnutrition and the average length of the treatment, as well as the risks of malnutrition explained in an appropriate way by health staff and Kaders.

The assessment found that there is room for improvement in the quality of CMAM care provided as well. This includes improvements to the caregiver experience at the CMAM site. The reduction in waiting times and improvements in information sharing during the visit were found to be areas that would make significant improvements to caregiver experience.

ACF technical coaching of the CMAM implementation by the district health authorities will continue to expand in the coming weeks and months to two other sub-districts. This presents a great opportunity to put actions in place to overcome the presented challenges. The following section makes a series of recommendations with accompanying activities. The following table summarises the recommendations for the CMAM program in Kupang. A more complete

table has been made with the team, including targeted stakeholders, performance indicators, target, source, location, time and outcome.

6. Recommendations

	Recommendation	Findings	Actions	Responsible people	Level of priority
1	Improve community mobilisation through better engagement with existing community structures and actors	- Community mobilisation activities limited to once a year and to selected people - Lack of community mobilisation strategy - Limited engagement with community leaders - Poor understanding of OTP amongst caregivers	- Review the community mobilisation content	Nutrition Coordinator and Nutrition PM	Very High
			- Develop comprehensive community mobilisation plan with community figures using local existing programme that includes communication and sensitisation, screening and referral, defaulter/absent follow-up and caregiver support.	Nutrition Coordinator and Nutrition PM	High
			- Health staffs to attend the community mobilisation		
			- Identify key influencers (e.g. village leader, go leader, religious leaders) at community level to promote programme and raise awareness of malnutrition	Nutrition PM and Field monitors	High
			- Utilise existing groups such as church groups and youth groups to promote programme and raise awareness. - To target "Majalis", person serving in church - Establish or reinforce links between community actors and health actors.	ACF Staffs	High
			- Monitor, report and evaluate the community mobilization effort	Nutrition PM/Nutrition Coordinator	Medium
2	Increase capacity building internal and external to improve technical support at all level	- ACF staffs expecting more trainings - Internal organisation	- Internal training by Ibu Helena	Nutrition coordinator	Very High
			- Develop weekly and monthly planning for the team and all internal activities	Nutrition PM/Field monitors	Very High
			- Weekly meeting to share knowledge / challenges	Nutrition PM/Field monitors	Very High

		- Kader not all trained - Lack of knowledge/motivation of the health staffs	- Working with WASH to use their sub-base in the field to help the staffs with the distances. - Trial of mobile data collection also	Nutrition PM	High
			- During Posyandu day to train or give refresher to all Kaders - Make a training Gantt chart and a ToR for the activity - Train and equip church leaders with MUAC tapes for screening. Screening children is every one responsibility	Nutrition PM Field monitors	High
			- Joint monitoring with DHO of all OTPs, Puskesmas, Pustu, Posyandu - Monitoring midwives to the Posyandu/Kaders	Nutrition PM/ Field monitors	Already on going
			- Improvement of the reporting system - Reporting Posyandu <-> Pustu - Information movement: Pustu <-> Village Head	Nutrition PM/ Field monitors	Medium
			- Home visits by VH/HW/Kaders sub-sub village RT RW within Dusun - ACF monitoring but never alone to go to a Home visit	Nutrition PM/ Field monitors	Medium
			- Nutrition Field supervisor to regularly check compilation reports (OTP admission to base compilation) to ensure accuracy and provide feedback to Nutrition PM	Nut FS	Medium
3	Increase the network of people able to screen and refer children	- Limited number of screeners at community level - Opportunities exist for engaging a wide variety of actors	- Mothers MUAC. Trial in Baun - Start with 1 or 2 villages - Make a ToR to define the strategy - Make an explanation sheet for the trainer - Involve mothers of cured children in screening	Nutrition PM/ Field monitors Trainers: Kader or?	Medium
			- Engage people participating in the community mobilisation into the screening and referral activities	Field monitors during community mobilisation	High

4	Increase support provided to caregivers to enable access to the OTP	- Mothers unable to access OTP due to opportunity cost of attending	- To train Kaders to support caregivers when they have difficulties in attending the OTP - To evaluate the possibility of support groups made by women leaders or from women choirs	Field monitors during training to Kaders	Medium
		- Low level of implication of fathers and husbands	- Engage with fathers and husbands to ensure they provide support to mothers in accessing CMAM site and ensure care of children remains a high priority. Invite father of cured children in the community mobilisation	Field monitors	Medium
5	Create and implement an advocacy plan at district level	- Mothers complaining about waiting too long at the OTP site	- Ensure organisation of Posyandu site that does not require mothers to wait	Kader training	Medium
		- Fewer OTP sites in Tarus while there are more population	Strengthen the health system: - Advocacy for increase in the number of Health post especially in Tarus - Get in touch with PNPM (poverty eradication programme) for all Kader involved in CMAM - IMCI: DHO plan to target nurses and not midwife. Advocate for midwife receiving IMCI training - Advocacy for a better PMT (supplementary Feeding Programme) effectively targeting SAM. - To advocate to correct the letter from DHO to include MUAC as a mean to find SAM children on the field. - To advocate for ORS to be distributed at field level.	Nutrition coordinator	Medium
6	Increase ownership of program at local level	- Lack of information given to caregivers during OTP.	- Develop messages that responds to specific challenges (sharing and selling) Mother managing the weight of the child to stay in the program	Nutrition PM	High

		- Training information lost by the health staffs	- Make and distribute posters and leaflets - Sensitise mothers on key messages during each visit to OTP site and ensure good understanding - Leaflets to midwife for key message to check that it is used, laminated and on the wall - Staffs to cross-check with the mother about her knowledge and take action accordingly: meeting with the nutritionist in PKM to follow the midwives	Nutrition PM/Nutrition Coordinator	Very High
		- ACF involved in too many DHO responsibilities	ACF to handover management of CMAM to local authorities: - RUTF delivery and management of low stocks (no more support from ACF for the transportation) especially PKM to DHO - Data/monitoring management, - Authorisation letters management	CNW/Field monitors/CNV	Medium
		- CMAM not mentioned in the health sector	- Regular meeting every 3 months with every NGO/DHO, etc...	CNW/Field monitors/CNV	High
			- Monthly meeting at Puskesmas: Puskesmas mini workshop. All midwives from Pustu bring reports.	Nutrition Coordinator and Nutrition PM	Medium
			- Strengthen the health system reporting with CMAM integration - Follow-up and advocacy on the field with the letter received by DHO	Field monitors	High

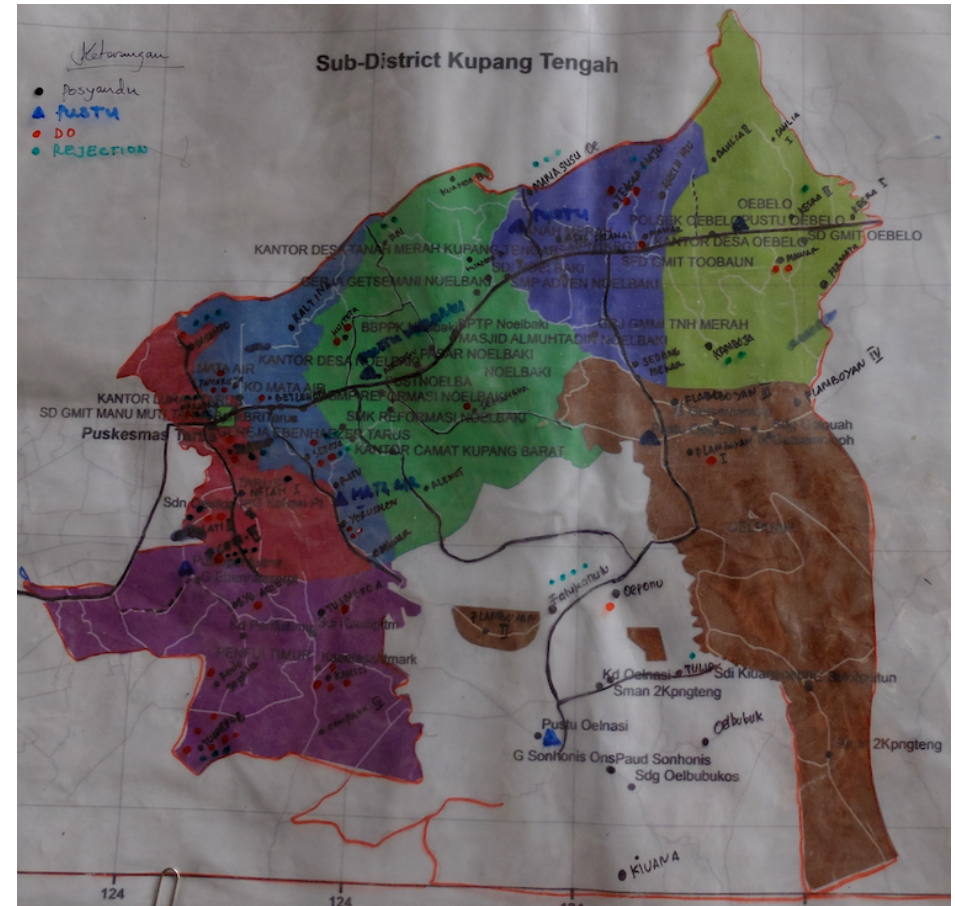
7. Annexes

Annex 1: Photo of maps of Tarus and Batakte sub-districts used during assessment. Black dot = Puskesmas, blue triangle = Pustu, red dot = DO, green dot = Rejection;
Source: ACF WASH department 2016

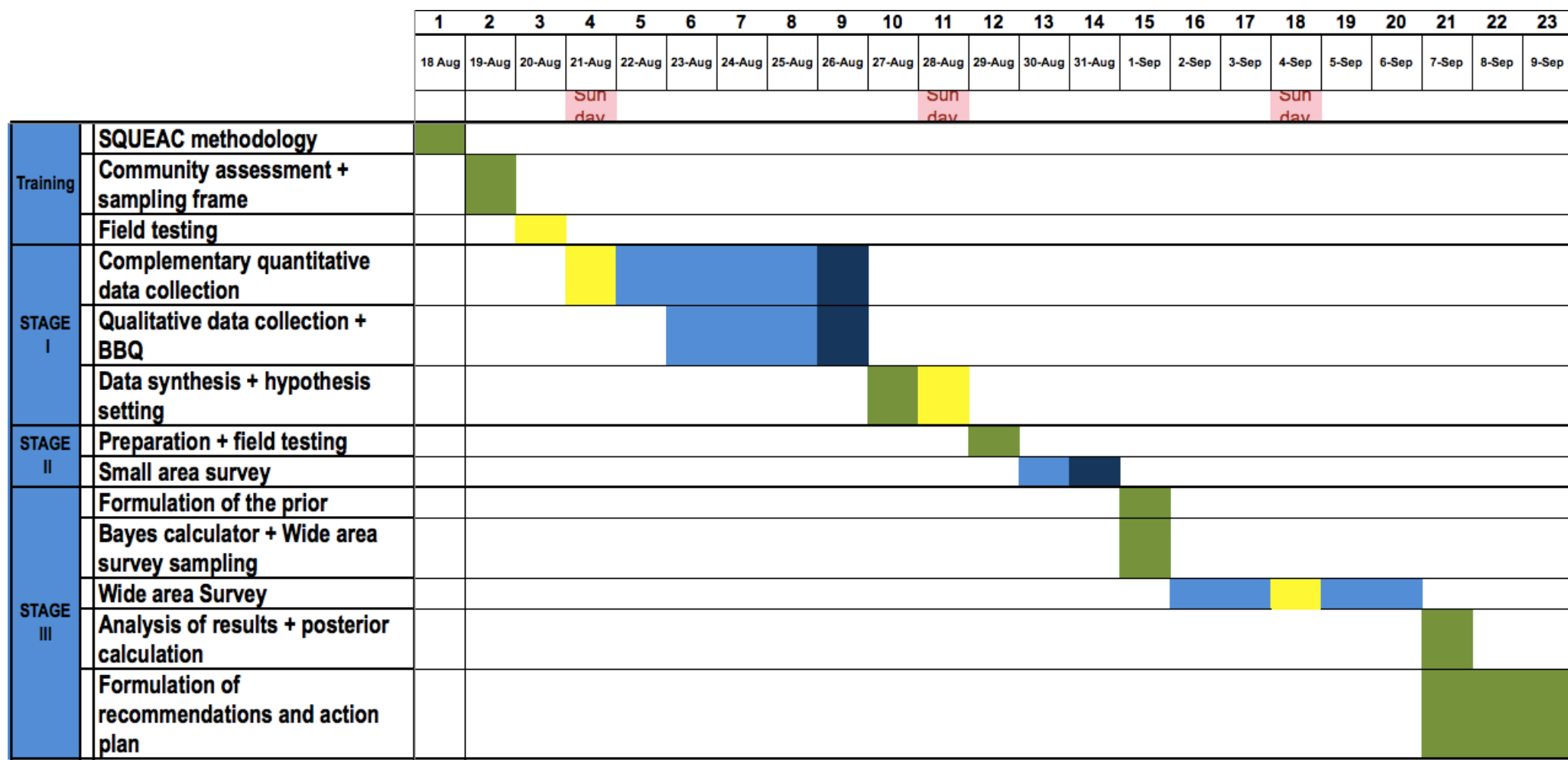
Figure 22: Tarus



Figure 23: Batakte



Annex 2: Gantt chart of SQUEAC assessment in Kupang CMAM programme August 2016



Annex 3: OTP admission and discharge criteria for Children 6-59 months

ADMISSION CRITERIA FOR CHILDREN 6-59 WITH SAM	DISCHARGE
Weight-for-height/length is ≤ -3 Z score, or MUAC is < 115 mm, or Presence of bilateral pitting Oedema AND Appetite test passed No medical complications Child clinically well and alert	The anthropometric indicator (during admission) that is used to confirm SAM should also be used to assess whether a child has reached nutritional recovery (during discharge) Weight-for-height/length is ≥ -3 SD and no oedema for at least 2 consecutive visits And MUAC is ≥ 125 mm and no oedema for at least 2 consecutive visits MUAC 12.5 cm and above for 2 weeks and WLZ/WHZ -2 SD and above for 2 weeks And No oedema and clinically well for 2 weeks

Annex 4: List of interviews and focus groups conducted during the qualitative research

Date	Village	Type of informant	# participants
22/8/16	Tablolong	Community leader	1
22/8/16	Tablolong	Community leader	1
22/8/16	Tablolong	Traditional healers	1
22/8/16	Tablolong	FGD with Kaders	-
22/8/16	Tablolong	Rejection	1
22/8/16	Tablolong	Rejection	1
22/8/16	Manulai 1	Mother of SAM child - Father absent	1
22/8/16	Manulai 1	Mother of SAM covered	1
23/8/16	Tarus	Men with children U5	5
23/8/16	Penfui Timor	Women	5
23/8/16	Mata Air	CHV - Kaders	4
23/8/16	Oelpuah	Men	7
23/8/16	Oebelo	CHV - Kaders	4
23/8/16	Tanah Merah	CBO - PKK women association	4
23/8/16	Batakte	Community leader	4
23/8/16	Oenesu	Community leader	7
24/8/16	Bolok	FGD: Woman (4-7 prs). Posyandu Nupubalu	4
24/8/16	Bolok	SAM child	1
24/8/16	Kuanheum	FGD: CHV (Kader). Posyandu Aomina	4
24/8/16	Nitneo	FGD: Men (Kantor Desa/Posyandu Nekmese 1)	3
24/8/16	Oenaek	FGD: CHV (Kader)-Posy Oenek-Pustu Oenaek	5
24/8/16	Oelii	FGD: Woman (Poskesdes)	3
24/8/16	Oematnunu	FGD: CBO (PKK-Kantor Desa)	4
24/8/16	Lifuleo	FGD: CHV/Posy. Salufu	3
24/8/16	Manulai 1	FGD: CL (Dusun 3 Bpk Meky Banik	1
25/8/16	Tarus Penfui timur	SSI: HC	1
25/8/16	Tarus Penfui timur	Mother of cured child	1
25/8/16	Tarus Penfui timur	Mother of child in programme	1
25/8/16	Tarus Penfui timur	Mother of child rejected	1
25/8/16	Oebelo	Informal interview with rejection	1
25/8/16	Oebelo	SSI HC	1
25/8/16	Mata Air	SSI: HC	1
25/8/16	Mata Air	Mother of child rejected	1
25/8/16	Mata Air	FGD traditional healers	3
25/8/16	Tesabela	FGD: Men	-
25/8/16	Tesabela	Mother of child in programme	1
25/8/16	Sumlili	SSI HC	1
25/8/16	Sumlili	FGD: Woman (4-7 prs)	6
25/8/16	Tablolong	FGD: CBO fishermen	5
25/8/16	Tablolong	Mother of child rejected	1

25/8/16	Batakte PKM	SSI: HC	1
25/8/16	Batakte PKM	Mother of child in programme	1
25/8/16	Tesabela	Mother of cured child	1
25/8/16	Tesabela	SSI: HC	1
26/8/16	Bolok	SSI: Rejection	1
26/8/16	Bolok	SSI: DNA	1
26/8/16	Bolok	SSI: DNA	1
26/8/16	Kuanheum	SSI: Rejection	1
26/8/16	Kuanheum	Mother of child in programme slow responder	1
26/8/16	Kuanheum	Mother of cured child	1
26/8/16	Nitneo	SSI: HC	1
26/8/16	Nitneo	Mother of child in programme	1
26/8/16	Nitneo	SSI: Rejection	1
26/8/16	Oenaek	SSI: HC	1
26/8/16	Oenaek	Mother of child in programme	1
26/8/16	Oenaek	SSI: DO	1
26/8/16	Oelii	SSI: HC	1
26/8/16	Oelii	Mother of child in programme	1
26/8/16	Oelii	SSI: Rejection	1
26/8/16	Oematnunu	Mother of cured child	1
26/8/16	Oematnunu	SSI: DNA	1
26/8/16	Oematnunu	Mother of child in programme	1
26/8/16	Lifuleo	SSI: DNA	1
26/8/16	Lifuleo	SSI: DNA	1
26/8/16	Lifuleo	SSI: Slow responder	1
26/8/16	Manulai 1	SSI: Rejection	1
26/8/16	Manulai 1	SSI: DNA	1
26/8/16	Manulai 1	SSI: DNA	1

SQUEAC

COVERAGE MONITORING NETWORK



QUESTIONNAIRE FOR CARERS OF CHILDREN ENROLLED IN CMAM PROGRAM

Health district: _____ Health facility: _____
 Village: _____ Ethnic group: _____
 Team: _____ Date: _____ 2015

1. Is this the first time that your child has been enrolled in CMAM programme?

☐ Yes → Q5 ☐ No → Q2

2. How many times has your child been enrolled in CMAM programme?

☐ 1 ☐ 2 ☐ 3 ☐ >3

3. Why has your child returned to the programme?

☐ a. Child has discontinued the programme and returned. a¹. Why? _____
☐ b. Child was cured and relapsed. b¹. Why? _____

4. Do you have other children enrolled in CMAM programme?

☐ Yes a¹. How many? ☐ 1 ☐ 2 ☐ 3
☐ No

5. Why did you decide to enrol your child in CMAM programme?

- | | |
|---|---|
| ☐ a. Recognition of the disease | ☐ b. Disease diagnosed by health personnel |
| ☐ c. Failed traditional treatment | ☐ d. Referral by traditional healer |
| ☐ e. Short distance; estimation in km _____
How many minutes on foot? _____ | ☐ f. Minimal or non-existing security risks |
| ☐ g. Accessibility (no seasonal barriers) | ☐ h. Availability of transport |
| ☐ i. Availability of financial resources for transport | ☐ j. Availability of company during the journey to the health centre |
| ☐ k. Support and encouragement of the husband | ☐ l. Support and encouragement of another family member |
| ☐ m. Support and encouragement of parents with SAM children | ☐ n. Support and encouragement of a community health worker |
| ☐ o. Support and encouragement of neighbours | ☐ p. Support and encouragement of community leaders |
| ☐ q. Programme appreciated by the community | ☐ r. Programme staff is friendly and patient |
| ☐ s. Availability of RUTF | ☐ t. Availability of systematic treatment |
| ☐ u. Free service | ☐ v. Efficiency of treatment (quick and visible results) |
| ☐ w. Known child cured | ☐ x. Access to PlumpyNut® |
| ☐ y Other, please specify _____ | |

Thank you!

QUESTIONNAIRE FOR CARERS OF CHILDREN NOT ENROLLED IN CMAM PROGRAMME

Health district: _____ Health facility: _____
 Village: _____ Ethnic group: _____
 Team: _____ Date: _____ 2015

1. Do you think your child is ill?

☐ Yes ☐ No → Q4

1a. What symptoms is your child suffering from?

☐ a. Vomiting	☐ b. Fever	☐ c. Diarrhoea
☐ d. Weight loss	☐ e. Loss of appetite	☐ f. Apathy
☐ g. Swelling	☐ h. Loss of hair	☐ i. Skin lesion
☐ j. Other, please specify:		

1b. What illness has caused these symptoms?

☐ a. I don't know ☐ b. Malnutrition ☐ c. Spiritual disease/witchcraft

☐ d. Weight loss ☐ e. Malaria ☐ f. Diarrhoea

☐ g. Other, please specify (in local language):

1c. How have you tried to treat this illness or how are you going to treat it?

☐ a. Medicinal herbs/roots	☐ b. Enriched meals	☐ c. Fast
☐ d. Medicinal products (bought at the market)	☐ e. Medicinal products (bought at the pharmacy)	☐ f. Prayer
☐ g. Consultation of a traditional healer	☐ h. Consultation at the health centre	☐ i. No treatment
☐ j. Other, please specify:		

1d. Who made a decision about the choice of treatment?

2. Do you know that there is a service at the health facility dedicated to the treatment of malnutrition? What do you know about this service?

☐ Yes, ☐ No → STOP

3. Why didn't you bring your child to the health facility for the treatment?

☐ a. Too far; distance in km _____
how many hours on foot? _____

☐ c. Inaccessibility (seasonal flooding, etc.)

☐ e. Non-availability of the company for the journey

☐ g. Husband/family refusal

☐ i. Carer ill

☐ k. Too busy; reason: _____

☐ m. Ashamed to enrol in the programme

☐ o. Fear of hospital stay (away from HH, fees)

☐ q. Previous rejection of a child; when? _____

☐ s. Quantity of PlumpyNut® is too little to justify the journey

☐ b. Insecurity

☐ d. Non-availability of means of transportation

☐ f. Non-availability of financial resources for the journey

☐ h. Non-availability of financial resources for the treatment

☐ j. Family member ill

☐ l. No-one to look after other children

☐ n. Lack of conviction that the programme can help the child

☐ p. Preference of traditional treatment

☐ r. Rejection of a known child

4. Has your child been already enrolled in CMAM programme?

☐ Yes

☐ No → **STOP**

4a. Why isn't your child still in the programme?

☐ a. Defaulted

☐ a¹. When? _____

☐ a². Why? _____

☐ b. Discharged as cured

☐ b¹. When? _____

☐ c. Discharged but not cured

☐ c¹. When? _____

☐ c². Why? _____

☐ d. Other reason, please specify: _____

STOP

Thank you!

Comments:

Annex 7: List of villages sampled during wide-area survey and SAM covered/uncovered and recovering cases found

District	OTP site	Place village	Total SAM	SAM uncovered	SAM covered	Recovering Cases
Batakte	PKM	RSS RW 03	2	2	0	0
Batakte	PKM	RSS RW 01	0	0	0	1
Tarus	PKM Tarus	Noelbaki Kuiteta Dusun II	2	2	0	0
Tarus	Oelnasi	Oelpunu Dusun V Oelnasi	3	3	0	0
Tarus	Mata air	Dunsun II Tamariska	0	0	0	1
Tarus	Oebelo	Oebelo Dusun IV	2	2	0	0
Tarus	Oebelo	Dusun I	1	1	0	0
Tarus	Noelbaki	Alelot Dusun V	1	1	0	0
Tarus	Mata Air	Ratu Dusun IV	0	0	0	0
Batakte	Pustu Bolok	Pantai Baru	0	0	0	0
Batakte	Bolok	Napubalu	0	0	0	0
Batakte	Nitneo	Ni. Nekmese 1 Dusun I Nitneo	0	0	0	2
Batakte	Nitneo	Ni. Nekmese 2 Dusun II	0	0	0	1
Batakte	Kuanheun	K. Melati Dusun II	0	0	0	0
Batakte	oenesu	Tanaloko	0	0	0	0
Batakte	Pustu Tesabela	Dusun I Batubao	0	0	0	0
Batakte	Pustu Bolok	Boablingin Dusun II	0	0	0	0
Tarus	Pustu Oelnasi	Tulip	1	1	0	0
Tarus	Pustu Oelnasi	Kiuana	0	0	0	0
Tarus	Penfui Timur	Cempaka 4 Dusun III P. Timur	0	0	0	0
Tarus	PKM Tarus	Melati 2 Osiloa	0	0	0	0
Tarus	PKM Tarus	Tirosa	0	0	0	0
Tarus	PKM Tarus	Dendeng/ Semangka Dusun IV	0	0	0	0
Tarus	Penfui Timur	Cempaka 2 Dusun III	1	1	0	0
Tarus	PKM Tarus	Fagura Manmuti	1	1	0	0
Tarus	PKM Tarus	Fatukanutu Dusun IV Oelnasi	0	0	0	0
Batakte	Oematnunu	Oelii Timor Dusun V	1	1	0	0
Batakte	Oematnunu	Oekasino Dusun I	0	0	0	0
Tarus	Oebelo	Oebelo Mawar Dusun III	2	2	0	0
Tarus	Pustu Bolok	Pantai Baru Dusun IV	0	0	0	0
Tarus	Pustu Tanamerah	Mama susu oen Dusun V	1	1	0	0
Tarus	Pustu Tanamerah	Tm.Kasih Ibu Dusun III	1	1	0	0
Tarus	Pustu Oelpuah	Flamboyan 2 Dusun II	0	0	0	0
Tarus	Pustu Oelpuah	Flamboyan 1 Dusun I	0	0	0	0
Tarus	Pustu Bolok	Kol Ana	1	1	0	0
Batakte	Tablolong	Tablolong Dusun I	0	0	0	0
Batakte	Tablolong	Kalamik Dusun IV	0	0	0	0

Batakte	Bolak	Nuting Inuli Dusun I	0	0	0	0
Batakte	Oenesu	Alamanda RW 01	1	1	0	0
Batakte	Tablolong	Kalamik Dusun IV	0	0	0	0
Tarus	Oelnasi	Oelbubuk Dusun II	0	0	0	0
Tarus	P.Timur	Sayang Anak Dusun I	1	1	0	0
Tarus	Tanamera	Tm. Mawar Dusun I	0	0	0	0
Tarus	Noelbaki	BBi Dusun II	3	3	0	0
Batakte	Oematnunu	Oematnunu Dusun II	0	0	0	0
Batakte	Batakte	Tapak RW 02	2	2	0	0
Tarus	Oebelo	Kesra 2 Oebelo Mawar Dusun III	1	1	0	0
Tarus	Oebelo	Permata Dusun II	0	0	0	0
Tarus	Oebelo	Permata Dusun II	2	2	0	0
Batakte	Kuanheun	Ku. Tunas Baru Dusun III	0	0	0	0
Batakte	Pustu Bolok	Kalamik Dusun IV Tablolong	0	0	0	1
Total			30	30	0	6

Annex 8: Detail seasonal calendar for Kupang district.

There is no flood or cyclones in Kupang. Landslides can happen on small scale.

Description of seasonal variations	January	February	March	April	May	June	July	August	September	October	November	December
Country: Indonesia												
Base/Area: KUPANG												
Year: 2015-2016 - Made July 2016												
Seasonal variations of hunger and under-nutrition in the community, considering:												
Hunger gap												
Acute malnutrition prevalence												
Characteristics of each season:												
Rainy season												
Other relevant climatic factors (wind, temperature, ...)												
Highest temperature												
Types of water sources/water availability												
Road states/travel issues												
Harvest time (main staple foods)												
Harvest time (fruits and vegetables)												
Milk production/availability												
Staple food market prices												
Terms of Trade												
Casual Labour opportunities												
Seasonal movements of population												

El Nino impact on this island with very dry year in 2015 and 2016
2015 Data: starting from July to Dec. In 2016: hunger gap starting from January 2016.

2015: August to Dec; 2016: January up to now

2015-2016: no rainy season. Data reflect previous year

Every year: June to July
2015 start Oct-Dec. 2016: start May up to now

2015-2016: water scarcity
June-July: school holiday; November to December: Catholic Day & Christmas

normal year : paddy rice plantation, cassava, corn
normal year : manggoes, watermelon, pucuk labu, pucuk daun ubi, pumpkin
no milk production
when hunger gap start, the price become high
after harvest: cassava, peanut, corn

To find job moving with the whole family

Kupang has been highly affected by drought and El Nino in 2015 and 2016.

Seasonal occurrence of climate-related hazards:												
Droughts												
Seasonal occurrence of others hazards:												
Diarrhoea												
Fever/Malaria												
Acute Respiratory Infections												
Crop diseases												
Animal diseases												
Pest (insects) invasions												
Measles/ other epidemic												
Caretakers												
Busy times/high workload for women												
Busy times/high workload for others caretakers (detail who is the principal Caretaker)												

Normal year: June to October
2015-2016: drought starts early in March up to October, very little rains in 2015-16
We are still collating data but at present approximately 60% of village wells are dry after the rainy season and about 50% of bores also become dry.

Jan-April: cases happened due to rainy season and manggoe season (normal year).
2015-2016: January - February due to drought season.
2016: Jan-Feb due to sporadic rain due to east wind (easterly)
Normal year: Jan-Mar 2014; 2016: None due to fail of planting
Normal year: Apr-June 2014; 2016: None due to dryness
Together with malaria and diarrhoea months
Measles no; conjunctivitis: eye problem due to dust and dry

Planting and harvest time

Planting and harvest time

[illegible]

Annex 9: Recommendations for future investigations.

Experiences gathered during this SQUEAC survey should guide the implementation of future investigations. SQUEAC being a palliative solution for the lack of day-to-day monitoring of the qualitative outcome of CMAM, future investigations could be implemented in and during the implementation of the programme.

Recommendations for future investigations:

- To include community representatives at every stage of the SQUEAC, especially at the action plan phase
- To involve DHO in the training and field investigation to enhance the ownership of the programme
- To anticipate the needs for budget for the last meetings with the community and health representatives for discussing the recommendations and action plan
- In Stage 2, to use very few villages as they are removed from Stage 3 list of possible villages.
- To get local pictures of SAM children to show as example (not extreme marasmus cases)
- To get more accurate population data
- To further inquire on previous rejection and clarify if it is really not a barrier
- To inquire about refugee places (make it an hypothesis?) and know if coverage is different there
- To see if language barrier is present or not (should be explained in the training to the team) (only one case of mother not speaking Bahasa in 2016)
- Teams to make sure of the boundaries of the places before starting the investigation, eventually through making a map of the place with the head of the villages
- In the data collection sheet, to remove this column that is too confusing for the staff and not needed: # DO recovering/recovered
- On the reporting sheets: teams to use the exact names of the places provided to them in the sampling framework
- Team to fill-up the sub-villages in the title of the questionnaires
- To highlight during the training that everything must be recorded: even team that do not find any SAM should report 0 in the appropriate columns
- To come with a strategy to reach Poto and other far sub-districts (use of sub-base on the field...)
- To compare area with Mother MUAC with others with usual sweeping
- To inquire about the sweet taste of RUTF as a barrier