HARP-F
Humanitarian Assistance and Resilience Programme Facility

CROWN AGENTS
ACCELERATING SELF-SUFFICIENCY & PROSPERITY

CONSOLIDATING AND PRIORITISING NUTRITION RESEARCH IN RAKHINE STATE, MYANMAR

REVIEW

An independent review commissioned by the HARP Facility

Authored by Mekong Economics
April 2022.

Supported by:

UKaid

This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

Table of Contents

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

Introduction

Nutrition in Myanmar

With Myanmar plagued by conflict and highly vulnerable to natural disasters and climate change, malnutrition is a major concern. Under-five mortality in Myanmar remains one of the highest in the South-East Asia region and Myanmar is one of Asia's poorest countries. Scaling-up coverage of wasting treatment in Myanmar is a priority and requires innovative approaches such as using Family Mid-Upper Arm Circumference (Family MUAC), integration of nutrition services into mobile health clinics and the use of modified protocols.

The barriers to seeking maternal and child health services are multi-factorial, with Muslim households facing additional obstacles, and these will need to be addressed to achieve increased coverage. Other major gaps in nutrition service provision include identification and management of at-risk infants under six months and their mothers (MAMI) and better management of children with severe wasting with medical complications. Yet, nutrition has been neglected in the humanitarian response.

To prevent malnutrition, there is a need to scale-up nutrition-sensitive activities to address underlying and basic causes of malnutrition. Global evidence shows that nutrition-sensitive strategies such as agriculture and livelihood activities, women's empowerment, safety nets programme, providing supplementary food, preconception programmes, and water, hygiene and sanitation promotion provide important nutrition benefits.

Nutrition-sensitive interventions also present an opportunity to integrate elements of wasting treatment and identification to further scale-up coverage. However, these programmes face similar barriers to wasting treatment. To improve targeting and increase coverage, more research is required. Urgently, this calls for additional research to address the evidence gaps around how to best determine the burden of malnutrition in Myanmar and how to best address gaps in nutrition (specific and sensitive) service provision.

Research assignment and objectives

In March 2022, the Humanitarian Assistance and Resilience Programme Facility (HARP-F) contracted Mekong Economics (MKE) to consolidate nutrition research currently being undertaken in Myanmar and to identify key nutrition research questions that remain. This activity is included under priority 1 of the Myanmar Nutrition Action Plan, drafted by HARP-F, LIFT and Access to Health, which seeks to improve understanding of the current needs, gaps and opportunities in capacity and services, to reduce barriers to accessing services and improve nutrition practices. This analysis will help develop the research and learning agenda for the nutrition sector, including for UNICEF, LIFT and Access to Health, to understand what research is required to support improved nutrition programming across Myanmar and in Rakhine State in particular.

The research was conducted between March and April 2022 under two main objectives:

- Ascertain what nutrition research is currently being carried out in Myanmar and Rakhine State in particular, including on aetiology of malnutrition, wasting, kwashiorkor and stunting trends, and on effective identification and management of malnutrition, to identify research gaps.

- Identify the key research questions that remain on the effective management of malnutrition, including wasting, stunting and micronutrient deficiencies, in all vulnerable groups including infants, children under five years of age, school-age children, adolescents, women of reproductive age and pregnant and lactating women (PLW).

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

Methodology

This section will denote the methodological approach used to conduct the research and analysis, as well as implementation challenges and solutions.

Approach

The methodology utilised a three-pronged, mixed-methods approach:

1. Literature review of Myanmar-specific nutrition evidence data sources
2. Key Informant Interviews (KIIs) with nutrition sector stakeholders
3. Survey with wider nutrition stakeholder group

The purpose of the literature review was to identify evidence gaps, including both formal research trials with ethical review and informal operational research conducted by implementing partners undertaken in Myanmar, and specifically townships in Rakhine State. Data sources, identified by HARP-F and MKE's research team, were analysed to determine research and programme timeframes, topics, locations, key findings, activities and outcomes, as well as feasibility and effectiveness.

Key sources included:

- OCHA: Myanmar Humanitarian Response Plan (Report) 2022
- HARP-F: Nutrition in Myanmar: Focus on Rakhine State (Report) 2021
- HARP-F: Focus on Nutrition (Website) 2021
- HARP-F, LIFT and Access to Health: 3 Fund Action Plan for Nutrition in Rakhine State (Report) 2021
- HARP-F: Nutrition Baseline and Recommendations for Myanmar (Report) 2021
- Guidance Note on Interim Multi-Sectoral Action Plan on Nutrition (MS-NPAN) (Report) 2021
- FAO and EU: Improving Food and Nutrition Security in Rakhine State (Report) 2020
- UNICEF in Rakhine State (Report) 2020
- IDS: Social and Cultural Factors Shaping Health and Nutrition, Wellbeing and Protection of the Rohingya within a Humanitarian Context (Paper) 2017

Assignment parameters

Defining 'research': The assignment has primarily focused on analysing empirical nutrition research conducted with clearly defined objectives or hypothesis, rigorous methodologies, key findings and recommendations.

However, there is a lack of nutrition-specific research conducted at the village and township level in Rakhine. Taking this into consideration and combined with the way in which inputs from nutrition programme implementors influenced the direction and outcomes of the assignment, data obtained from certain situation monitoring reports and rapid needs assessments conducted by NGOs and INGOs have also been alluded to where appropriate. Routine, project-specific monitoring and evaluation (M&E) data used to measure progress against key programme indicators, such as baselines, midlines and endlines, has not been included.

Timeframe: The assignment has primarily focused on nutrition research conducted since 2015, with the 2015-2016 Myanmar Demographic Health Survey (MDHS) serving as an informal 'baseline'. In some cases, particularly relevant papers written prior to 2015 have also been included in the analysis.

Location: The assignment has primarily focused on nutrition research conducted at a countrywide level in Myanmar, or in Rakhine State in particular. This is in line with HARP-F's focus on addressing nutrition-related challenges in both camp and non-camp settings within Rakhine State, and will follow on from the Nutrition Action Plan which was co-developed by HARP-F, LIFT and Access to Health and aims to reduce the prevalence of wasting and stunting across the State. In some cases, relevant research focusing on Rohingya refugees living in IDP camps in Bangladesh, Kayin refugees living in IDP camps in Thailand and communities in Ayeyarwaddy region have also been included in the analysis, due to these being the only other areas with similar socio-economic characteristics to communities in Rakhine State where relevant nutrition research has emerged.

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

Remote stakeholder consultations were conducted through KIIs to identify and prioritise potential Myanmar-specific nutrition research questions. Respondents were also asked about their knowledge of, and participation in, existing nutrition research and programming in Myanmar, and specifically Rakhine state, as well as existing gaps in nutrition research and programming, and suggestions on how future research and programming could be undertaken (see Annex 1).

KIIs were conducted with mid to senior level individuals including nutrition programme managers, officers, and technical advisors (see Annex 2). These individuals were contacted directly from relevant nutrition focused organisations through HARP-F's partner organisations and MKE's network.

The KIIs were conducted via video call on Google Meet or voice call depending on respondent preference and internet availability in the respective locations. Interviews were primarily conducted in Myanmar, then transcribed into English. In total, 25 KIIs were conducted between the 15th and the 21st of March 2022.

A survey was also conducted with a wider nutrition stakeholder group in order to rank the list of nutrition research questions which had been developed through Child Health and Nutrition Research Initiative (CHNRI) global prioritisation exercises and adapted based on inputs from the stakeholder consultations (see Annex 3). Specifically, the questions related to:

1) Prevention of child wasting
2) Treatment of child wasting
3) Management of small & nutritionally at-risk infants under six months and their mothers (MAMI)

Respondents were then asked to rank the questions against the following CHNRI criteria: answerability, potential for translation into nutrition intervention, effectiveness, ethical considerations, equity, cost and feasibility.

The questionnaire was coded on a Kobo Toolbox survey form in both English and Myanmar. The link to the survey form could be accessed via computer, tablet or mobile phone and completed forms could be stored offline until the respondent was able to obtain internet access to submit.

Stakeholders included nutrition programme managers, coordinators, officers and assistants, nutrition specialists and technical advisors, community health care service providers and community-based volunteers. These individuals were mobilised via email and phone by contacting the KII participants as well as focal points from HARP-F's partners within the Nutrition Cluster Team and Scaling Up Nutrition (SUN) Network, local Non-Government Organisations (NGOs), international Non-Governmental Organisations (INGOs), United Nations (UN) agencies and Civil Society Organisations (CSOs). In addition, MKE's research team uploaded the survey information onto relevant social media channels, such as Facebook and LinkedIn, to increase network coverage and encourage participation. In total, 40 completed survey responses were received between 25th of March and the 20th of April 2022.

Challenges and Solutions

Given the highly specialised and technical nature of the research and limited timeframe alongside the wider obstacles faced in conducting data collection in Myanmar at present, several challenges were faced and addressed:

Challenges	Solutions
KIIs	
Availability & suitability – Several nutrition experts, particularly internationals, were unavailable to participate in KIIs. In addition, some felt that their expertise on nutrition sensitive topics did not align with the nutrition specific nature of this research.	- Followed individual recommendations from experts and mobilised additional, nutrition-specific experts (Myanmar nationals) to meet the required sample size.
Length of time – Initial KIIs took almost two hours to complete, longer than initially expected.	- Sent questions to stakeholders in advance. - Used flashcards and show questions on screen during KIIs. - Gave stakeholders the options to send additional thoughts via follow-up emails.
Survey	

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

Answerability – The technical nature of the survey may have made it challenging for community-based, non-medical stakeholders to complete it.	- Clear instructions, guidance, and context-specific examples were provided. - Questions were simplified and a Myanmar translation was provided.
Response period and rate – The limited response period in the lead up to the Thingyan holiday period alongside the limited number of individuals with the required background knowledge and incentive to complete the survey created some challenges in meeting the sample size.	- The survey link was sent directly to organisations, as well as disseminated on social media platforms alongside clear guidance on how to complete the survey. - Daily response rate checks were completed on the Kobo ToolBox platform and discussed during the research team's daily meetings. Progress and solutions were also fed back to HARP-F on a regular basis. - One week after disseminating the survey link, the research team made calls or sent follow-up emails to individuals at organisations which had not yet submitted responses. The team also clarified that each relevant individual within an organisation should complete the survey, rather than submit one entry per organisation. - The response period was extended to allow stakeholders to complete the survey during the Thingyan public holiday.

Data Findings

This section will present the data gathered from the literature review, KIIs and survey results in relation to key analysis questions identified by HARP-F. A more comprehensive summary of the literature sources can be found in Annex 4, denoting publication details, topic, location focus, methodology, key findings and recommendations.

What research relating to the epidemiology of wasting/stunting, treatment and prevention of wasting/stunting has been conducted since 2015 in Myanmar?

Types of research conducted

- In general, the research conducted since 2015 can be broadly split into two categories: Implementing partner-led and academic. Both of these research categories have sought to either test hypotheses or assess the effectiveness of particular policy reforms or interventions, rather than focusing on more 'exploratory' research.
- Implementing partner-led research has largely been aimed at providing evidence for data-driven programmatic design across the sector, and advising on future policy focus and recommendations for future implementations. Implementing partners can include UN agencies such as the Food and Agriculture Organization (FAO), international NGOs such as Save the Children and local organisations such as the Myanmar Health Assistant Association (MHAA). Note that this does *not* include M&E activities which are linked to specific programmatic activities and current project outputs.
- In contrast, academic research has tended to be broader in scope and depth, with several cross-sectional scoping studies carried out. Academic studies tend to test certain hypotheses which explore linkages between nutritional status and other factors, or examine a range of factors which may have led to wasting and stunting across Myanmar countrywide, or within a particular state or region.
- However, it should be noted that this distinction between implementing partner-led and academic is not clear-cut and several implementing partner-led studies have conducted scoping of a range of nutrition factors and outcomes, while a small number of academic papers are explicitly tied to specific policy and programmatic recommendations.
- In addition, a number of research studies, conducted by both implementing partners and members of the academic community, have not sought to assess a particular intervention or test a particular hypothesis, but instead aim to quantify the nutritional status of communities, and provide quantitative data on the prevalence of wasting, stunting, and other adverse nutritional outcomes.
- It is also worth reaffirming that this research paper does not capture monitoring and evaluation (M&E) research in the form of baselines, endlines, mid-term assessments, and continued monitoring, which would usually be undertaken to directly inform programme outputs on a specific project, and assess the ongoing effectiveness of project activities. If this category of study were to be included in the literature review, it would constitute a significant proportion of research studies undertaken in the nutrition sector.

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

- The vast majority of research studies conducted since 2015 have been quantitative in nature, involving large-scale household surveys. Only a small number of research papers have been centred on qualitative research methods, such as assessing attitude, perspectives, and behavioural practices.
- Regarding the geographic focus of nutrition research conducted, most studies have been focused either at the national level, often with an aim to further analyse existing datasets, or on sampling rural areas of Myanmar, including townships within the Central Dry Zone, which includes Mandalay, Magway and Sagaing regions as well as the Delta Zone, which primarily includes Ayeyarwady region.
- There has been very little state or region-specific nutrition research conducted, however Rakhine has received significantly more attention when compared to other ethnic and conflict-affected states. The only notable exception to this is Kayin state, where there has been some focus on IDP communities living on the Kayin-Thai border. This is in line with cross-sector observations of Rakhine being one of the most conflict-affected and underdeveloped states within Myanmar which has resulted in specific NGO and INGO attention. As such, the majority of township focused research in Rakhine has been conducted by organisations with a particular programmatic focus on Rakhine, such as Action Contre La Faim (ACF).
- Within Rakhine, research has been focused on IDP camps and villages within townships in the northern and central regions of the state, particularly Sittwe and Pauktaw townships which may reflect varying levels of accessibility prior to 2021. Little research has focused on the southern region of the state.

Main actors involved in the research

- As noted above, research is predominantly implemented either by NGOs and INGOs operating in Myanmar, or by a small community of academics and scholars.
- In contrast to other sectors, there appears to be a narrower set of actors involved in conducting nutrition research among the community of research practitioners. In particular, the literature review conducted for this paper did not identify any research papers on nutrition conducted by local CSOs, media outlets, or thinktanks and research organisations in Myanmar. This can perhaps be attributed to the specialist skillset and technical knowledge associated with conducting nutrition research, and the nutrition-specific lens taken by this research sector.
- The organisations conducting research in Myanmar are overwhelmingly those with existing programmatic and implementation operations, as research is often linked to future interventions. Organisations can be split into two categories: donors who are funding nutrition research but do not typically implement directly, such as the World Bank, and implementing partners who are being funded to carry out the research such as Save the Children, ACF and UNICEF.
- The academic communities conducting nutrition research in Myanmar appears to be quite varied, with international scholars often partnering with local academics. This perhaps reflects the fact that academic studies tend to be cross-sectoral and countrywide in focus, which could engender cross-country analyses. In most cases, individual academics who have been involved in conducting nutrition research have contributed to standalone papers as part of a global portfolio on topics such as food security, as opposed to a committed focus on Myanmar, accumulating multiple research studies and publications.
- Examples of international scholars who have conducted nutrition research in Myanmar include:
    - John Hoddinott, Professor of Food & Nutrition and Policy in the Division of Nutritional Sciences, Institute for Public Affairs at Cornell University;
    - Anu Rammohan, Professor of Economics and Director of International Relations at the Business School at the University of Western Australia;
    - Bill Pritchard, Professor in Geography and Head of School of Geosciences at the University of Sydney;
    - Paul Dorosh, Director of The International Food Policy Research Institute (IFPRI)'s Development Strategy and Governance Division;
    - Jessica Blankenship, Regional Nutrition Specialist at UNICEF based in Thailand.
- Examples of local academics who have conducted nutrition research in Myanmar include:
    - Hnin Thiri Khaing, researcher at the Department of Global Health Policy at the University of Tokyo;
    - Lwin Mar Hlaing, Nutritionist and Deputy Director of the Ministry of Health (National Unity Government);
    - Swe Linn Maung, Senior Nutrition Programme Advisor at Save the Children International;
    - Saw Emaric Aye, Humanitarian Nutrition Programme Manager at Save the Children International.

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

Key thematic areas where research is currently being conducted

- Nutrition research in Myanmar is currently centered on the most vulnerable communities in certain states and regions, such as IDPs and children. This comprises rural communities across the Central Dry Zone (Mandalay, Magway and Sagaing regions) and Delta Zone (Ayeyarwady region), as well as communities in conflict-affected areas of Rakhine, including Rohingya communities who have fled to neighbouring Bangladesh, and Kayin state.
- Of the 23 studies identified in the literature review, fifteen were focused on the nutritional status of children under five years of age, or on the nutritional standing of IDPs in Rakhine state.
- Of this research, the vast majority of research papers are nutrition-specific, analyzing the risk factors leading to adverse nutritional outcomes, stunting and wasting. These papers either focus on one specific intervention or factor (such as Vitamin A deficiency, or agricultural diversification) that can lead to wasting or stunting among children or seek to assess a range of factors that lead to adverse nutritional outcomes.
- Several papers adopted a more holistic approach to nutrition, either by including a wider population within the research sample or by examining the nutrition sector as a whole, such as quantifying nutrition outcomes among all adults, or exploring appropriate nutrition-specific and nutrition-sensitive interventions to tackle undernutrition.
- Of the studies included in the literature review, only two incorporated a cross-sectoral focus, linking nutrition to other relevant sectors such as health and agriculture. This could be due to the nutrition-specific focus adopted by researchers in this sector and emphasizes the specific technical knowledge applied to research in this sector.

Summary of main topics covered

- In summary, research in the nutrition sector since 2015 has covered the following topics:
    - Determinants of child malnutrition (particularly for children under five years age)
    - Effectiveness of particular interventions (e.g. MUAC (Mid-Upper Arm Circumference) Approach) in addressing malnutrition
    - Situation analysis and scoping of nutrition sector in a particular location in Myanmar
    - Assessing factors leading to stunting and wasting
    - Defining nutrition outcomes with a certain population (e.g. IDPs, or communities within a certain location)
- It is worth noting that no research has been conducted on wasting and stunting for infants under the age of six months in Myanmar.

Planned research

- Given that the majority of the stakeholders who engaged in this assignment were local or mid-level nutrition programme staff, it was challenging to determine examples of future planned research in the absence of senior-level research or programme staff.
- In addition, as the acute emergency phase in Myanmar continues to create ongoing challenges in relation to delivering basic nutrition programmes, MKE researchers understand broader scoping research has inevitably become less of a priority for organisations. Instead, immediate priorities have shifted away from a focus on long-term, cross-sectional, and 'scoping' research studies.
- Given the humanitarian crises engulfing Myanmar and in keeping with recent research trends, MKE researchers suggest it is likely that future research will focus on providing key information which can assist implementing partners in providing evidence of how to meet programmatic and humanitarian needs and provide rapid nutritional assistance to local communities.
- In addition, given the continued impact of the COVID-19 pandemic and military coup on household incomes and livelihoods, MKE researchers suggest future research is likely to take the form of rapid surveys and needs assessments, to quantify the impact of these crises on households' nutritional status.

What are some of the evidence gaps around the epidemiology of wasting/stunting, wasting treatment and wasting/stunting prevention?

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

Context

- In the majority of townships across Rakhine, nutrition treatment programmes are severely limited: Government health care staff lack capacity, due to the military coup and widespread uptake in the Civil Disobedience Movement (CDM) as a result, while most villages do not have basic healthcare staff present on a regular or semi-regular basis. As such, available staff can only screen and refer SAM cases to the Outpatient Therapeutic Programme (OTP). In Rakhine, there are four OTPs covering five IDP camps in Pauktaw township which are operated by Save The Children International (SCI). In Kyauktaw, Mrauk-U, Rathedaung, and Minbya townships, OTPs are operated by MHAA, and in Sittwe, Buthidaung and Maungdaw townships, OTPs are operated by ACF. In the northern townships, MSF operated an OTP until March 2022. In addition, IRC plans to operate an OTP in Rathedaung township while RI plans to operate on OTP from May 2022.
- In addition, many townships across Rakhine have high birth rates which can be linked to a lack of awareness with SRHR and family planning methods. As a result of the high birth rate, available nutrition programmes cannot keep up with demand, as more SAM cases continue to be identified. For example, nutrition programmers at Plan International estimate that in ethnic Rakhine villages, there are SAM cases in 1-2 out of every 14 infants and in ethnic Rohingya villages, there are SAM cases in 60-70 out of every 100 infants.
- Moreover, low socio-economic status in many townships, particularly in Northern Rakhine, means that many households struggle to provide enough food for their families. Other factors contributing to food insecurity include a lack of space to grow crops in many IDP camps, challenges in accessing marketplaces and families being forced to sell food handouts to generate income for other purposes.
- Therefore, despite organisations providing nutrition awareness raising training sessions to communities, children still have signs of wasting and stunting which result from a lack of follow-up, monitoring and access to treatment (even if referred), including availability of nutrition-specific RUTF supplies, at the village and IDP camp level.
- Many beneficiaries continue to have low awareness of modern nutrition treatment options available in their communities, such as OTPs. In addition, some pregnant women and new mothers are heavily influenced by the cultural beliefs held by their family members, including mothers-in-law, and the wider community.
  As a result, they often seek support from traditional birth attendants for antenatal care and struggle to retain key information such as the birth date and weight of their new-born baby, and the date of their last period. Therefore, there is a need for treatment seeking behaviour research which involves both the mothers of beneficiaries and other family members or providers of care within households.

During KIIs, stakeholders provided the following reasons as to why there are evidence gaps around wasting and stunting in Myanmar, and specifically Rakhine:

Research and data

- Organisations do not have access to regular, up-to-date secondary monitoring data as this cannot always be obtained from hard-to-reach areas. Therefore, there is an overreliance on baseline and endline data to guide programming, the latter of which often shows a lack of progress attributable to nutrition programmes due to community members favouring traditional medical practices.
- This problem has become more acute in the wake of the COVID-19 pandemic and 2021 Military Coup when movement restrictions, supply chain disruptions, weakening security conditions and staff shortages have resulted in already limited nutrition programmes being postponed or suspended, for example RUTF provision.
- When local organisations are able to facilitate data collection, for example provide monitoring reports to respective Governments, it can often lack the evidence-based findings and recommendations required. For example, a case note from SCI's OTP noted that SAM and MAM cases in Pauktaw Township, Central Rakhine had increased from 320 in 2020 to 380 in 2021 but did not provide any underlying reasons behind the increase. There is a need for regular pilot testing, tracking papers, assessments and barrier analysis – particularly in Rakhine where it has proven harder to conduct such analysis than in other ethnic states. However, when probed by MKE researchers, stakeholders were unable to provide more specific details or guidance on what this should entail.

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

Implementation

- Local organisations and community-based volunteers supporting nutrition research and programming are typically not subject to quality control and performance assessments regarding their nutrition knowledge, for example, how to conduct MUAC measurements without errors and how to sufficiently answer questions from community members.
- At current, nutrition-specific and nutrition-sensitive programmes are not always interlinked: there is a need for a multi-sector approach towards nutrition research and programming which involve measuring MUAC as well as looking to determine underlying causes of SAM and MAM through a focus on food security, WASH, livelihoods and other socio-cultural factors within different townships in Rakhine.

Practice

- There are gaps between global nutrition standards and practices, and adherence to this in Myanmar, leading to the need for further operational research and training. For example, the ProPAN (Process for the Promotion of Child Feeding) tool to conduct comprehensive assessments of infant and young child feeding (IYCF) practices is not used. There is also a lack of research on vitamin and nutrient deficiencies in target populations, particularly mothers and infants with SAM.
- According to KII respondents, some organisations provide RUSF over RUTF due to the perception that RUTF is more expensive. Among nutrition programmers, there is a commonly held opinion that more research is required on cost-effectiveness of treatment programmes due to a perceived lack of country-specific evidence of this in Myanmar. MKE researchers note that there may be information gaps regarding both the cost and different usages of RUTF and RUSF among some programme implementers which has shaped this perception. It should also be highlighted that Myanmar's COVID-19 adaption guidelines for treatment on wasting do suggest that in the absence of RUSF, RUTF can be used.
- According to stakeholders, it is not common for MAMI interventions involving at-risk mothers and infants under 6 months old to be completed as it is not permitted by the Government of Myanmar. Growth Monitoring is measured between 6 and 59 months. In addition, there is a perception that mortality due to stunting and wasting as well as being underweight or undernourished in under 6-month old's is not common as infants are getting optimal nutrition from breastmilk. However, MKE researchers note that mortality and malnutrition is common in under 6 months as infants often do not get optimal nutrition from breastmilk, particularly as the prevalence of exclusive breastfeeding is low in Myanmar. Under the new governance setting, there may an opportunity to address this through a holistic package of interventions including growth monitoring which is tailored towards at-risk mothers and infants.
- In addition, in Myanmar, nutrition programmers believe there to be different underlying causes behind stunting and wasting. However, MKE researchers note that global level research has suggested that wasting leads to stunting, while wasting and stunting can also be concurrent. Further evidence on the links between wasting and stunting in the Myanmar context is needed.

What are priority research questions around wasting/stunting, wasting treatment, and wasting/stunting prevention for Myanmar and more specifically for Rakhine?

An overview of the results from the CHNRI nutrition research question prioritisation exercise, as completed by 40 stakeholders within the nutrition sector in Myanmar and largely from Rakhine, is outlined below. The final rank has been tabulated by topic category: prevention of child wasting, treatment of child wasting and MAMI, in addition to a rank of the top 10 overall nutrition research questions for Myanmar. Details of the respondents' characteristics can be found in Annex 5 and the complete results of the prioritisation exercise can found in Annex 6.

Within the three topic categories, each question was ranked based on the following seven criteria: answerability, potential for translation, effectiveness; ethical considerations; equity; cost and feasibility. The criteria were determined

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

through close replication of criteria used in similar nutrition research question prioritisation exercises at the global level and finalised through consultation with relevant nutrition stakeholders Myanmar.

Respondents were asked to respond to each question by answering 'yes', 'no' or 'unsure'. During the analysis, and in line with similar research exercises utilising the CHNRI method, responses were scored as follows: yes = 1 point, no = 0 points and unsure = 0.5 points.[1]

A research priority score (RPS) was calculated for each criterion for each research question by averaging the scores of all respondents for each criterion; then, an overall RPS for each question was computed by taking the average of the scores for the seven criteria per research question (the mean of the RPS for each criterion). The questions have been ranked based on RPS score highest to lowest.

Table 1: Top five research questions in Myanmar on prevention of child wasting identified through the CHNRI prioritisation exercise

Rank	Research question	A	P	E	EC	Eq	C	F	RPS
1	What measures (anthropometric or non-anthropometric) (i.e. MUAC screening), or combinations of measures, best identify individual infants and children (6-59 months) by age at most risk of death / other adverse outcomes associated with wasting / acute malnutrition?	87.5	85.0	96.3	85.0	90.0	75.0	87.5	86.6
2	What measures (anthropometric or non-anthropometric), or combinations of measures, best identify individual infants and children (6-59 months) by age/sex at most risk of wasting / acute malnutrition?	88.8	87.5	91.3	81.3	86.3	76.3	87.5	85.5
3	How can existing interventions (e.g. growth monitoring, integrated management of childhood illness (IMCI)) better detect and support children (0-59 months) who are failing to thrive / faltering (i.e. those at risk, not just those already below a z-score threshold)?	78.8	83.8	91.3	85.0	82.5	85.0	91.3	85.4
4	What measures (anthropometric or non-anthropometric), (i.e. MUAC screening) or combinations of measures, best identify individual infants and children (6-59 months) by age / sex at most risk of death / other adverse outcomes associated with stunting?	87.5	82.5	85.0	85.0	83.8	72.5	87.5	83.4
5	What is the role of pre-pregnancy maternal factors (age, health status, nutritional deficits, psychological factors etc.) in determining risk of being born with a low birth weight, low weight-for-length, low mid-upper-arm circumference, premature or small for gestational age?	83.8	85.0	83.8	81.3	92.5	75.0	82.5	83.4

[1] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7015423/

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

A= Answerability; P= Potential for translation; E= Effectiveness; EC= Ethical considerations; Eq= Equity; C= Cost; F= Feasibility; RPS= Research priority score; AEA= Average expert agreement; N= number of respondents

Table 2: Top five research questions in Myanmar on treatment of child wasting identified through the CHNRI prioritisation exercise

Rank	Research question	A	P	E	EC	Eq	C	F	RPS
1	[Natural course] What interventions within and beyond the 1,000-day window can help reduce the risk of acute malnutrition of children and mothers?	92.5	85.0	88.8	88.8	81.3	78.8	87.5	86.1
2	[Outpatient effectiveness] What is the impact of infant and young child feeding practices [IYCF] in addition to the standard treatment of acute malnutrition and how do treatment programmes impact individual and community IYCF practices?	83.8	87.5	92.5	85.0	82.5	78.8	82.5	84.6
3	[Detection] What are the most effective tools to diagnose acute malnutrition by community members, including community health workers and caretakers?	87.5	86.3	92.5	82.5	81.3	77.5	83.8	84.5
4	[Detection] How effective are tools for community-based detection and improving treatment-seeking behaviour for children aged 6 to 59 months with malnutrition across different geographies and contexts [within Myanmar, and specifically within Rakhine]?	85.0	82.5	81.3	78.8	87.5	80.0	85.0	82.9
5	[Coverage] What are effective and safe strategies and protocols to support the scale-up of treatment of acute malnutrition in children 6-59 months of age?	78.8	83.8	88.8	78.8	85.0	77.5	81.3	82.0

A= Answerability; P= Potential for translation; E= Effectiveness; EC= Ethical considerations; Eq= Equity; C= Cost; F= Feasibility; RPS= Research priority score; AEA= Average expert agreement; N= number of respondents

Table 3: Top five research questions in Myanmar on MAMI identified through the CHNRI prioritisation exercise

Rank	Research question	A	P	E	EC	Eq	C	F	RPS
1	How does breastfeeding status impact on infant less than 6 months SAM?	88.8	85.0	90.0	82.5	90.0	85.0	88.8	87.1
2	What is the feasibility, effectiveness, cost-effectiveness and impact of different approaches to promote early initiation and exclusivity of breastfeeding?	90.0	83.8	90.0	77.5	85.0	81.3	87.5	85.0
3	Having detected SAM in the community, what is the efficacy of providing targeted skilled breastfeeding support to caregivers of stable infants?	81.3	81.3	88.8	81.3	81.3	83.8	87.5	83.6
4	What are / is the key opportunities / timing / contact points [e.g. post-natal care visits, vaccinations etc.] when infant SAM management can be incorporated with other healthcare programmes?	82.5	81.3	85.0	73.8	76.3	80.0	81.3	80.0
5	Which supervision tools and approaches are most effective towards improving the front-line case management of SAM infants of less than 6 months old?	75.0	76.3	85.0	77.5	76.3	80.0	80.0	78.6

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

A= Answerability; P= Potential for translation; E= Effectiveness; EC= Ethical considerations; Eq= Equity; C= Cost; F= Feasibility; RPS= Research priority score; AEA= Average expert agreement; N= number of respondents

Table 4: Top ten overall research questions for Myanmar through the CHNRI prioritisation exercise

No	Research question	Sub-category	A	P	E	EC	Eq	C	F	RPS
1	How does breastfeeding status impact on infant less than 6 months SAM?	MAMI	88.8	85.0	90.0	82.5	90.0	85.0	88.8	87.1
2	5.(a)What measures (anthropometric or non-anthropometric) (i.e. MUAC screening), or combinations of measures, best identify individual infants and children (6-59 months) by age at most risk of death / other adverse outcomes associated with wasting / acute malnutrition?	Prevention	87.5	85.0	96.3	85.0	90.0	75.0	87.5	86.6
3	(Natural course) What interventions within and beyond the 1,000-day window can help reduce the risk of acute malnutrition of children and mothers?	Treatment	92.5	85.0	88.8	88.8	81.3	78.8	87.5	86.1
4	What measures (anthropometric or non-anthropometric), or combinations of measures, best identify individual infants and children (6-59 months) by age/sex at most risk of wasting / acute malnutrition?	Prevention	88.8	87.5	91.3	81.3	86.3	76.3	87.5	85.5
5	How can existing interventions (e.g. growth monitoring, integrated management of childhood illness (IMCI)) better detect and support children (0-59 months) who are failing to thrive / faltering (i.e. those at risk, not just those already below a z-score threshold)?	Prevention	78.8	83.8	91.3	85.0	82.5	85.0	91.3	85.4
6	What is the feasibility, effectiveness, cost-effectiveness and impact of different approaches to promote early initiation and exclusivity of breastfeeding?	MAMI	90.0	83.8	90.0	77.5	85.0	81.3	87.5	85.0
7	(Outpatient effectiveness) What is the impact of infant and young child feeding practices (IYCF) in addition to the standard treatment of acute malnutrition and how do treatment programmes impact individual and community IYCF practices?	Treatment	83.8	87.5	92.5	85.0	82.5	78.8	82.5	84.6
8	(Detection) What are the most effective tools to diagnose acute malnutrition by community members, including community health workers and caretakers?	Treatment	87.5	86.3	92.5	82.5	81.3	77.5	83.8	84.5
9	Having detected SAM in the community, what is the efficacy of providing targeted skilled breastfeeding support to caregivers of stable infants?	MAMI	81.3	81.3	88.8	81.3	81.3	83.8	87.5	83.6
10	5.b) What measures (anthropometric or non-anthropometric), (i.e. MUAC screening) or combinations of	Prevention	87.5	82.5	85.0	85.0	83.8	72.5	87.5	83.4

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

	measures, best identify individual infants and children (6-59 months) by age / sex at most risk of death / other adverse outcomes associated with stunting?									

A= Answerability; P= Potential for translation; E= Effectiveness; EC= Ethical considerations; Eq= Equity; C= Cost; F= Feasibility; RPS= Research priority score; AEA= Average expert agreement; N= number of respondents

What are the recommendations for next steps to conduct the research?

KII respondents provided insight into how future nutrition research and programming should be undertaken in Rakhine state:

Importance, feasibility and timeframe

- According to KII respondents, there is a clear need for integrated nutrition-specific and nutrition-sensitive research to be conducted in Myanmar: The Myanmar Government did not encourage the implementation of nutrition-related activities until 2016, while many programmes implemented to date have not had a multi-sectoral approach and have focused on awareness raising alone rather than holistic approaches to treatment and prevention.
- However, the current acute emergency phase in both Rakhine State and across Myanmar makes it challenging to conduct nutrition research or implement new programmes. Therefore, KII respondents suggested it may be more feasible to plan activities under a longer timeframe of 1-2 years at minimum. In the meantime, some research and data collection could be undertaken via online platforms while the stability within priority townships and areas continues to be monitored.

Resources and stakeholders

- There is a need to secure sufficient financial resources in order to conduct nutrition research and guide subsequent programme implementation. Several organisations have already identified research and programming needs to be conducted in Rakhine, for example in expanding OTP provision, but lack sufficient funding to implement this.
- In addition to a general lack of funding for nutrition programming in Rakhine, funding which is made available is typically allocated towards improving service delivery rather than conducting research.
- Sufficient on-the-ground human resources, including technical and operational staff, are also required. Many UN agencies and INGOs have a network of implementing partners (IPs), such as local NGOs and CSOs. However, these organisations often lack staff with technical capacity to conduct research or implement programmes to the standard required. While efforts have been made to deliver capacity building training, in-person events have had to be replaced with less effective sessions online as a result of the COVID-19 pandemic and security situation. In addition to capacity building, there is also a need for clear technical documents and standardised guidelines for conducting research. However, when probed by MKE researchers, stakeholders were unable to provide more specific details or guidance on what this should entail.
- Multi-level stakeholders at the village, township, state, national and international level must be involved in research and programme planning and decision-making. This includes all relevant branches of state and national Government including the Ministry of Health and Sports, Department of State Welfare and General Administration Department, nutrition experts and health care professionals, both local and international, UN agencies and INGOs with sufficient capacity and an established presence in nutrition research and programming in Rakhine such as ACF, SCI, Malteser International, MSF and World Vision, local NGOs, CSOs, CBOs, Ethnic Armed Organisations (EAOs), Ethnic Health Organisations (EHOs), IDP camp, village and religious leaders and community members. However, MKE researchers note that the aftermath of the February 2021 coup resulted in many organisations ending most or all engagement with the de-facto authorities. Consequently, high-level official involvement in nutrition research and programme planning and decision-making may not be possible in the present situation.

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

- In addition, regarding community members specifically, nutrition research and programming should take into consideration religious and ethnic diversity, urban and rural differences, host and IDP community differences, gender inequality and prevailing socio-cultural norms in Rakhine to ensure all individuals can contribute and participate.

Implementation challenges and strategies

- There are prevailing difficulties in obtaining Travel Authorisation (TA) permits to conduct research or implement programmes at the township level from the Rakhine State Government (State Administration Council). Specific challenges include organisations requiring an active Memorandum of Understanding (MoU) with the Government, being restricted to 4 main activities and the length of time taken to process applications. In addition, any applications containing words considered sensitive by the Government such as 'monitoring'; 'research'; 'assessment' or 'evaluation' will not be accepted and could result in the organisations activities in certain townships being restricted or banned.
- There are transportation challenges in reaching certain communities, meaning studies and programmes are often implemented in villages which are easy to reach. In addition, many villages can only be accessed by passing through numerous Arakan Army checkpoints, which have significant influence at the village level. Up to one month of the research schedule should be reserved for travel and securing permission.
- Data collection for research studies is often conducted within a short timeframe meaning respondents have limited time to prepare detailed, insightful answers and the subsequent data lacks depth of understanding.
- Research studies can often involve respondents having to answer many questions at an inconvenient time during the day. Researchers and programmers have found it more effective when research is restricted to a minimum number of key questions, and when KIIs or FGDs are conducted at the beginning of the day when respondents are available and energised. However, it can also be effective to interview female household members during the middle of the day when their husbands or male family members have gone to work and they have the opportunity to provide more honest insights. In general, FGDs should be conducted with community members of the same gender and of a similar age.
- Respondents are often only willing to participate in nutrition research or programmes if a financial or material incentive is provided before they take part.
- Language, cultural and religious barriers among ethnic Rakhine and Rohingya communities prevent meaningful participation in nutrition research and programming, particularly as women are often not allowed to talk to outsiders from their community. For example, when Save the Children International (SCI) conducted research on exclusive breastfeeding practices in Rakhine, male community members told women how to answer the questions. In addition, communities typically prefer to use traditional nutrition services and practices and only utilise INGO or NGO programmes as a last resort. Therefore, there is a need to ensure research and programming involves local facilitators and female-only environments within community spaces to build trust and facilitate meaningful participation.

Conclusions and Recommendations

Key Findings

- Respondents identified the key research questions to prioritise as follows:
    - Prevention of child-wasting:
        - What measures (anthropometric or non-anthropometric) (i.e. MUAC screening), or combinations of measures, best identify individual infants and children (6-59 months) by age at most risk of death / other adverse outcomes associated with wasting / acute malnutrition?
        - What measures (anthropometric or non-anthropometric), or combinations of measures, best identify individual infants and children (6-59 months) by age/sex at most risk of wasting / acute malnutrition?

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

        - How can existing interventions (e.g. growth monitoring, integrated management of childhood illness (IMCI)) better detect and support children (0-59 months) who are failing to thrive / faltering (i.e. those at risk, not just those already below a z-score threshold)?
        - What measures (anthropometric or non-anthropometric), (i.e. MUAC screening) or combinations of measures, best identify individual infants and children (6-59 months) by age / sex at most risk of death / other adverse outcomes associated with stunting?
    - Treatment of child wasting:
        - (Natural course) What interventions within and beyond the 1,000-day window can help reduce the risk of acute malnutrition of children and mothers?
        - (Outpatient effectiveness) What is the impact of infant and young child feeding practices (IYCF) in addition to the standard treatment of acute malnutrition and how do treatment programmes impact individual and community IYCF practices?
        - (Detection) What are the most effective tools to diagnose acute malnutrition by community members, including community health workers and caretakers?
    - MAMI:
        - How does breastfeeding status impact on infant less than 6 months SAM?
        - What is the feasibility, effectiveness, cost-effectiveness and impact of different approaches to promote early initiation and exclusivity of breastfeeding?
        - Having detected SAM in the community, what is the efficacy of providing targeted skilled breastfeeding support to caregivers of stable infants?

- The research landscape within the nutrition sector in Myanmar is largely predominated by implementing partners such as UN agencies, INGOs and local NGOs, as well as a small number of academics. The research itself is overwhelmingly focused on factors contributing to child malnutrition and assessing the effectiveness of particular interventions.
- Nutrition research has overwhelmingly been 'nutrition-specific' focusing on particular interventions or a certain issue, rather than seeking to draw linkages with other relevant sectors such as health and education.
- In general, the research sector for nutrition in Myanmar appears to be at a nascent stage, with a relatively small number of research publications in comparison to other sectors, conducted by a relatively small pool of actors.
- The lack of diversity and quantity of nutrition-specific research papers can be attributed to the lack of engagement from the Government of Myanmar in the nutrition sector until 2016, and the highly technical and specialist knowledge involved in conducting this type of research.
- In general, nutrition implementers in Myanmar often lack understanding of nutrition best practices, and have insufficient access to reliable and accurate research and data.
- Research studies on nutrition have almost exclusively focused on certain vulnerable groups of the wider population, with the vast majority of research targeting malnutrition among children under five, and IDPs.
- Most stakeholders involved in the nutrition sector in Myanmar are more actively engaged in project implementation and providing direct assistance to communities, rather than conducting research.
- There is a lack of awareness amongst nutrition practitioners and implementers on the importance of research beyond the monitoring and evaluation of direct project activities, which in turn, is reflected in the basic knowledge, understanding and practice of those working on programme implementation at the community and mid-level.

Recommendations for Future Nutrition Research Implementation challenges and strategies

- Future research could begin with wider coordination and consultation among senior programme managers as well as independent nutrition experts, both local and international.
- To ensure a diverse range of views and perspectives are garnered through nutrition research, donors and other funders could also engage a wider set of stakeholders to conduct research: such as local CSOs, independent research organisations, academic scholars, and media outlets.
- Future research could aim to be integrated, holistic & multi-sectoral with a focus on both nutrition specific and nutrition sensitive studies. Moreover, identifying other issues that can affect the success of specific nutrition interventions and practices, such as health, education, income levels, food security, and WASH research and

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

seeking to conduct research *across* sectors could help to identify holistic solutions to adverse nutritional outcomes.

- In addition, the target and focus of research papers could be diversified to include a wider range of nutrition topics and to include a broader cross-section of the population. A more inclusive approach could help to 'mainstream' nutrition research and facilitate attitude and behavior change.
- Many research studies adopt the 2015-16 Myanmar Demographic and Health Survey (MDHS) as a baseline. As such, there is a demand for publicly available standardised nutrition surveying / data monitoring to capture accurate data at the village, township, state and union level. This is needed to guide more in-depth research on specific nutrition topics, and then subsequent programme implementation.
- Given the low existing capacity of local and mid-level nutrition practioners, extra emphasis could be placed on 'upskilling' relevant implementers through knowledge dissemination. The implementation of capacity-building trainings where programme implementers at all levels can attend and gain knowledge would facilitate the effective usage and incorporating of nutrition research into implementation at the village level.
- Research practitioners could adopt more inclusive and participatory research methodologies by engaging community-based nutrition workers and the communities themselves, in the design of research. This would ensure it reflects their specific needs as a community and is compatible with their values.
- If research and subsequent programme implementation is 'community owned', this could lead to higher uptake and meaningful participation in recommended nutrition practices, which in turn could facilitate better nutrition outcomes.
- It is vital that research design takes into account the changing governance in Rakhine state, with contested control between political bodies and the ongoing volatile conflict situation. Research practitioners must identify the opportunities and risks of conducting research into the current post-coup environment through ongoing situational analyses, and plan accordingly.
- In general, nutrition research needs to be flagged as a higher priority among donors and for funding, especially given the urgent humanitarian context in Myanmar and Rakhine State. More clearly demonstrating the urgent need for nutrition research and the linkages between higher standards of nutrition research and improved nutritional outcomes could lead to greater understanding among practitioners of the importance of conducting research, and not just implementation.

Next Steps

Given the findings, challenges, and recommendations set out in this paper, MKE researchers recommend the following steps for stakeholders working in the nutrition sector in Myanmar, including LIFT, Access to Health and the wider Nutrition Cluster:

1. Conduct a comprehensive stakeholder mapping within the nutrition research sector, identifying current and potential new research actors.
2. Actively engage individual nutrition experts, senior programme managers, and other research organisations in the next stage of research planning, to identify priorities and opportunities for further research. This could be conducted through a stakeholder consultation hosted by the Nutrition Cluster, or led by specific funding agencies such as LIFT and Access to Health.
3. Identify and mobilise sources of funding, including specific donor agencies, for nutrition research.
4. Within the current sphere of UN agencies and INGOs operating in the nutrition sector, Identify and engage key senior level personnel to ensure 'buy-in' on research objectives.
5. Formulate a strategy to engage and cooperate local-level practitioners and implementers in a capacity-building programme, which demonstrates the importance of rigorous nutrition research and showcases the linkages between research and outcomes.
6. Conduct regular situational analyses of the governance setting in Rakhine state and Myanmar, to identify windows of opportunity to work with the current decision-makers in implementing a new agenda for nutrition in the post-coup environment.

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

Annexes

Annex 1 – KII Questions for Stakeholders

HARP Facility
Consolidating and Prioritising Nutrition Research in Rakhine State, Myanmar

KII Questions for Stakeholders

Introduction

Thank you for agreeing to participate in this interview.

Mekong Economics is working with the HARP Facility to consolidate nutrition research currently being undertaken and planned in Myanmar in order to identify key nutrition research questions that remain. This analysis will help develop the research and learning agenda for the nutrition sector, including that of the HARP Facility, LIFT and Access to Health, to understand what research is required to support improved nutrition programming across Myanmar, and in Rakhine State in particular.

Given your knowledge and experience in this area, we would like to ask you some questions related to:

1) The nutrition research and programming you have been involved in Myanmar, and Rakhine specifically
2) Gaps which you are aware exist in current nutrition research and programming in Myanmar, and Rakhine specifically
3) Suggestions on how future research and programming could be undertaken, including feasibility, resource allocation, relevant stakeholders, and implementation strategies

We will also share 3 sets of nutrition research questions related to prevention of child wasting, treatment of child wasting, and management of small & nutritionally at-risk infants under six months and their mothers (MAMI) which have been prioritised through global level exercises. We would like you to suggest if these questions are applicable to the context in Myanmar and Rakhine, and if not, what should be added or changed.

This exercise will be repeated with several other stakeholders with expertise on the nutrition sector in Myanmar in order to establish a finalised list of nutrition research questions. This list will then be disseminated to multi-level nutrition researchers and programmers in Myanmar via an online survey in order to rank them using the CHNRI priority-setting criteria (e.g. answerability, efficacy, equity, effectiveness, deliverability, sustainability, fills a gap, disease burden reduction and impact).

The interview should last approximately 30 minutes. The information you provide today may be used in a confidential report for the HARP Facility, however you will remain anonymous.

Are you happy to proceed with the interview? (Yes / No)
Do you have any questions before we begin? (Yes / No)

Basic Information

Name:

Organisation:

Role:

Location (State / Township):

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

Questions

1. Could you tell us about the nutrition research / programming you have been involved with in Myanmar, and specifically Rakhine? (This can be future, current or previous work undertaken since 2015) Please provide details on the research or programme:
    - Topic
    - Timeframe
    - Type of research (methodology)
    - Sample group / beneficiaries
    - If programme monitoring & evaluation was undertaken (i.e. research baselines, endlines, regular monitoring etc.)

2. In addition to the nutrition research / programming that you have been involved in, could you tell us about any other key examples of nutrition research / programming conducted in Myanmar that you know about, and specifically Rakhine? (This can be future, current or previous work undertaken since 2015)

3. From your perspective, what are some of the main evidence gaps around the epidemiology of wasting/stunting, wasting treatment and wasting/stunting prevention in Myanmar, and specifically Rakhine? In other words, what research is needed? (These can be operational, technical, or biological/descriptive)

4. For each of the following sets of questions, please tell us if you think the questions are:
    - Relevant to the context in Myanmar and Rakhine
    - Of high priority in Myanmar and Rakhine
    - Need to be changed / adapted to suit the context or reflect priority
    - Need to be replaced with a different question which is more suitable to the context or of higher priority (to be provided)

a) Top ten research questions on prevention of child wasting identified through the CHNRI prioritisation

1. What is the impact of interventions for managing at-risk mothers and infants less than 6 months of age in preventing wasting / acute malnutrition in the less than 6-month-old?

2. What is the impact of growth failure during the first 6 months of life on experience of wasting / acute malnutrition after 6 months of age?

3. How can existing interventions (e.g. growth monitoring, integrated management of childhood illness (IMCI)) better detect and support children (0-59 months) who are failing to thrive / faltering (i.e. those at risk, not just those already below a z-score threshold)?

4. What are effective and cost-effective approaches to target the highest risk infants and children 0-59 months (e.g. children with concurrent wasting / acute malnutrition and stunting, children less than 2 24 months etc.) for interventions (food or non-food) to prevent wasting / acute malnutrition?

5. What measures (anthropometric or non-anthropometric), or combinations of measures, best identify individual infants and children (0-59 months) by age / sex at most risk of death / other adverse outcomes associated with wasting / acute malnutrition?

6. What is the role of pre-pregnancy maternal factors (age, health status, nutritional deficits, psychological factors etc.) in determining risk of being born with a low birth weight, low weight-for-length, low mid-upper-arm circumference, premature or small for gestational age?

7. What measures (anthropometric or non-anthropometric), or combinations of measures, best identify individual infants and children (6-59 months) by age/sex at most risk of wasting / acute malnutrition?

8. What are effective and cost-effective approaches to integrating wasting / acute malnutrition prevention efforts into health systems (i.e. human resource capacity, financing, supplies and supply chain, etc)?

9. What impact can effective wasting / acute malnutrition prevention interventions / approaches have on levels of stunting (and concurrent wasting and stunting) and vice versa?

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

10. How does being born prematurely and / or with foetal growth restriction impact on wasting / acute malnutrition at birth and throughout the first 5 years of life, by sex?

b) Top ten research questions on treatment of child wasting identified through the CHNRI prioritisation

1. [Detection] What are the most effective tools to diagnose acute malnutrition by community members, including community health workers and caretakers?

2. [Impatient effectiveness] What are effective therapeutic feeding approaches for the management of severe acute malnutrition in children who are 6-59 months of age with diarrhoea?

3. [Coverage] What are effective and safe strategies and protocols to support the scale-up of treatment of acute malnutrition in infants less than 6 months of age?

4. [Natural course] What are the casual factors of relapse after treatment of acute malnutrition and how can they be minimised?

5. [Natural course] What is the relationship between the nutrition and health of mothers and acute malnutrition in their children and how can interventions within and beyond the 1,000-day window reduce the risk of acute malnutrition?

6. [Outpatient effectiveness] What are the optimum entry and discharge criteria for treatment of acute malnutrition to ensure optimum outcomes?

7. [Outpatient effectiveness] What is the impact infant and young child feeding practices [IYCF] in addition to the standard treatment of acute malnutrition and how do treatment programmes impact individual and community IYCF practices?

8. [Detection] How effective are tools for community-based detection and improving treatment-seeking behaviour across different geographies and contexts [in Myanmar]?

9. [Therapeutic foods] Are there safe alternative formulations of RUTF for the treatment of uncomplicated severe acute malnutrition in children that use locally available ingredients and improve the cost-effectiveness of treatment?

10. [Mortality] What are effective international and operational models [in Myanmar] to reduce mortality risk after treatment?

c) Top fifteen research questions on MAMI identified through the CHNRI prioritisation

[Note: Additional MAMI questions were prioritised in the global research exercise in comparison to prevention of child wasting and treatment of child wasting. However, MAMI will not be disproportionately favoured in the research being conducted by HARP-F and MKE].

1. How should infant less than 6 months SAM be defined?

2. What are / is the key opportunities / timing when infant SAM management can be incorporated with other healthcare programmes?

3. What are the priority components of a package of care for outpatient treatment of infant less than 6 months SAM?

4. Having detected SAM in the community, what is the efficacy of providing targeted skilled breastfeeding support to caregivers of stable infants?

5. How can existing tools be adapted and / or linked together to better identify and manage infants less than 6 months SAM?

6. What are the most feasible tools and techniques for assessment treatment programme coverage for infant less than 6 months SAM?

7. What is the feasibility, effectiveness, cost-effectiveness and impact of different approaches to promote early initiation and exclusivity of breastfeeding?

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

8. What are the main barriers to existing inpatient interventions for SAM infants less than six months old and how might they be best addressed?

9. What is the effectiveness, cost and safety of an outpatient-focused treatment model for infants with SAM?

10. Which supervision tools and approaches are most effective towards improving the front-line case management of SAM infants less than 6 months old?

11. How can existing child health and nutrition reporting systems be adapted to capture, monitor and audit data on infant less than 6 months SAM?

12. What role do CMAM programmes have in delivering outpatient-based treatment for infant less than 6 months SAM?

13. How does breastfeeding status and / or change in breastfeeding status impact on infant less than 6 months SAM?

14. What is the coverage of existing treatment programmes for infant less than 6 months SAM?

15. How can existing surveys of differing designs and at different levels be adapted to include infants of less than 6 months?

5. Which of the following CHRNI grading criteria do you think are most applicable to nutrition research within the context of Myanmar [and Rakhine]?

[Note: grading criteria used in global prioritisation exercises have typically included answerability, efficacy, equity, effectiveness, deliverability, sustainability, fills a gap, disease burden reduction and potential impact]

- Answerability? [some nutrition research options will be more likely to be answerable than the others]
- Attractiveness? [some nutrition research options will be more likely to lead to publications in high-impact journals]
- Novelty? [some nutrition research options will be more likely to generate truly novel and non-existing knowledge]
- Potential for translation? [some nutrition research options will be more likely to generate knowledge that will be translated into nutrition intervention]
- Effectiveness? [some nutrition research options will be more likely to generate/improve truly effective nutrition interventions]
- Affordability? [the translation or implementation of knowledge generated through some nutrition research options will not be affordable within the context]
- Deliverability? [some nutrition research options will lead to/impact nutrition interventions that will not be deliverable within the context]
- Sustainability? [some nutrition research options will lead to/impact nutrition interventions that will not be sustainable within the context]
- Public opinion? [some nutrition research options will seem more justified and acceptable to general public than the others]
- Ethical aspects? [some nutrition research options will be more likely to raise ethical concerns than the others]
- Maximum potential impact on burden? [some nutrition research options will have a theoretical potential to reduce much larger portions of the existing disease burden than the others]
- Equity? [some nutrition research options will lead to nutrition interventions that will only be accessible to the privileged in the society/context, thus increasing inequity]

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

- Community involvement? [some nutrition research options will have more additional positive side-effects through community involvement]
- Cost and feasibility? [all other criteria being equal, some research options will still require more funding than the others and thus be less feasible investments]
- Likelihood of generating patents/lucrative products? [some research options will have greater likelihood of generating patents or other potentially lucrative products, thus promising greater financial return on investments, regardless of their impact on disease burden]

6. For any, or all, of the research areas listed above, do you have any thoughts or suggestions on how the research in Myanmar should be undertaken?
    - How feasible would it be?
    - What would the timeframe be [i.e. could the research be implemented now, despite being in an acute emergency phase in Myanmar, or longer term, such as 2 years from now]?
    - What resources would need to be allocated?
    - Which stakeholders would need to be involved?
    - Which implementation strategies could be utilised?

Thank you very much for your time and participation in this interview today.

7. Can we confirm that you are happy to complete the follow up survey which will involve prioritising the finalised list of nutrition research questions using the CHRNI grading criteria, and / or share this within your organisation? [Yes / No]

8. Can you provide any names or contact details for other relevant individuals or organisations who may be willing to participate in the survey? [Yes / No]

Details:

Annex 2 – List of KII Respondents [Key Nutrition Stakeholders]

The list of stakeholders covers a wide range of organisations, including INGOs and NGOs, involved in nutrition programming at both the Rakhine state and Myanmar national level.

Name	Organisation	Role
1. Dr Sandra Linn	SCI	Head of Programme [Nutrition]
2. Dr. Aung Myat Thu	MAM	Operation Coordinator [UNICEF Nutrition Project Focal]
3. Htet Htet Hlaing	GIZ	Advisor
4. Kyi Thar	CERA	Programme Manager
5. Kyaw Wai Phyoe	KMSS	Nutrition Technician
6. Win Lei Aye	UNOPS / Access to Health	
7. Sanjay Kumar Das	UNICEF	Head of Programme [Nutrition]
8. Kyaw Htwe	Plan International	Nutrition Project Coordinator [BMZ]
9. Dr. Aung Min Ko	IOM	National Project Officer
10. Dr. Aung Thuya / Ma Nang Sam Hom	HPA	Technical Officer [Child Health & Nutrition]/ Humanitarian Coordination Officer
11. Dr. Saw Eden	SCI	Former Programme Manager [LEARN]
12. Dr. Zay Ya Soe	SCI-LEARN	Programme Manager [LEARN]
13. Dr. Chaw SuSu Khaing	WFP	Nutritionist [Head of Programme] - NPT
14. Soe Nyi Nyi	WFP	
15. Queenie Vi Rizaldo	WorldFish	Human Nutrition Specialist
16. Mohammed Khowsawr	WFP-NRS	Nutrition Focal Person [Buthidaung / Maungdaw]
17. Ye Yint Kyaw	WFP-CRS	Nutrition Focal Person [Sittwe]

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

Annex 3 – Prioritised Questions Survey

HARP Facility
Consolidating and Prioritising Nutrition Research in Rakhine State, Myanmar

Survey – Prioritisation of Nutrition Research Questions

Introduction

Thank you for agreeing to participate in this survey.

Mekong Economics is working with the HARP Facility to consolidate nutrition research currently being undertaken and planned in Myanmar in order to identify key nutrition research questions that remain. This analysis will help develop the research and learning agenda for the nutrition sector, including that of the HARP Facility, LIFT and Access to Health, to understand what research is required to support improved nutrition programming across Myanmar, and in Rakhine State in particular.

The prevention and treatment of wasting / acute malnutrition and stunting in infants of less than 6 months is vitally important. In Myanmar, national nutrition guidelines do address these topics – but questions have been raised as to whether the guidelines, and corresponding practices, sufficiently align with current global-level research outcomes. Evidence also suggests that there is a critical lack of related interventions and programmes at the community level – particularly in Rakhine state where wasting / acute malnutrition and stunting is a prevalent concern.

Given your knowledge and experience in this area, we would like to share 3 sets of nutrition research questions related to:

4) Prevention of child wasting
5) Treatment of child wasting
6) Management of small & nutritionally at-risk infants under six months and their mothers (MAMI)

These questions have been selected through global level exercises as part of the Child Health and Nutrition Research Initiative (CHNRI) to research priority setting and further refined through inputs from nutrition experts based in Myanmar, and Rakhine State specifically.

Each of the prioritised questions is to be graded against the following CHNRI criteria: answerability, potential for translation into nutrition intervention, effectiveness, ethical considerations, equity, cost and feasibility. Each of the 7 criteria has a corresponding question to which you can answer yes, no or unsure.

The survey should take approximately 30 minutes to complete. The information you provide today may be used in a confidential report for the HARP Facility, however you, and your organisation, will remain anonymous.

We encourage and appreciate your participation in this survey, which will help to shape the future nutrition research agenda in Myanmar, and specifically Rakhine State, and ensure resources can be channelled to the priority research areas.

Basic Information

Name:

Organisation:

Role:

- Nutrition sector
- Integrated nutrition programme sectors (MCH, food security, Livelihood, etc.)
- Humanitarian response & coordination sector
- Community Health Care prevention, treatment, and Intervention sector
- Management (medical)
- Management (non-medical)
- Community based volunteer (including health and/or nutrition)
- Community based volunteer (general)

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

- Other:_____

Location [State / Township]:

Questions

For each question, respondents do not need to provide a technical answer. Instead, each question needs to be graded against the seven CHRNI criteria by answering yes, no or unsure.

Example Answer							
Question	Answerability Is this question likely to be answerable? [i.e. is it well framed and end points are clearly defined?	Potential for translation Can this question generate knowledge which can be translated into nutrition interventions / activities?	Effectiveness Is this question likely to generate new or improve existing nutrition interventions / activities?	Ethical considerations Would this question lead to nutrition interventions / activities which are ethical? [i.e. there would be no or very minimal concerns regarding a lack of privacy, consent, anonymity, confidentiality as well as other cultural / societal factors?]	Equity Would this question lead to nutrition interventions / activities which could be accessed by everyone in the community?	Cost Would this question lead to nutrition / research options which would be affordable and cost-effective to implement?	Feasibility Would this question lead to nutrition / research options which are feasible to implement [i.e. there would be no or very minimal funding, logistical, organisational, structural or political challenges?]
1. What is the impact of interventions for managing at-risk mothers and infants less than 6 months of age in preventing wasting / acute malnutrition in the less than 6-month-old?	Yes	Yes	Yes	No	Yes	Unsure	Yes

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

Top ten research questions on prevention of child wasting identified through the CHNRI prioritisation							
Question	CHNRI grading criteria [Answer options: yes, no or unsure]						
	Answerability Is this question likely to be answerable? [i.e. is it well framed and end points are clearly defined?	**Potential for translation** Can this question generate knowledge which can be translated into nutrition interventions / activities?	**Effectiveness** Is this question likely to generate new or improve existing nutrition interventions / activities?	**Ethical considerations** Would this question lead to nutrition interventions / activities which are ethical? [i.e. there would be no or very minimal concerns regarding a lack of privacy, consent, anonymity, confidentiality as well as other cultural / societal factors?]	**Equity** Would this question lead to nutrition interventions / activities which could be accessed by everyone in the community?	**Cost** Would this question lead to nutrition / research options which would be affordable and cost-effective to implement?	**Feasibility** Would this question lead to nutrition / research options which are feasible to implement [i.e. there would be no or very minimal funding, logistical, organisational, structural or political challenges?]
1. What is the impact of interventions for managing at-risk mothers and infants less than 6 months of age in preventing wasting / acute malnutrition in the less than 6-month-old?							
2.What is the impact of growth failure during the first 6 months of life on experience of wasting / acute malnutrition after 6 months of age?							
3.How can existing interventions [e.g. growth monitoring, integrated							

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

management of childhood illness [IMCI]] better detect and support children [0-59 months] who are failing to thrive / faltering [i.e. those at risk, not just those already below a z-score threshold]?							
4.What are effective and cost-effective approaches to target the highest risk infants and children 0-59 months [e.g. children with concurrent wasting / acute malnutrition and stunting in children less than 2 24 months etc.] for interventions [food or non-food] to prevent wasting / acute malnutrition and stunting?							
5. a] What measures [anthropometric or non-anthropometric] [i.e. MUAC screening], or combinations of measures, best identify individual infants and children [6-59 months] by age at most risk of death / other adverse outcomes associated with wasting / acute malnutrition?							
5. b] What measures [anthropometric or non-anthropometric], [i.e.							

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

MUAC screening) or combinations of measures, best identify individual infants and children (6-59 months) by age / sex at most risk of death / other adverse outcomes associated with stunting?							
6.What is the role of pre-pregnancy maternal factors (age, health status, nutritional deficits, psychological factors etc.) in determining risk of being born with a low birth weight, low weight-for-length, low mid-upper-arm circumference, premature or small for gestational age?							
7. What measures (anthropometric or non-anthropometric), or combinations of measures, best identify individual infants and children (6-59 months) by age/sex at most risk of wasting / acute malnutrition?							
8. What are effective and cost-effective approaches to integrating wasting / acute malnutrition prevention efforts into health systems (i.e. human resource							

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

capacity, financing, supplies and supply chain, etc), while also taking the current situation regarding government healthcare provision in Myanmar into account?							
9. What impact can effective wasting / acute malnutrition prevention interventions / approaches have on stunting (and concurrent wasting and stunting) and vice versa?							
10. How does being born prematurely and / or with foetal growth restriction impact on wasting / acute malnutrition / stunting at birth and throughout the first 5 years of life?							

Top ten research questions on treatment of child wasting identified through the CHNRI prioritisation							
Question	CHNRI grading criteria (Answer options: yes, no or unsure)						
	<u>Answerability</u> Is this question likely to be answerable? (i.e. is it well framed and end points are clearly defined?	<u>Potential for translation</u> Can this question generate knowledge which can be translated into nutrition interventions / activities?	<u>Effectiveness</u> Is this question likely to generate new or improve existing nutrition interventions / activities?	<u>Ethical considerations</u> Would this question lead to nutrition interventions / activities which are ethical? (i.e. there would be no or very minimal concerns regarding a lack of	<u>Equity</u> Would this question lead to nutrition interventions / activities which could be accessed by everyone in the community?	<u>Cost</u> Would this question lead to nutrition / research options which would be affordable and cost-	<u>Feasibility</u> Would this question lead to nutrition / research options which are feasible to implement (i.e. there would be no or very minimal funding, logistical, organisational, structural or political challenges?)

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

				privacy, consent, anonymity, confidentiality as well as other cultural / societal factors?]		effective to implement ?	
1. [Detection] What are the most effective tools to diagnose acute malnutrition by community members, including community health workers and caretakers?							
2. [Inpatient effectiveness] What are effective therapeutic feeding approaches for the management of severe acute malnutrition in children who are 6-59 months of age with diarrhoea?							
3. [Coverage] What are effective and safe strategies and protocols to support the							

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

scale-up of treatment of acute malnutrition in children 6-59 months of age?							
4. [Natural course] What are the casual factors of relapse after treatment of acute malnutrition and how can they be minimised?							
5. [Natural course] What interventions within and beyond the 1,000-day window can help reduce the risk of acute malnutrition of children and mothers?							
6. [Outpatient effectiveness] What are the optimum entry and discharge criteria for treatment of acute malnutrition to ensure							

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

optimum outcomes?							
7.[Outpatient effectiveness] What is the impact infant and young child feeding practices [IYCF] in addition to the standard treatment of acute malnutrition and how do treatment programmes impact individual and community IYCF practices?							
8. [Detection] How effective are tools for community-based detection and improving treatment-seeking behaviour for children aged 6 to 59 months with malnutrition across different geographies and contexts [within							

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

Myanmar, and specifically within Rakhine]?							
9. [Therapeutic foods] Are there safe alternative formulations of RUTF for the treatment of uncomplicated severe acute malnutrition in children that use locally available ingredients and improve the cost-effectiveness of treatment?							
10. [Mortality] What are effective international and operational models [in Myanmar] to reduce mortality risk after treatment?							

Top ten research questions on MAMI identified through the CHNRI prioritisation *[Note: Additional MAMI questions were prioritised in the global research exercise in comparison to prevention of child wasting and treatment of child wasting. However, MAMI will not be disproportionately favoured in the research being conducted by HARP-F and MKE).*	
Question	CHNRI grading criteria

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

	[Answer options: yes, no or unsure]						
	<u>Answerability</u> Is this question likely to be answerable? [i.e. is it well framed and end points are clearly defined?	<u>Potential for translation</u> Can this question generate knowledge which can be translated into nutrition interventions / activities?	<u>Effectiveness</u> Is this question likely to generate new or improve existing nutrition interventions / activities?	<u>Ethical concerns</u> Would this question lead to nutrition interventions / activities which are ethical? [i.e. there would be no or very minimal concerns regarding a lack of privacy, consent, anonymity, confidentiality as well as other cultural / societal factors?]	<u>Equity</u> Would this question lead to nutrition interventions / activities which could be accessed by everyone in the community?	<u>Cost</u> Would this question lead to nutrition / research options which would be affordable and cost-effective to implement?	<u>Feasibility</u> Would this question lead to nutrition / research options which are feasible to implement [i.e. there would be no or very minimal funding, logistical, organisational, structural or political challenges?]
1. How should infants less than 6 months SAM be defined?							
2. What are / is the key opportunities / timing / contact points [e.g. post-natal care visits, vaccinations etc.] when infant SAM management can be incorporated with other healthcare programmes?							

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

3. What are the priority components of a package of care for outpatient treatment of infant less than 6 months SAM?							
4. Having detected SAM in the community, what is the efficacy of providing targeted skilled breastfeeding support to caregivers of stable infants?							
5. How can existing tools be adapted and / or linked together to better identify and manage infants less than 6 months SAM?							
6. What are the most feasible tools and techniques for assessment treatment programme coverage for infant less than 6 months SAM?							
7. What is the feasibility, effectiveness,							

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

cost-effectiveness and impact of different approaches to promote early initiation and exclusivity of breastfeeding?							
8. What are the main barriers to existing inpatient interventions for SAM infants less than six months old and how might they be best addressed?							
9. What is the effectiveness, cost and safety of an outpatient-focused treatment model for infants with SAM?							
10. Which supervision tools and approaches are most effective towards improving the front-line case management of SAM infants of less than 6 months old?							
11. How can existing child health and							

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

nutrition reporting systems be adapted to capture, monitor and audit data on infant less than 6 months SAM?							
12. What role do CMAM programmes have in delivering outpatient-based treatment for infant less than 6 months SAM?							
13.How does breastfeeding status impact on infant less than 6 months SAM?							
14.What is the coverage of existing inpatient treatment programmes for infant less than 6 months SAM?							
15.How can existing surveys of differing designs and at different levels be adapted to include infants of less than 6 months? What challenges would be faced in doing so?							

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

Thank you very much for your time and participation in this survey today.

Supported by UKaid

This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

Annex 4 – Literature Review Findings

Date of research publication	Researcher and organisation / publication name	Topic	Location Focus	Research objectives, methodology and findings	Key recommendations	Link to Access
February 2022	HARP-F	Localisation: Review of evidence and best practice to inform the Myanmar Nutrition Sector	Literature review and virtual interviews with national/ local organisations, INGOs, and UN agencies	Through the literature review, and KII the authors have outlined the best practices for policy, partnerships, funding, coordination and capacity-building.	Recommendations are identified for the nutrition cluster lead agency (UNICEF), INGOs, the Scaling Up Nutrition Civil Society Alliance (SUN CSA), national/ local organisations and donors in the nutrition sector in Myanmar	
February 2022	HARP-F	Barriers, Bottlenecks and Solutions for Nutrition Program in Rakhine State, Myanmar	Sittwe and Pauktaw Central Rakhine State **Target groups:** While nutrition programming tends to focus on children under 5 years of age, plus pregnant and lactating women (PLW), this analysis included any beneficiary of nutrition programming including fathers, male caretakers, grandmothers etc.	**Secondary Literature review**: MIMU baseline data updated in March 2021; UNHCR Q3 report for Rakhine; UNICEF dashboard for Rakhine updated in October 2021; Rakhine Subnational Nutrition Cluster meeting minutes **KII:** 19 organizations were invited, 8 KIIs were conducted with 10 people from 7 organizations. **Solutions workshop:** online workshop conducted with 35 key stakeholders; presentation and discussions followed three main questions -What is the current situation (as of 1st February 2021): which nutrition services are in place? -What are the barriers and bottlenecks (and associated root causes) to improved coverage of nutrition services? -What solutions are recommended to overcome the identified barriers and bottlenecks? **Identified barriers and bottlenecks:**	The priority barriers and solutions identified. There are five priority barriers related to nutrition treatment services and two priority barriers related to other nutrition services. -Limited accessibility for service providers, due to authority restrictions -Limitations in working with government, due to strategy for minimum engagement with government or insufficient/ disrupted government services -Difficult to scale-up services and limited coverage of treatment services: - Limited accessibility to treatment services - Lack of data and limited understanding of the actual, current situation. -It is difficult for people to adopt optimal IYCF practices and other recommended practices given the current economic, political and humanitarian situation -Restrictions to meet in larger groups due to COVID-19 restrictions, affecting BSFP, cooking demonstrations, awareness sessions and mother support groups	

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

				-Limited accessibility for both service providers and beneficiaries related to authority restrictions. -Limited livelihood opportunities/income -Limited cohesion & harmonization between and within nutrition treatment and prevention services at the field level -Limited capacity of implementing partners -The operating environment is constantly changing	Solutions to address -Expand coverage of nutrition services through non-nutrition partners -Work and invest in community volunteers -Continue to support IMAM programming -Prioritise capacity-building -Advocate to the state health department to allow flexibility	
October 2021	Loan Vu and Anu Rammohan The Journal of Development Studies (Volume 58, 2022 – Issue 3)	Agricultural Production Diversity and Child Nutritional Outcomes in Rural Myanmar	Myanmar (countrywide, rural settings)	Objective: To investigate the links between agricultural diversity and child nutritional status in rural Myanmar Methodology: The data for the analysis come from a two-round survey of households conducted in six rural townships in Myanmar between February 2016 and November 2017. Findings: - Using the child anthropometric measures haz, whz, waz, stunting, and underweight, the results show that child nutritional status worsened between 2016 and 2017. - Greater agricultural production diversity was associated with poorer anthropometric outcomes among young children aged between 6 and 35 months. - Home garden ownership is statistically significant and positively associated with younger children's anthropometric outcomes, whilst migration is negatively associated with wasting and underweight probability of older children.	Livelihood diversification through migration is an important channel to address child undernutrition in the study areas in rural Myanmar, particularly in the long term when children grow older.	https://www.tandfonline.com/doi/abs/10.1080/00220388.2021.1983169

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

October 2018 – April 2021	FAO	Improving food and nutrition security in Rakhine State	Buthidaung, Kyauktaw, Maungdaw and Rathedaung townships, Rakhine State	Food and Agriculture Organization of the United Nations (FAO) is working to increase the resilience of livelihoods to natural hazards and conflicts. Specifically, the aim of the European Union (EU) funded project is to restore and protect agriculture livelihoods of vulnerable communities in Buthidaung, Kyauktaw, Maungdaw, and Rathedaung townships in Rakhine State. The project is one of 10 pro-resilience projects in food crisis contexts implemented within the broader framework of the Partnership Programme supporting the Global Network Against Food Crises (GNAFC). The Partnership Programme seeks to enhance the resilience of populations in food crisis contexts by strengthening the quality and frequency of food security and resilience analysis; building a body of evidence on effective options and interventions to enhance livelihoods resilience at country level; and bolstering stronger alliances at all levels to collectively address food crises through sustainable solutions along the humanitarian-development peace nexus.	- Across Rakhine: 34, 686 beneficiaries (51% women and 49% men) - Rathedaung: 3,700 female and 3,533 male beneficiaries - Maungdaw: 3,110 female and 2,995 male beneficiaries - Kyauktaw: 3,171 female and 3,039 male beneficiaries - Buthidaung: 7,777 female and 7,361 male beneficiaries Initiatives to enhance food security and nutrition and resilience of communities • **Assessments** – The Rakhine State Livestock Breeding and Veterinary Department (LBVD) and FAO completed assessments in 34 village tracts located in Buthidaung, Kyauktaw, and Maungdaw townships to provide information about livestock to help inform initiatives that will be implemented to boost livestock production and productivity. Moreover, the Rakhine State Department of Fishery (DoF) and FAO, completed feasibility studies for the establishment of small-scale integrated aquaculture schemes in seven villages in Buthidaung and Maungdaw. • **Provision of planting material (rice seeds and organic fertilizer)** – FAO together with Myanmar Heart Development Organization (MHDO), People for People (PfP), and Phyu Sin Saytanar Activity Group (PSSAG) completed the supply of rice seeds and fertilizer to 4 500 farmers spread across three townships in time for the imminent monsoon planting season. • Good Agriculture Practices Training – training organized by FAO and implementing partners intended to help farmers improve their yields	https://www.fao.org/3/cb0591en/cb0591en.pdf

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

					covering vegetable production, soil fertility management the proper use of fertilizers was completed. Initiatives to increase household income through the rehabilitation and construction of small-scale multipurpose infrastructure and the strengthening of agriculture value chain • Village Mechanization Committees [VMCs] – VMCs have been established in various townships to ensure the effective management and use of mechanized tools to boost farmers' productivity. The 37 VMCs established have also received basic skills related to managing, maintaining, and repairing their mechanized tools [power tiller, thresher, and a combine harvester]. • Agriculture mechanization – FAO provided 16 power tillers; one rice harvester and 20 rice threshers to improve rice production and productivity and therefore increase food availability and counter labor shortages in the region following significant population movement address labour shortages. Initiatives contributing to improve access and consumption of nutritious food • Nutrition gap analysis – FAO completed a nutrition gap analysis with data collected from 160 households to help identify response activities. • Capacity building – FAO developed training manual consists of the following modules: healthy balanced diet [variety, balance and proportion]; recommended daily intake [age group and gender].	
November 2020	ACF	Effectiveness study of Mother MUAC [Mid-Upper Arm	Planned Sittwe and Thandwe	Planned 20 villages in Sittwe and Thandwe but Baseline survey was conducted only in Thandwe [338 children, 124 mothers from	The study demonstrated the Mother MUAC approach is feasible in Myanmar with very simple training and distribution of MUAC	

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

		Circumference) Approach to treat malnutrition in Rakhine State, Myanmar	Mainly due to COVID-19, the study was conducted only in one township (Thandwe) for shorter duration than originally planned	11 villages participated) Conducted initial Training for 171 mothers from 11 villages **Challenges:** The pandemic caused suspension of activities over substantial periods, difficulty in mobilization of mothers and finding adequate training spaces for training. Besides, the time-consuming process for getting travel authorization also caused initial delay of implementation.	tapes. The team also found accuracy of MUAC measurement by mothers. Evaluation the effectiveness was not completed due to challenges of delayed and shortened implementation. The sustainability of this approach was also not assessed under this study. **Recommendations:** The activities should be continued with increased reach within the target villages as much as resources are available and the situation becomes favorable. It is also suggested to include other family members such as grand mothers and fathers of child in training, implementation and follow up activities. Endline survey should be carried out after several months of the implementation.	
October 2020	Kyae Mhon Htwe Asia Pacific Journal of Public Health (Volume 33 – Issue 1)	Social Determinants of Undernutrition Among Under-5 Children in Rural Areas of Myanmar: A Narrative Review	Myanmar (Countrywide, rural settings)	**Objective:** The review aimed to identify the social determinants of undernutrition in under-5 children in rural areas of Myanmar **Methodology:** A systematic search strategy was conducted through databases- Medline (Ovid), PubMed, SCOPUS, ProQuest Central, Web of science, and POPLINE. The grey literatures from relevant websites were also searched. Keywords were identified and used to search the literature published from 2007 to 2020 in English. Thematic analysis was performed. Twenty-five publications met the selection criteria and were reviewed. **Findings:**	The review highlights the need for a systematic and multisectoral approach to address under-5 undernutrition in Myanmar. Investment in agriculture and rural infrastructure development, and women's education and empowerment may be major contributors to improving the nutritional status of children in rural Myanmar. Findings from this study can be used to develop nutrition-related policies and programs to reduce childhood undernutrition and improve nutrition outcomes in rural Myanmar.	https://www.researchgate.net/publication/346057928_Social_Determinants_of_Undernutrition_Among_Under-5_Children_in_Rural_Areas_of_Myanmar_A_Narrative_Review

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

				Five major themes were identified as important social determinants of under-5 undernutrition in Myanmar—food insecurity, poverty, maternal factors, an unhealthy environment, and low access to health services.		
October 2020	ACTED's AMEU	Impacts of COVID-19 on household livelihoods, food security, and MSME operations- Round 2 Rapid Needs Assessment (RNA) Round-1 (June 2020) Comparison of R1&R2 findings	Sittwe and Pauktaw townships	208HH participated in the round 1-RNA, 117 HH in Round-2 from 18 villages across 8 village tracts-83% female (male are not at home during the day) Traditional gender norms prevalent in both Buddhist and Muslim HH place primary responsibilities for income generation on men. This RNA did not focus on nutrition specific/nutrition sensitive programmes The combination of depressed HH incomes, increasing food costs, and both virus and conflict-related disruptions to 2020 crops throughout central and northern Rakhine State risk widespread and prolonged food insecurity among rural and urban poor.	75 Respondents in Round 1/ 49 Respondents in Round 2 MSME, 61% male respondents Male owned and operated MSMEs among both Rohingya and Kaman respondents 62% of the ethnic Rakhine respondents to the MSME survey represented constituted female managed businesses 38% Eating less, 26% Skipping meals, 22% borrowing to maintain food consumption MSME main challenges: Lockdowns severely impact, decrease consumer demand (93%), transport barriers (90%)	https://drive.google.com/file/d/13-HevHHmnXrJSzK0ZYwlePPQxJue0JDu/view?usp=sharing
August 2020	Jessica L Blankenship, Jennifer Cashin, Tuan Nguyen and Hedy Ip	**Childhood stunting and wasting in Myanmar: Key drivers and implications for policies and programmes**	Myanmar (countrywide)	**Objective:** To identify key drivers of child stunting (low height-for-age) and wasting (low weight-for-height) in a nationally representative sample (n= 3,981) of children 0–59 months of age. **Methodology:** Data from three questionnaires within the Myanmar Demographic Health Survey 2015–2016 was used: household	Investing in scaling-up multisectoral approaches that include nutrition-specific and nutrition-sensitive interventions with a focus on improving maternal nutrition is essential for reducing child undernutrition and contributing to further gains in the country's human and economic development.	https://onlinelibrary.wiley.com/doi/full/10.1111/mcn.12710

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

	Maternal & Child Nutrition (Supplement Article)			questionnaire, women's questionnaire and men's questionnaire. Descriptive statistics for the prevalence of stunting, wasting, and concur-rent stunting and wasting were generated based on the WHO (2006) Child Growth Standards according to which a child with height-for-agez-score (HAZ). **Findings:** - In Myanmar, the prevalence of stunting steadily increases during the 0-to 23-month period. The effects of stunting during the first 1,000 days are largely irreversible. Early child growth restriction, poor maternal nutrition, and inadequate coverage of maternal health services are leading drivers of child undernutrition. Household and environmental drivers associated with child undernutrition include low household wealth index, lack of access to safe drinking water, and the practice open defecation.		
April 2020	John Hoddinott. Paul Dorosh, Mateusz Filipski, Gracie Rosenbach, Ernesto Tiburcio PLOS ONE (Volume 15 – Issue 4)	Food transfers, electronic food vouchers and child nutritional status among Rohingya children living in Bangladesh	Rohingya IDP camps in Bangladesh	**Objective:** To examine associations between receipt of an electronic food voucher (e-voucher) compared to food rations on the nutritional status of Rohingya children living in refugee camps in Bangladesh. **Methodology:** This is an associational study using cross-sectional data. The research team measured heights and weights of 523 children aged between 6 and 23 months in	In a humanitarian assistance setting, Rohingya refugee camps in Bangladesh, household receipt of an electronic food voucher instead of a food ration is associated with improvements in the linear growth of children between 6 and 23 months but not in measures of acute undernutrition or other anthropometric outcomes. The associational evidence indicates that transitioning from food rations to electronic food vouchers does not adversely affect child nutritional status.	https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0230457

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

				households receiving either a food ration consisting of rice, pulses, vegetable oil (362 children) or an e-voucher (161 children) that could be used to purchase 19 different foods. Data were also collected on the characteristics of their mothers and the households in which they lived, including household demographics, consumption and expenditure, coping strategies, livelihoods and income profiles, and access to assistance. Associations between measures of anthropometric status (height-for-age z scores, stunting, weight-for-height z scores, wasting, weight-for-age z scores and mid-upper arm circumference) and household receipt of the e-voucher were estimated using ordinary least squares regressions. Control variables included child, maternal, household and locality characteristics. Findings: - Household receipt of an e-voucher was associated with improved linear growth in children. This association is robust to the inclusion of maternal, household and location characteristics. - The magnitude of the association is 0.38 SD (CI: 0.01, 0.74), and statistically significant at the five percent level. The null hypothesis that these associations differ by child sex cannot be rejected. - Receipt of an e-voucher is not associated with stunting when a full set of control variables are included. - There is no association between receipt of e-vouchers and weight-for-length, weight-for-age or mid-upper arm circumference. The null hypothesis that these associations differ by child sex cannot be rejected.		

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

March 2020	WB Group The WB/ Myanmar	Mapping Myanmar's Nutrition in 2015 Department of Population, Ministry of Labor, Immigration and Population Small Area Estimation (SAE) to estimate nutrition outcomes	The five agro-zones delimited by the World Bank for Myanmar are Hills/Mountains, Dry Zone, Delta, Coastal and Yangon.	**Comparison** Estimate Nutrition Outcomes MDHS 2015/16 and Small Area Estimation (SAE) Nat'l/State/Regional Rural/Urban Boys/Girls 29% -28.9% stunted 7% wasted 19% -18.6% underweight	MDHS and SAE estimates are similar **For Rakhine** Above 35% stunting and above 30% underweight (the highest) Stunting and underweight are much more predominant in rural than urban areas Maungdaw, Buthidaung, Yethedaung have limited information from census 2014 data preventing the use of SAE	https://themimu.info/sites/themimu.info/files/documents/Report_Mapping_Myanmars_Nutrition_2015_DOP_Mar2020_ENG.pdf
October 2017-December 2019	Myanmar Health Assistant Association (MHAA) - Funded by UNICEF	Integrated Health and Nutrition Interventions for IDPs, Affected Communities and Hard –to-reach communities in Rakhine State (Community-based, humanitarian project)	Sittwe, Pauktaw , Kyauktaw, Mrauk-U, Minbya, Myebon and Kyauk Phyu townships	**Goal** Strengthening health service delivery by improving access to Health and Nutrition interventions and emergency referral support by IDPs and affected communities in Sittwe, Pauktaw, Kyauktaw, Mrauk-U, Minbya, Myebon and Kyauk Phyu Townships in Rakhine State, in partnership with Department of Health (DOH). **Objectives** To reduce morbidity and mortality of under five children and women due to common childhood illnesses and communicable diseases such as diarrhea, ARI/Pneumonia, and others among IDPs and affected communities in target townships in Rakhine State by providing life-saving health services. : To reduce and prevent morbidity and mortality of under five children and women by treating acute malnourished under children and by providing micronutrient	**Activities** **Health** • Provision of emergency lifesaving health services including treatment of diarrhea, pneumonia and other common illness and emergency referral support • Dissemination of health education on prevention of common illnesses and correct treatment seeking behavior **Nutrition** • MUAC, W/H screening for acute malnutrition among children of 6-59 months and provision of therapeutic feeding for Severe Acute Malnourished (SAM) and multi-micronutrient sprinkles for under five children • Provision of MMN tablets for P & L women and nutrition education on prevention of malnutrition and appropriate infant and young child feeding • Conducting the MUAC rapid assessment as required	https://www.myanmarhaa.org/our-project/integrated-health-and-nutrition-interventions-for-idps

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

				supplementation to under five children and pregnant and lactating women.		
September 2019	Hnin Thiri Khaing, Shuhei Nomura, Daisuke Yoneoka, Peter Ueda and Kenji Shibuya British Medical Journal (BMJ) (Volume 9, Issue 9)	Risk factors and regional variations of malnutrition among children under 5 in Myanmar: cross-sectional analyses at national and subnational levels	Myanmar (countrywide)	**Objective:** The levels, distributions of child malnutrition and its potential risk factors are not very well known in Myanmar. The objectives included in this study were: to estimate the current national and subnational prevalence of four types of malnutrition (stunting, wasting, underweight and overweight) among children under 5 in Myanmar; to identify potential risk factors associated with each type of malnutrition and to investigate how the identified risk factors' distributions explained the regional disparities in malnutrition prevalence. **Methodology:** Data from the Myanmar Demographic and Health Survey 2015–2016 were used to estimate the prevalence of four types of malnutrition at both national and subnational levels (15 regions). Logistic regression models were applied to examine the association between each type of malnutrition and its risk factors, including child's factors, parental social status and household conditions. The risk factor-adjusted prevalence of the malnutrition was estimated at the subnational level based on the estimated parameters from the regression models. **Findings:** - The national prevalence of stunting, wasting, underweight and overweight in children under 5 was estimated to be 29.1% (95% CI 27.7% to 30.6%), 6.8% (6.0% to	The prevalence of malnutrition among children under 5 is still high in Myanmar, most commonly stunting. Targeted interventions aimed at prevention of LBW, improving the maternal nutritional status, in addition to other sociodemographic conditions should be encouraged urgently. Further research is necessary to investigate the potential sources of regional variation in prevalence of malnutrition among children under 5 in the country.	https://bmjopen.bmj.com/content/9/9/e030894

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

				7.6%), 18.3% (17.0% to 19.5%) and 1.5% (1.1% to 1.9%), respectively. - Substantial regional variations in the prevalence of each type of malnutrition were observed. - Several risk factors of each type of malnutrition were identified, including low birth weight (LBW) and inadequate maternal nutritional status. - Except for overweight, regional variations largely persisted even after adjustment for the risk factors investigated.		
May 2019	Sann Wai Wai Lwin and Alan Geater Journal of Racial and Ethnic Health Disparities (Volume 6)	Ethnic Groups and Father's Job Influencing Nutritional Status of Children (0–30 months) from Myanmar Migrant Community in Southern Thailand	Myanmar migrant communities in Southern Thailand	**Objective:** The aim of the study is to describe the nutritional status of Myanmar migrant children and identify conditions which are responsible for undernutrition in that community. **Methodology:** A cross-sectional study was conducted from December 2016 to April 2017 among mothers and children under 2.5 years of age in that community. A total number of 100 children were involved in statistical analysis after excluding 2 comorbid children. Nutritional status of migrant children was classified by WHO Anthro version 3.2.2. **Findings:** Prevalence of abnormal nutritional status was reported by (19.6%) stunted, (10.8%) underweight, and (7.8%) wasted. Other ethnic children rather than Mon and Dawei were more likely to be stunted ($p < 0.007$). Being occupied by a fisherman father was	To improve feeding practices in infant and young children, a migrant-friendly health education program should be launched and evaluated in this community.	https://link.springer.com/article/10.1007/s40615-019-00595-8

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

				significantly associated with stunting ($p < 0.005$).		
March 2019	Yunhee Kang, Jihye Kim Maternal & Child Nutrition (Volume 15, Issue 4)	Risk factors for undernutrition among children 0–59 months of age in Myanmar	Myanmar (countrywide)	**Objective:** To examine risk factors for stunting, wasting, and underweight among children aged 0–59 months in Myannar. **Methodology:** Cross-sectional data from the Myanmar Demographic Health Survey 2015–2016 was used. Accounting for sampling design and weights, multivariable logistic regression was conducted with 35 household, maternal, and child characteristics. **Findings:** - The prevalence of stunting, wasting, and underweight was 29.0%, 7.3%, and 19.2%, respectively. - Larger than average birth size was protective for all stunting, wasting, and underweight. - Maternal body mass index <18.5 kg m^{-2} was a common risk factor for wasting and underweight - Lower wealth quintiles, maternal engagement in nonagricultural occupation, and male child predicted stunting only. - Younger child age and not receiving vitamin A supplementation in the previous 6 months were risk factors for wasting only. - Regional variation was also seen, with a higher odds of stunting in the West-South Region, North-East States, and West States, compared with the Central Regions. - In Myanmar, socio-economic and demographic factors, poor maternal nutritional status, and living in certain	It is recommended that interventions for growth faltering focus on the first 1,000 days of life; optimum maternal nutrition be ensured during and before pregnancy and at adolescence; societal support be provided for mothers in poverty or engaged in non-agriculture; and region-specific undernutrition pathways be understood.	https://onlinelibrary.wiley.com/doi/abs/10.1111/mcn.12821

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

				geographical locations are affecting children's undernutrition.		
November 2018	Anu Rammohan, Bill Pritchard, Michael Dibley and Mark Vicol Food Security (Issue 10)	The links between agricultural production and the nutritional status of children in rural Myanmar	Myanmar (countrywide, rural settings)	**Objective:** To analyse and test empirically the relationship between household agricultural production and crop diversity on child nutritional status in rural Myanmar, using data from the nationally representative 2013 Livelihoods and Food Security Trust Fund (LIFT) survey. More specifically, to analyse if higher agriculture production and greater crop diversity in the household translates into better nutritional status among children, measured using the three anthropometric measures height-for-age, weight-for-height and weight-for-age **Methodology:** The primary unit of analysis was the individual child aged between 7 and 60 months for whom complete information was available for all our variables of interest. A series of regression models were estimated in order to explain stunting, wasting and underweight outcomes among 1037 children aged 7–60 months. **Findings:** - 37% of the children in our sample were stunted, with stunting more prevalent among older children (aged 31–60 months). - Children from households where agriculture was the main income source had a lower probability of being wasted.	Agricultural own production is important as a food safety net, mitigating acute malnutrition, but this fades away for non-acute measures, reiterating its relative unimportance in terms of the livelihood drivers of child nutrition outcomes.	https://link.springer.com/article/10.1007/s12571-018-0864-6

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

				- There was no statistically significant relationship between crop harvest size and child nutrition outcomes among agriculture households.		
May 2018	Ahmar H. Hashmi, S Moo Kho Paw, Suphak Nosten, Mu Chae Darakamon, Mary Ellen Gilder, Prakaykaew Charunwattha na, Verena I Carrara Kremlin Wickramasing he, Chaisiri Angkurawaran on, Emma Plugge, Rose McGready Global Health Action [Volume 11, 2018 – Issue 1]	'Because the baby asks for it': a mixed-methods study on local perceptions toward nutrition during pregnancy among marginalised migrant women along the Myanmar–Thailand border	Kayin State, Myanmar	**Objective:** Under- and over-nutrition during pregnancy are known risk factors for pregnancy complications and adverse pregnancy and infant outcomes. Understanding perceptions around nutrition in pregnancy can create culturally appropriate interventions for improved health outcomes. A mixed-methods study was performed to explore local perceptions and practices of diet and physical activity in pregnancy in a marginalised population along the Myanmar–Thailand border. **Methodology:** From April to July 2017, a cross-sectional survey and focus group discussions were conducted with 388 pregnant women reporting to antenatal care at two clinic sites; in-depth interviews were conducted with senior midwives at participating organisations along the Myanmar–Thailand border. **Findings:** - A high proportion of women had limited knowledge of and poor dietary practices. - Consuming a sweetened drink in the last 24 hours as well as being a non-teenage, multigravida woman was significantly associated with high body mass index (BMI) compared to normal BMI.	There is limited awareness about healthy diets and lifestyle in these marginalised, migrant communities along the Myanmar–Thailand border. This study suggests that simple, culturally appropriate messaging should be provided to women and communities with low health literacy to generate awareness about healthy lifestyles and their effects on pregnancy outcomes as an important element of a broader strategy to address maternal nutrition in this population. However, more studies to determine the effectiveness of a broad range of interventions in low- and middle-income countries (LMIC) are needed, especially in marginalised migrant population.	https://www.tandfonline.com/doi/full/10.1080/16549716.2018.1473104

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

				- Qualitative analysis combined focus group discussions (n = 66) and in-depth interviews (n = 4) summarising emergent themes: common foods eaten or avoided and rationale; benefits of nutrition; perceptions of overweight and weight gain during pregnancy; barriers to a healthy diet; and sources of diet information.		
July 2017	Valid International	Situational analysis and suggestions for nutrition specific and sensitive programming for Maungdaw and Buthidaung Townships in North Rakhine State, Myanmar	Maungdaw Buthidaung Northern Rakhine State (NRS)	ACF's strategic aspiration to have broad based nutrition specific and sensitive programmes that interact with both local partners and the local authorities appears coherent, sensible and well informed. There are three elements to this strategy: 1)Improving nutrition security at scale (IMAM role out, improving continuum of care, prevention with a focus on 1000 days) 2)Reducing the impact of yearly disasters (Disaster Risk Reduction -DRR) 3)Improving equitable access to public services for all populations To realise this strategy ACF implements a Community-based Management of Acute Malnutrition (CMAM) approach: Outpatient Therapeutic Programmes (OTP) are spread across accessible areas in Maungdaw and Buthidaung. In addition, there are the following interventions: - Community Mobilisation (CACM) - Mental Health and Care Practice (MHCP) -Food Security and Livelihoods -WASH (Phase-in)	More information is needed to clearly understand the severity of the nutritional crisis in NRS In the absence of good data agencies have tended to plan nutrition specific interventions according to worst case scenarios, extending admission criteria and increasing the distribution of a range of food aid commodities. This has potentially serious negative repercussions in terms of the perceived neutrality of interventions and conflict sensitive programming At present the current data indicates the need for selective feeding programmes (CMAM) and general ration distribution in high burden severely affected communities, combined with much more emphasis on community led interventions to change behaviours and support livelihoods Blanket supplementary feeding with a suitable acceptable supplementary product may or may not also be required The available data does not indicate the need for the expansion of CMAM criteria, a	https://www.alnap.org/system/files/content/resource/files/main/acf-2012-myanmar-nutrition-%28a1y%29-evaluation-2012-full-report.pdf

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

				Approximately 70% of ACF's funding in NRS is spent on the nutrition specific component of this approach	protection ration or duplication of SFP interventions. A shift to a Community-based Case Management (CCM) approach could increase impact, cost effectiveness, resilience, and risk- and conflict-sensitivity:	
March 2017	Htin Lin, May Khin Than, Khaing Mar Zaw, Theingi Thwin, Moh Moh Hlaing	Prevalence of Vitamin A Deficiency among 6 months to 5 years old Children	Myanmar (Countrywide, 13 townships)	**Objective:** To reveal the prevalence of vitamin A deficiency among 6 months to 5 years children in 13 townships across Myanmar. **Methodology:** Study design was a community-based, cross-sectional study. Study places was carried out in 13 townships from randomly selected regions of Myanmar. 6-59 months aged children in selected regions of Myanmar were recruited as the subjects. The sample size for each township is 108 children, having 36 children in each cluster - in total 13 townships covering 1410 children. **Findings:** - Regardless of inflammation, the prevalence of vitamin A deficiency based on serum retinol level was 37.2% in National Level which is much higher than in 2000 (4.2%)12. - By State/Region, the prevalence of vitamin A deficiency is: in Yangon (19.0%), Ayeyarwaddy (32.7%), Bago (46.8%), Sagaing (55.1%), Magwe (62.0%), Mandalay (33.3%), Shan-South (30.6%) and Mon (18.5%). Meanwhile, based on the food intake, the consumption of Vitamin A below RDA was 19% across the whole country. In conclusion, vitamin A deficiency problem is	- Until the status of infection has been explored, the National Program of Vitamin A Capsule supplementation should still continue, with more information sharing by the health care providers. - If the incidence of infection stayed high, the management for those infections should be monitored and evaluated whether the treatment was delivered according to the specific guidelines or not. - Vitamin A capsules supplementation program to under five children should be regularly carried out and strengthened to cover the whole community.	http://themimu.info/sites/themimu.info/files/assessment_file_attachments/014_Prevalence_of_Vitamin_A_Deficiency_among_6_months_to_5_years_old_Children.pdf

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

				in severe degree of public health problem according to WHO recommendation.		
December 2015	Lwin Mar Hlaing, Umi Fahmida, Min Kyaw Htet, Budi Utomo, Agus Firmansyah and Elaine L. Ferguson British Journal of Nutrition (Volume 116, Supplement S1)	Local food-based complementary feeding recommendations developed by the linear programming approach to improve the intake of problem nutrients among 12–23-month-old Myanmar children.	Ayeyarwaddy Region	**Objective:** - Poor feeding practices result in inadequate nutrient intakes in young children in developing countries. To improve practices, local food-based complementary feeding recommendations (CFR) are needed. - This cross-sectional survey aimed to describe current food consumption patterns of 12–23-month-old Myanmar children (*n* 106) from Ayeyarwady region in order to identify nutrient requirements that are difficult to achieve using local foods and to formulate affordable and realistic CFR to improve dietary adequacy. **Methodology:** - Weekly food consumption patterns were assessed using a 12-h weighed dietary record, single 24-h recall and a 5-d food record. Food costs were estimated by market surveys. - CFR were formulated by linear programming analysis using WHO Optifood software and evaluated among mothers (*n* 20) using trial of improved practices (TIP). **Findings:** - Findings showed that Ca, Zn, niacin, folate and Fe were 'problem nutrients': nutrients that did not achieve 100 % recommended nutrient intake even when the diet was optimised. Chicken liver, anchovy and roselle leaves were locally available nutrient-dense foods that would fill these nutrient gaps.	- An acceptable set of CFR were developed to improve the dietary practices of 12–23-month-old Myanmar children using locally available foods. - Alternative interventions such as fortification, however, are still needed to ensure dietary adequacy of all nutrients.	https://www.cambridge.org/core/journals/british-journal-of-nutrition/article/local-foodbased-complementary-feeding-recommendations-developed-by-the-linear-programming-approach-to-improve-the-intake-of-problem-nutrients-among-1223monthold-myanmar-children/F1DD4A8918A8FC664AC881779D2F44C7

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

				- The final set of six CFR would ensure dietary adequacy for five of twelve nutrients at a minimal cost of 271 kyats/d (based on the exchange rate of 900 kyats/USD at the time of data collection: 3rd quarter of 2012), but inadequacies remained for niacin, folate, thiamin, Fe, Zn, Ca and vitamin B_6. - TIP showed that mothers believed liver and vegetables would cause worms and diarrhoea, but these beliefs could be overcome to successfully promote liver consumption.		
May - June 2015	Save the Children International	Knowledge, Attitudes, and Practice (KAP) Survey and Barrier Analysis for Infant and Young Child Feeding (IYFC) Practices	Sittwe and Pauktaw townships	Conducted KAP survey and Barriers Analysis - assess trends in IYCF practices for children aged 0 to 23 months living in IDP camps - determined barriers and facilitators to key IYCF behaviours for children aged 0-23 months living in IDP camps Conducted a market assessment to identify key foods available during each season that can be procured cheaply to diversify children's diets. Tailor cooking demonstrations each season to the locally available foods, focusing especially on underrepresented food groups such as dairy products, eggs, legumes, nuts, fruits and vegetables, and iron-rich foods. SCI started implementing IYCF activities in Sittwe (2012) and Pauktaw (2013) -antenatal and postnatal support services started in both Townships to optimize the health of mothers and infants, and an Outpatient Therapeutic Programme (OTP) in Pauktaw for the treatment of Severe Acute Malnutrition (SAM) was established	Both nutrition knowledge and program coverage increased but there is a gap in converting knowledge to practice. For example, - At least 94% of caregivers knew as a minimum three out of four IYCF principles - Breastfeeding counsellors (BFC) were named occasionally as influencers of IYCF practices -Traditional Birth Attendants (TBAs) assist in almost 100% of deliveries and supplementation coverage for pregnant women is almost twofold The Barrier Analysis found that key determinants separating doers and non-doers were self-efficacy, cues to action, and positive and negative attributes of the behaviour. Doers found it easier than non-doers to remember to practice the recommended behaviours. Doers and non-doers also differ significantly in their recognition of advantages and disadvantages of practicing a behaviour, with	https://themimu.info/sites/themimu.info/files/documents/Report_Nutrition_KAP_BA_Rakhine_SCI_Jun2015.pdf

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

				Recommended indicators that should be prioritized are exclusive breastfeeding for children under 6 months, timely complementary feeding, minimum dietary diversity, and consumption of iron-rich foods.	doers being more aware of positives and negatives. They are able to fully understand the implications of the action, whereas non-doers may only understand the positive and negative attributes at a superficial level. Finally, advice from BFCs and the absence of breastfeeding difficulties increased caregivers' self-efficacy, or belief that they could practice exclusive breastfeeding.	
January – February 2015	Melaku Begashaw, Swe Linn Maung and Saw Emaric Aye Save the Children International	Standardised Monitoring and Assessment of Relief and Transitions [SMART] Survey Report	IDP camps in Sittwe [urban and rural] and Pauktaw [rural] townships	**Objective[s]:** - Monitor the nutritional situation in Sittwe and Pauktaw IDP camps, SCI conducted Standardized Monitoring and Assessment of Relief and Transitions [SMART] assessments from 26th January to 2nd February 2015. - Assess coverage of Vitamin A supplementation, Bacillus Chalmette-Guerin [BCG], and measles vaccination in children aged 6-59 months. - Determine the prevalence of child illness. - Provide information on infant and young child feeding practices. **Methodology:** The methodology included two data collection methods: Anthropometry and household questionnaire. Cross-sectional cluster sample survey with two stage sampling design in Sittwe Rural and Pauktaw Rural IDPs, and an exhaustive sampling design in Sittwe Urban were applied.	- Improve and scale up the livelihood opportunities for the IDPs through developmental-oriented initiatives to improve their economic status. - The majority of IDPs are not able to meet their food needs because of limited mobility and the nature of the protracted emergency. A significant portion of the population depends on the market to access food which exposes them to price shocks. Feasible and appropriate food security interventions should be considered for all affected community.	https://themimu.info/sites/themimu.info/files/documents/Report_SMART_Survey_SittwePauktaw_IDP_camps_SCI_Dec2013.PDF

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

				Sample sizes were calculated based on standard methodology (SMART) to ensure a representative sample size. - Targeted population: 6 months to 59 months old children - Sample size: Sittwe Rural: 492, Sittwe Urban: 174, Pauktaw: 317, Total: 983 - Total households: 28 households for Pauktaw and 37 households for Sittwe rural IDP Anthropometric data on the nutritional status of children was collected by measuring the height and weight of all children between the ages of 6-59 months. Data was collected to calculate three indices of anthropometric indicators—weight-for-age, height-for-age, and weight-for-height. Findings: - There has been a reduction in the prevalence of global acute malnutrition since December 2012, indicating that the current situation is slowly improving. However, the prevalence of GAM is still above 5% (WHO classification indicating GAM of acceptable public health significance). - According to WHO, these prevalence of wasting in Sittwe Rural and Sittwe Urban is classified as medium/poor and the prevalence level of Pauktaw is classified as high/serious. - Severe Acute Malnutrition (SAM) in all camps is below emergency threshold levels set by UNICEF (SAM<2%). The result of low level of SAM in the survey was		

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

				reflects the significant contribution of interventions to treat SAM. - Young children (under 2 years old) are observed to be more vulnerable to malnutrition. A higher percentage of males the younger age group (6-24 months) in Sittwe Rural are wasted compared with the 25-59 months (12.7% (9.7-16.5 95% CI) and (6.5% (4.6-9.2 95% CI), respectively). - In Pauktaw and Sittwe Rural, almost all children who were classified as malnourished fall in the younger age group (6-24 months). - The survey found that in Sittwe Rural and Pauktaw, based on MUAC cut-offs, a higher percentage of females are underweight compared with males. - In Sittwe Rural, Urban and Pauktaw 46.4%, 28.2% and 51.7% of children under five are stunted and 19.1%, 7.6% and 21.5% are severely stunted. Based on WHO classification, the stunting prevalence in both Sittwe Rural and Pauktaw is classified as very high and that of Sittwe Urban as medium. - Overall, 32.5% of Sittwe Rural, 20.8% of Sittwe Urban and 38.4% of Pauktaw 6-59 months old children are underweight, and 9.1% (Sittwe Rural), 3.9% (Sittwe Urban) and 10.9% (Pauktaw) children are severely underweight.		
January - February 2014	Save the Children International	Coverage Assessment: Semi-Qualitative	Pauktaw (3) IDP camps	In the IDP camps where the SCI OTP program has been running for 7 months the coverage of the nutrition treatment program was 92.1% (95% CI = 80.3%–	The program is well run with very good outcomes in terms of recovery, early detection of cases, lengths of stay, defaulting, and mortality.	https://themimu.info/sites/themimu.info/files/documents/Report_SQUE

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

		Evaluation of Access and Coverage (SQUEAC)	Community Management of Acute Malnutrition (CMAM)	96.9%), i.e., above the SPHERE standard set for selective feeding programs in camp settings (minimum coverage level >90% coverage for programs in camps). The SQUEAC tool was used as a monitoring and an informative process of coverage determination of the CMAM program in Pauktaw IDP camps Conducted Informal Discussion Group and Semi-Structured interviews Programme data collected: • Analysis of admission data over time • MUAC at admission • Discharge Outcomes • Length of stay Qualitative Data collected: • Outreach • Follow up • Standard of service • Barriers • Community structure	-RUTF was well-accepted and intra-household sharing of RUTF was extremely uncommon. -Mortality rate, early detection of SAM cases (admissions MUAC) and length of stay in the program are above acceptable standards. -Registers are kept well. -Good knowledge regarding complications associated with SAM and key messages by OTP staff was observed. The investigation identified the following barriers to program coverage: Lack of knowledge about the program's (i.e. RUTF) use Lack of knowledge about malnutrition both from community and CHVs side Wrong referrals by Community Health Volunteers (CHVs)	AC_Assessment_Rakhine_SCI_Mar2014.pdf
2014	Phyo, S. W., Keiwkarnka, B., & Mongkolchati, A. Journal of Public Health and Development (Volume 12 – Issue 3)	Factors related to stunting status of the children under two years in Magway Township, Myanmar	Magway Township, Magway Region	**Objective:** This cross-sectional analytic study was carried out to determine factors related to stunting status of children aged under two years in Magway Township , Myanmar. **Methodology:** Data were collected by using multi-stage cluster sampling and a total of 399 children aged under 2 years and their mothers were included in this study. After interviewing the mothers by using a face to face method , anthropometric measurements of	Therefore , Maternal and Child Health Care Services , implementing various health education and intervention programs to the mothers and families focusing on quality antenatal care and an appropriate time for introducing complementary food should be addressed .	https://www.researchgate.net/publication/272747269_Factors_related_to_stunting_status_of_children_aged_under_two_years_in_Magway_township_Myanmar

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

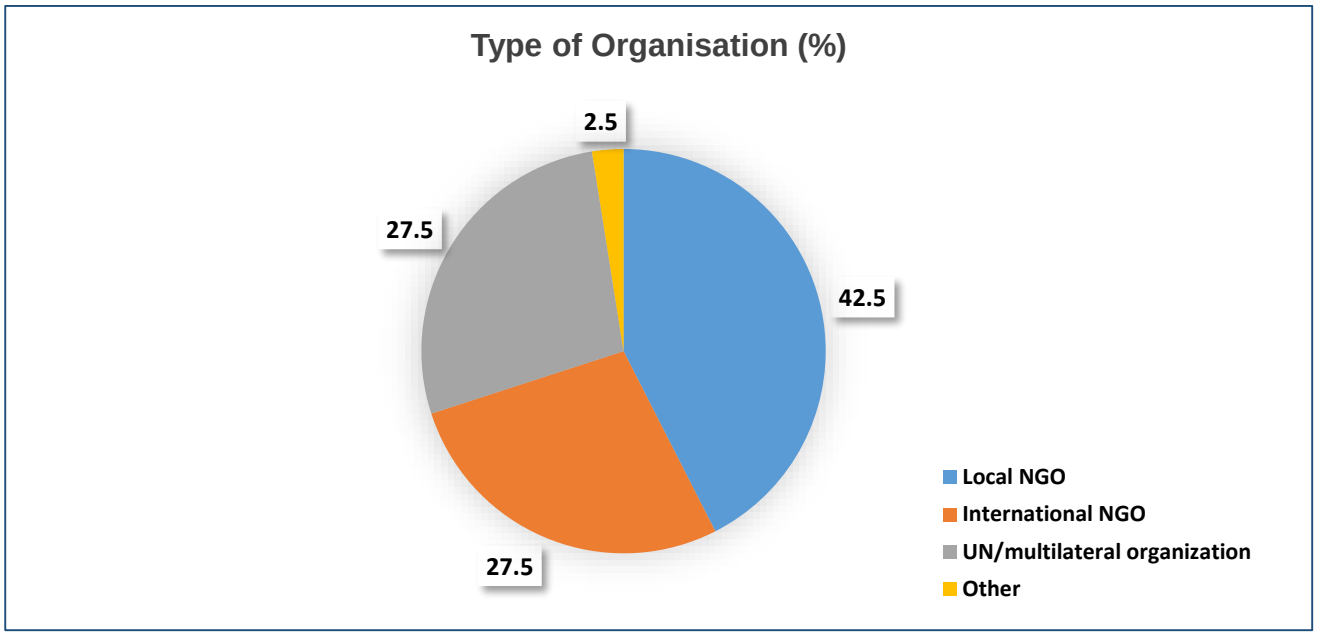
				the children and mothers were performed. Descriptive statistics were used to describe the characteristics of independent variables , dependent variable , and stunting status of the children. Chi-square test and multiple logistic regression were applied to identify the factors related to the stunting status of children. Findings: The finding shows that nearly one-fourth of the under two years children [23. 8%] were stunted. The result from multiple logistic regression showed that mother ' s height [<145cm] , family income [<25 percentile / <60 $] , child age [>10 months] , gestational age of the child [<37 weeks] and early introducing of complementary food to the children [<6 months] were the predicting factors of the stunting status of the children in this population.		
2014	ACF	Qualitative research and comprehensive study on malnutrition in displaced and non-displaced communities of Sittwe Township	Sittwe	KPP/KAP study related to mental health and care practices [MHCP], nutrition, WASH, food security and livelihoods in the Buddhist and Muslim IDPs campus and host communities	-Buddhist HH diets are more diverse than Muslim HH diets, there are low number of children with acute malnutrition in Buddhist camps. -Muslim mothers eat mainly plain rice and chilies during 40 days after giving birth. Vegetables, beans and other common foods are prohibited during this period and until six months. Dried fish can be consumed but expensive for them. -Buddhist, Hindu and Mara Ma Gyi communities in Sittwe, have a great range of prohibited food after birth. During the first 6-7months after birth, mothers mainly consume gourd/white pumpkin and other vegetables are forbidden. Chicken and beef can be consumed. -Buddhist communities accepted contraception and family planning, Mara Ma	https://themimu.info/sites/themimu.info/files/documents/Report_Qualitative_Research_Comprehensive_Study_on_Malnutrition.PDF

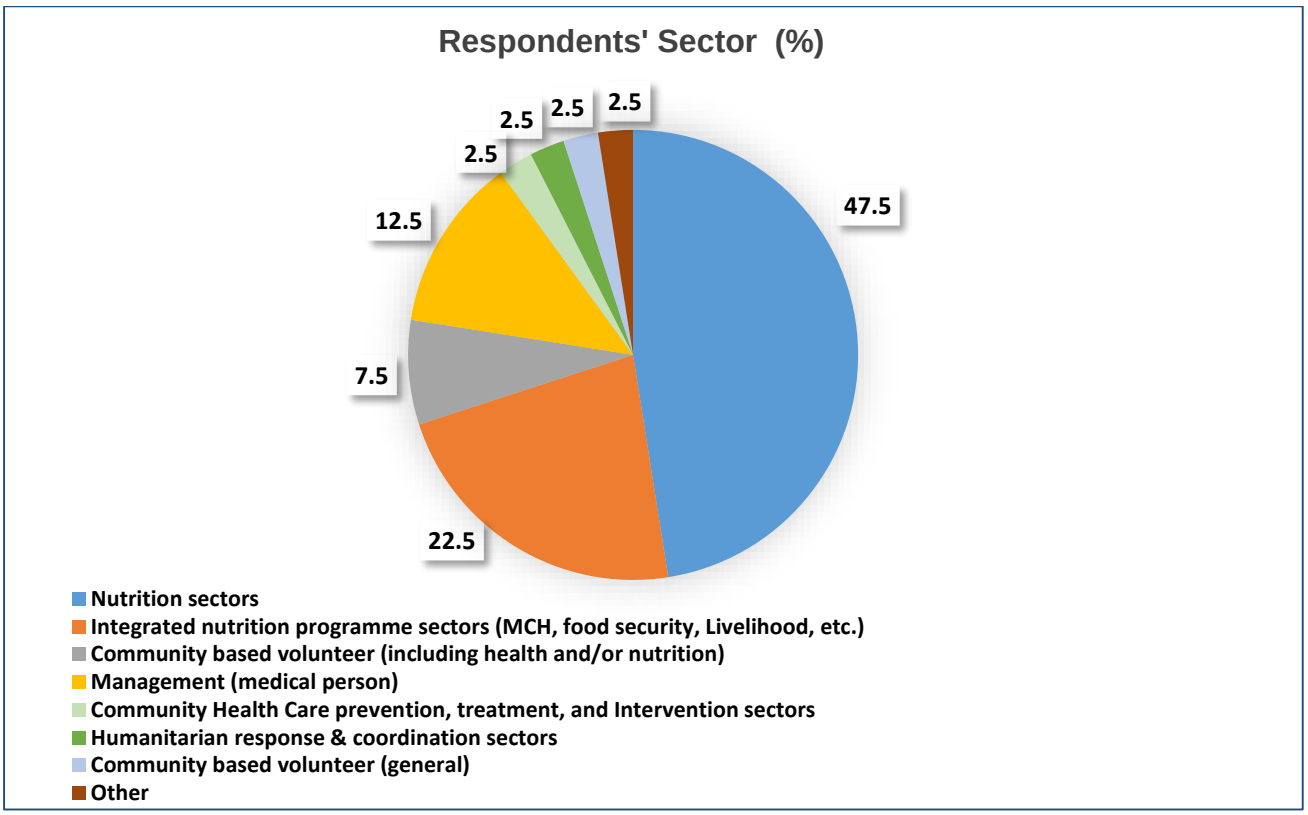
Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

					Gyi, Hindu and Kaman communities have a great number of children to take care of WASH- Tube wells and deep tube wells with hand-pumps are preferred drinking water sources in Islamic societies (believe clean and safe, free of contact with sources of pollution) -Water filtering at HH level is generally not practiced in both Buddhist and Muslim communities -Buddhist, Hindu, Mara Ma Gyi prefer the heavy taste water from ponds and rainwater -Water is rarely found in the latrines, soup is generally not used for hand cleansing after defecation.	

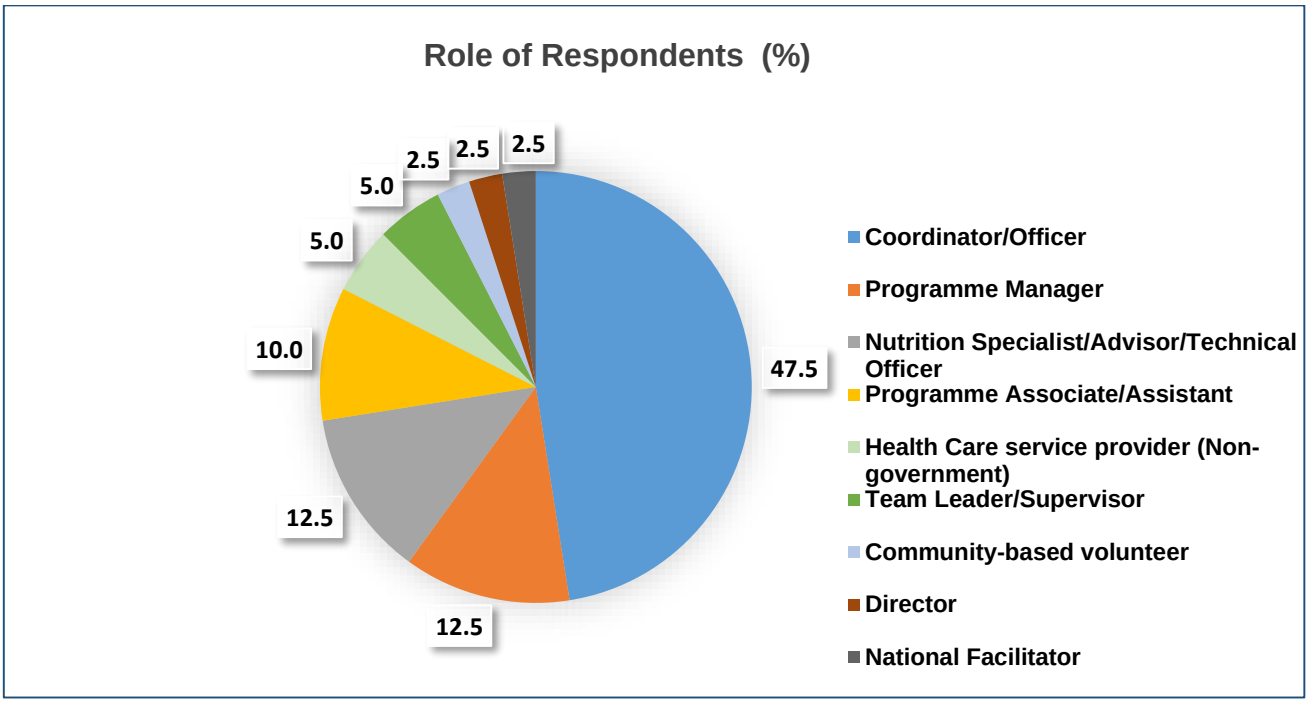
Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

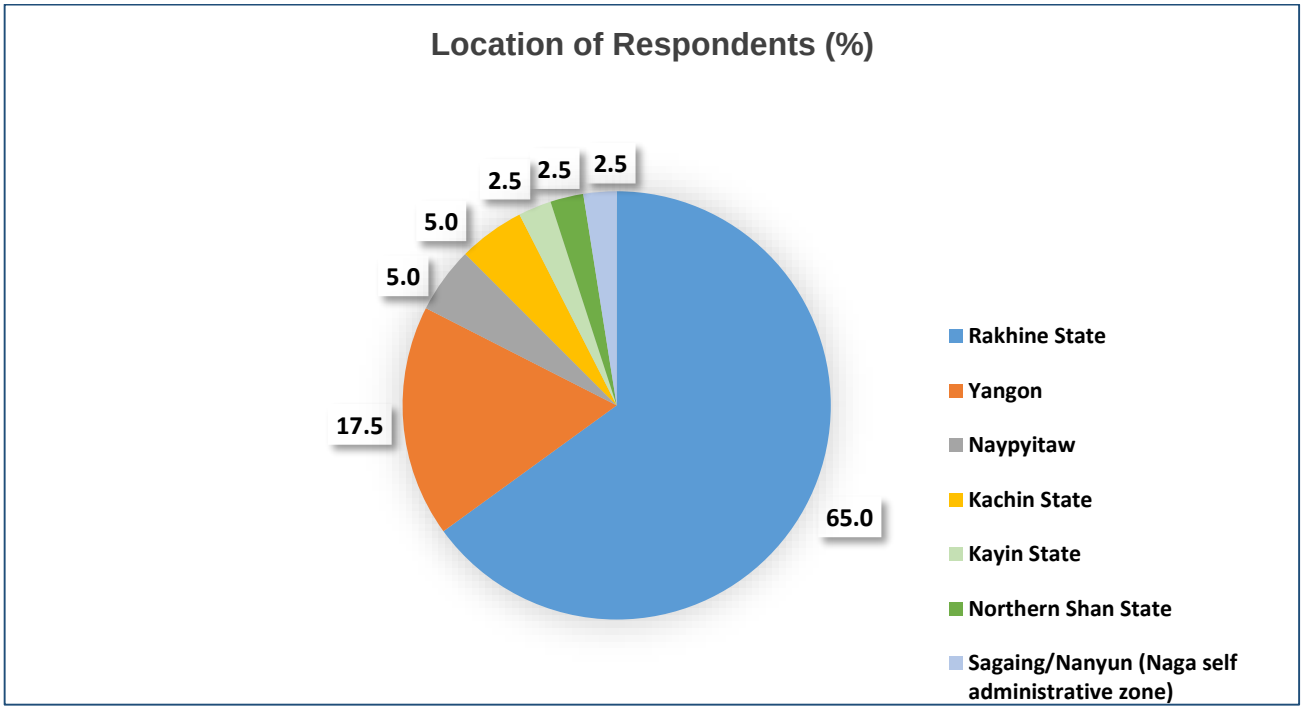
Annex 5 – Survey Respondents Characteristics





Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.





- 70 percent of survey respondents worked for NGOs, either national or international. A further 28 percent of respondents worked for UN or multilateral organisations.

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

- 48 percent of respondents worked in the nutrition sector directly; either in nutrition specific or nutrition sensitive research and programming. A further 23 percent of respondents worked in integrated nutrition sectors such as Maternal and Child Health (MCH), food security and livelihoods.

- 48 percent of respondents worked as programme coordinator or officer, 13 percent worked as programme managers and an additional 13 percent worked as nutrition specialists, advisors or technical officers.

- 65 percent of respondents are based in Rakhine. A further 18 percent are based in Yangon.

Annex 6 – Complete Prioritisation Exercise Results

Table 1: Top eleven research questions in Myanmar on prevention of child wasting identified through the CHNRI prioritisation exercise*

Rank	Research question	A	P	E	EC	Eq	C	F	RPS
1	What measures (anthropometric or non-anthropometric) (i.e. MUAC screening), or combinations of measures, best identify individual infants and children (6-59 months) by age at most risk of death / other adverse outcomes associated with wasting / acute malnutrition?	87.5	85.0	96.3	85.0	90.0	75.0	87.5	86.6
2	What measures (anthropometric or non-anthropometric), or combinations of measures, best identify individual infants and children (6-59 months) by age/sex at most risk of wasting / acute malnutrition?	88.8	87.5	91.3	81.3	86.3	76.3	87.5	85.5
3	How can existing interventions (e.g. growth monitoring, integrated management of childhood illness (IMCI)) better detect and support children (0-59 months) who are failing to thrive / faltering (i.e. those at risk, not just those already below a z-score threshold)?	78.8	83.8	91.3	85.0	82.5	85.0	91.3	85.4
4	What measures (anthropometric or non-anthropometric), (i.e. MUAC screening) or combinations of measures, best identify individual infants and children (6-59 months) by age / sex at most risk of death / other adverse outcomes associated with stunting?	87.5	82.5	85.0	85.0	83.8	72.5	87.5	83.4
5	What is the role of pre-pregnancy maternal factors (age, health status, nutritional deficits, psychological factors etc.) in determining risk of being born with a low birth weight, low weight-for-length, low mid-upper-arm circumference, premature or small for gestational age?	83.8	85.0	83.8	81.3	92.5	75.0	82.5	83.4
6	What are effective and cost-effective approaches to target the highest risk infants and children 0-59 months (e.g. children with concurrent wasting / acute malnutrition and stunting in children less than 24 months etc.) for interventions (food or non-food) to prevent wasting / acute malnutrition and stunting?	83.8	86.3	88.8	80.0	81.3	75.0	82.5	82.5
7	What is the impact of growth failure during the first 6 months of life on experience of wasting / acute malnutrition after 6 months of age?	78.8	81.3	92.5	76.3	83.8	78.8	78.8	81.4
8	What impact can effective wasting / acute malnutrition prevention interventions /	82.5	86.3	81.3	82.5	82.5	71.3	82.5	81.3

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

	approaches have on stunting (and concurrent wasting and stunting) and vice versa?								
9	What are effective and cost-effective approaches to integrating wasting / acute malnutrition prevention efforts into health systems (i.e. human resource capacity, financing, supplies and supply chain, etc), while also taking the current situation regarding government healthcare provision in Myanmar into account?	77.5	80.0	85.0	81.3	85.0	78.8	80.0	81.1
10	How does being born prematurely and / or with foetal growth restriction impact on wasting / acute malnutrition / stunting at birth and throughout the first 5 years of life?	78.8	86.3	88.8	78.8	83.8	71.3	77.5	80.7
11	What is the impact of interventions for managing at-risk mothers and infants less than 6 months of age in preventing wasting / acute malnutrition in the less than 6-month-old?	76.3	81.3	86.3	81.3	86.3	78.8	71.3	80.2

*There are 11 questions in total, as one question from the original set of global prioritised questions was split into two separate questions on the advice of stakeholders in Myanmar in order to ensure it could be correctly interpreted.

A= Answerability; P= Potential for translation; E= Effectiveness; EC= Ethical considerations; Eq= Equity; C= Cost; F= Feasibility; RPS= Research priority score; AEA= Average expert agreement; N= number of respondents

Table 2: Top ten research questions in Myanmar on treatment of child wasting identified through the CHNRI prioritisation exercise

Rank	Research question	A	P	E	EC	Eq	C	F	RPS
1	(Natural course) What interventions within and beyond the 1,000-day window can help reduce the risk of acute malnutrition of children and mothers?	92.5	85.0	88.8	88.8	81.3	78.8	87.5	86.1
2	(Outpatient effectiveness) What is the impact of infant and young child feeding practices (IYCF) in addition to the standard treatment of acute malnutrition and how do treatment programmes impact individual and community IYCF practices?	83.8	87.5	92.5	85.0	82.5	78.8	82.5	84.6
3	(Detection) What are the most effective tools to diagnose acute malnutrition by community members, including community health workers and caretakers?	87.5	86.3	92.5	82.5	81.3	77.5	83.8	84.5
4	(Detection) How effective are tools for community-based detection and improving treatment-seeking behaviour for children aged 6 to 59 months with malnutrition across different geographies and contexts (within Myanmar, and specifically within Rakhine)?	85.0	82.5	81.3	78.8	87.5	80.0	85.0	82.9
5	(Coverage) What are effective and safe strategies and protocols to support the scale-up of treatment of acute malnutrition in children 6-59 months of age?	78.8	83.8	88.8	78.8	85.0	77.5	81.3	82.0
6	(Inpatient effectiveness) What are effective therapeutic feeding approaches for the management of severe acute malnutrition in children who are 6-59 months of age (with diarrhoea)?	80.0	85.0	88.8	82.5	80.0	73.8	75.0	80.7
7	(Natural course) What are the casual factors of relapse after treatment of acute malnutrition and how can they be minimised?	81.3	83.8	85.0	78.8	80.0	73.8	80.0	80.4
8	(Outpatient effectiveness) What are the optimum entry and discharge criteria for treatment of acute malnutrition to ensure optimum outcomes?	75.0	75.0	87.5	81.3	78.8	73.8	76.3	78.2
9	(Therapeutic foods) Are there safe alternative formulations of RUTF for the treatment of	76.3	73.8	85.0	82.5	78.8	72.5	77.5	78.0

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

	uncomplicated severe acute malnutrition in children that use locally available ingredients and improve the cost-effectiveness of treatment?								
10	(Mortality) What are effective international and operational models (in Myanmar) to reduce mortality risk after treatment?	68.8	76.3	72.5	77.5	81.3	73.8	71.3	74.5

A= Answerability; P= Potential for translation; E= Effectiveness; EC= Ethical considerations; Eq= Equity; C= Cost; F= Feasibility; RPS= Research priority score; AEA= Average expert agreement; N= number of respondents

Table 3: Top fifteen research questions in Myanmar on MAMI identified through the CHNRI prioritisation exercise

Rank	Research question	A	P	E	EC	Eq	C	F	RPS
1	How does breastfeeding status impact on infant less than 6 months SAM?	88.8	85.0	90.0	82.5	90.0	85.0	88.8	87.1
2	What is the feasibility, effectiveness, cost-effectiveness and impact of different approaches to promote early initiation and exclusivity of breastfeeding?	90.0	83.8	90.0	77.5	85.0	81.3	87.5	85.0
3	Having detected SAM in the community, what is the efficacy of providing targeted skilled breastfeeding support to caregivers of stable infants?	81.3	81.3	88.8	81.3	81.3	83.8	87.5	83.6
4	What are / is the key opportunities / timing / contact points (e.g. post-natal care visits, vaccinations etc.) when infant SAM management can be incorporated with other healthcare programmes?	82.5	81.3	85.0	73.8	76.3	80.0	81.3	80.0
5	Which supervision tools and approaches are most effective towards improving the front-line case management of SAM infants of less than 6 months old?	75.0	76.3	85.0	77.5	76.3	80.0	80.0	78.6
6	What role do CMAM programmes have in delivering outpatient-based treatment for infant less than 6 months SAM?	77.5	75.0	82.5	75.0	80.0	73.8	81.3	77.9
7	What is the effectiveness, cost and safety of an outpatient-focused treatment model for infants with SAM?	75.0	77.5	81.3	73.8	81.3	73.8	76.3	77.0
8	How can existing tools be adapted and / or linked together to better identify and manage infants less than 6 months SAM?	71.3	75.0	80.0	73.8	81.3	73.8	75.0	75.7
9	What are the priority components of a package of care for outpatient treatment of infant less than 6 months SAM?	76.3	72.5	83.8	75.0	77.5	71.3	72.5	75.5
10	What are the main barriers to existing inpatient interventions for SAM infants less than six months old and how might they be best addressed?	77.5	68.8	78.8	72.5	73.8	75.0	78.8	75.0
11	How can existing child health and nutrition reporting systems be adapted to capture, monitor and audit data on infant less than 6 months SAM?	77.5	71.3	80.0	71.3	75.0	73.8	73.8	74.6
12	How can existing surveys of differing designs and at different levels be adapted to include infants of less than 6 months? What challenges would be faced in doing so?	73.8	72.5	75.0	68.8	76.3	73.8	77.5	73.9
13	What is the coverage of existing inpatient treatment programmes for infant less than 6 months SAM?	68.8	72.5	75.0	73.8	76.3	75.0	75.0	73.8
14	What are the most feasible tools and techniques for assessment treatment programme coverage for infant less than 6 months SAM?	68.8	68.8	80.0	71.3	73.8	68.8	72.5	72.0
15	How should infants less than 6 months SAM be defined?	63.8	68.8	72.5	71.3	73.8	62.5	68.8	68.8

A= Answerability; P= Potential for translation; E= Effectiveness; EC= Ethical considerations; Eq= Equity; C= Cost; F= Feasibility; RPS= Research priority score; AEA= Average expert agreement; N= number of respondents

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

Table 4: Top ten overall research questions for Myanmar through the CHNRI prioritisation exercise

No	Research question	Sub-category	A	P	E	EC	Eq	C	F	RPS
1	How does breastfeeding status impact on infant less than 6 months SAM?	MAMI	88.8	85.0	90.0	82.5	90.0	85.0	88.8	87.1
2	5.(a)What measures (anthropometric or non-anthropometric) (i.e. MUAC screening), or combinations of measures, best identify individual infants and children (6-59 months) by age at most risk of death / other adverse outcomes associated with wasting / acute malnutrition?	Prevention	87.5	85.0	96.3	85.0	90.0	75.0	87.5	86.6
3	(Natural course) What interventions within and beyond the 1,000-day window can help reduce the risk of acute malnutrition of children and mothers?	Treatment	92.5	85.0	88.8	88.8	81.3	78.8	87.5	86.1
4	What measures (anthropometric or non-anthropometric), or combinations of measures, best identify individual infants and children (6-59 months) by age/sex at most risk of wasting / acute malnutrition?	Prevention	88.8	87.5	91.3	81.3	86.3	76.3	87.5	85.5
5	How can existing interventions (e.g. growth monitoring, integrated management of childhood illness (IMCI)) better detect and support children (0-59 months) who are failing to thrive / faltering (i.e. those at risk, not just those already below a z-score threshold)?	Prevention	78.8	83.8	91.3	85.0	82.5	85.0	91.3	85.4
6	What is the feasibility, effectiveness, cost-effectiveness and impact of different approaches to promote early initiation and exclusivity of breastfeeding?	MAMI	90.0	83.8	90.0	77.5	85.0	81.3	87.5	85.0
7	(Outpatient effectiveness) What is the impact of infant and young child feeding practices (IYCF) in addition to the standard treatment of acute malnutrition and how do treatment programmes impact individual and community IYCF practices?	Treatment	83.8	87.5	92.5	85.0	82.5	78.8	82.5	84.6
8	(Detection) What are the most effective tools to diagnose acute malnutrition by community members, including community health workers and caretakers?	Treatment	87.5	86.3	92.5	82.5	81.3	77.5	83.8	84.5
9	Having detected SAM in the community, what is the efficacy of providing targeted skilled breastfeeding support to caregivers of stable infants?	MAMI	81.3	81.3	88.8	81.3	81.3	83.8	87.5	83.6
10	5.b) What measures (anthropometric or non-anthropometric), (i.e. MUAC screening) or combinations of measures, best identify individual infants and children (6-59 months) by age / sex at most risk of death / other adverse outcomes associated with stunting?	Prevention	87.5	82.5	85.0	85.0	83.8	72.5	87.5	83.4

A= Answerability; P= Potential for translation; E= Effectiveness; EC= Ethical considerations; Eq= Equity; C= Cost; F= Feasibility; RPS= Research priority score; AEA= Average expert agreement; N= number of respondents

Supported by UKaid
This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.