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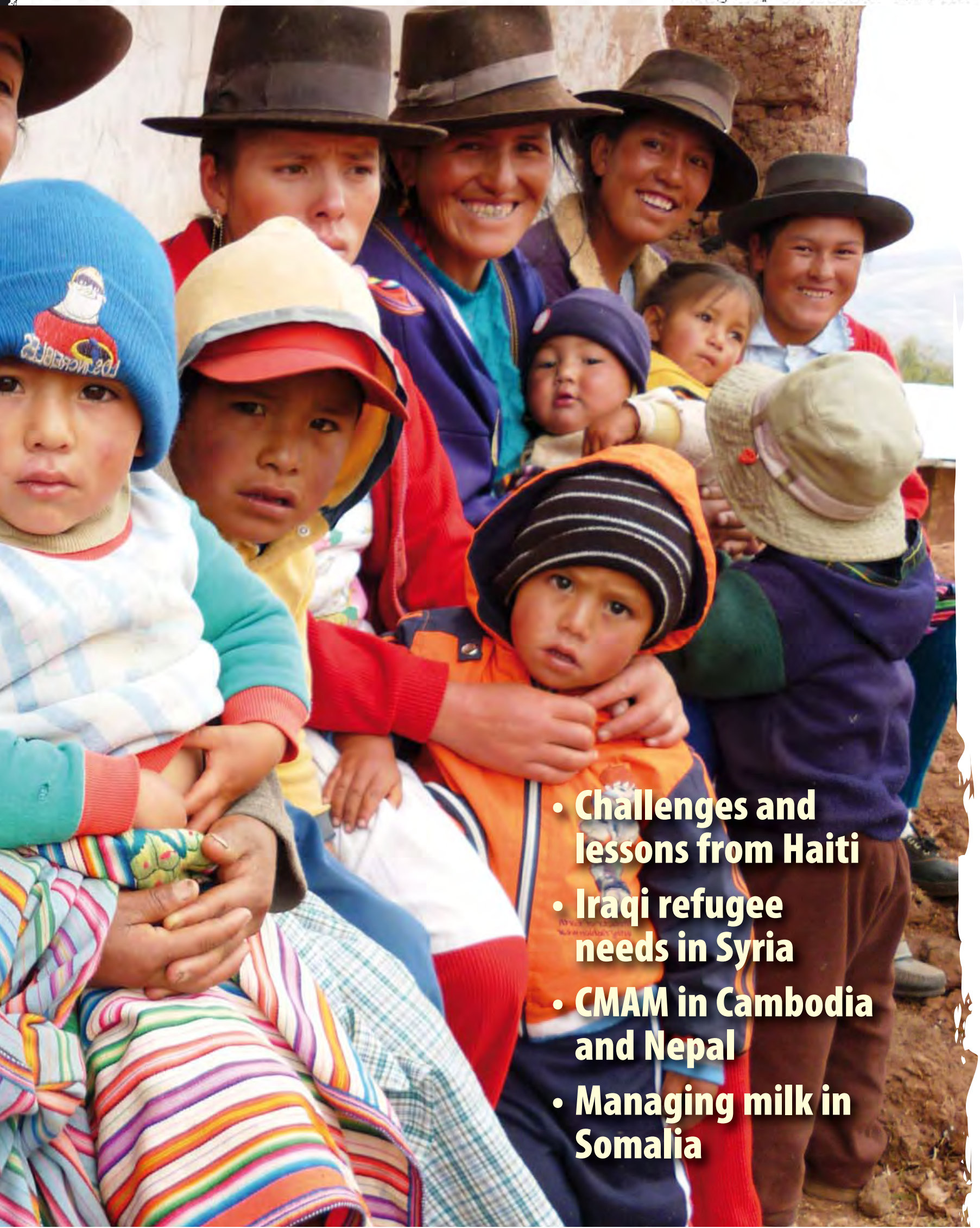
# Field Exchange

Emergency Nutrition Network



- Challenges and lessons from Haiti
- Iraqi refugee needs in Syria
- CMAM in Cambodia and Nepal
- Managing milk in Somalia

# Contents



**Please pass it on…….**

You'll have noticed that with this circulation of Field Exchange we've included an additional copy. We are keen to extend our readership and the best people to target it are you, the reader. So we would appreciate if you could you pass on this copy to an acquaintance who you think would value it – in particular, national staff or local agency contacts that you may be working with but who may not be aware of the publication. On the mailing insert reverse, we've included details on how to join the mailing list to share with your contact. Online registration is straightforward but telephone or postal requests are welcome too.

*Field Exchange editorial team*

# From the Editor

A key thematic focus of this issue of Field Exchange is Humanitarian Reform. There have been many reviews and evaluations concerning the level of progress made since the reform process was officially launched some five years ago. The detailed and systematic 'state of the system' review by ALNAP (see research section) found that the 'formal' international humanitarian system (United Nations (UN), international non-governmental organisations and Red Cross) has grown significantly in financial and human resource terms in recent years. Progress was found in areas such as sector coordination (since the advent of the Cluster Approach – see below), in the mechanisms that provide more reliable and predictable funding and in tools for assessment. Significant gaps in areas such as overall leadership for coordination (non-sectoral) at the country level, in accountability to those affected by emergencies and in investment in national capacity development were identified. In fact, the "top-down orientation of the [humanitarian] system" was found to risk undermining local capacities.

Action Contre la Faim's (ACF) review of Humanitarian Reform views reform as a positive step forward but raises concerns about the potential risks where "political, military and humanitarian objectives" are not firmly separated, where the implementation of the cluster approach is patchy and inconsistent and with the lack of emphasis on inter-cluster coordination resulting in sectoral 'silos'. As with the ALNAP review, ACF highlights a pressing need for strengthened humanitarian coordination and stewardship at the country level.

A key element of reform is the Cluster Approach, which has given rise to the formation of dedicated clusters overseeing and coordinating specific technical areas including nutrition. The actions of the Nutrition Cluster in the early stages of the Haiti response is described in one field article where a number of key achievements are highlighted. These include the rapid identification of priority nutrition problems, the development and dissemination of UN endorsed and unified technical guidance on infant and young child feeding, regular situation updates at global level coupled with mapping the 3W's (Who, What and Where) at country level, the formation of a cluster coordination forum at country level chaired by the Ministry of Health and the implementation of a basic package of key nutrition interventions. The article also describes shortfalls. The 'old chestnut' of lack of surge capacity to meet the human resource demands for a large scale emergency response and insufficient understanding of the cluster approach at the global, regional and country level giving rise to a lack of clarity of purpose and separation of roles between coordination and programming and nutrition related supply bottlenecks, to name a few. By documenting the Cluster's performance in Haiti, the lessons, if acted upon, could arguably strengthen current and future emergency response capabilities. A postscript to this article by UNICEF outlines the steps they are taking to strengthen the Nutrition Cluster and UNICEF's programme capacity to better fulfil its mandate as Cluster Lead Agency and 'provider of last resort' for emergency nutrition.

It is salient to contrast the articles dealing with reform and the cluster approach in this issue with the previous issue of FEX which drew our attention (in the editorial) to the media's subjective and poorly evidenced reporting on the international response to the Haiti earthquake (and role of the media more generally in reporting humanitarian emergencies) and their view that the response lacked any meaningful coordination. In contrast, the Nutrition Cluster Haiti experience, though weak in some key areas, gives an insight into what was put in place, at speed, in a hugely demanding and complex emergency situation where dedicated cluster coordination capacity existed. This evidence based snapshot provides a stark contrast to the 'glass is half empty' reporting by the media.

Another thematic area in this issue concerns the rapidly evolving experience of community-based management of acute malnutrition (CMAM/CTC). The first of the articles (Hailey et al) resonates with the findings in the humanitarian system reviews vis-à-vis the need for much greater recognition of existing national capacities, particularly within governments of emergency affected countries. Emergency response should result in the further development (rather than undermining) of national systems and capacities. It is proposed that an analysis of the capacity of existing health systems to cope with the estimated caseload of acute malnutrition forms the basis for determining CMAM support requirements, rather than the current approach which relies on the prevalence of acute malnutrition reaching thresholds which in turn trigger a response. The authors call for the 'stop-start' system of resourcing for CMAM programmes to be replaced with a health systems approach, which builds nation-wide health systems capacity resulting in increased CMAM coverage. What is particularly interesting about the proposed model is that it will require a change in mind-set from the current (and somewhat artificial) emergency-development divide 'way of doing business' and focus instead on integrated, long -term national level CMAM capacity in all situations where this capacity is needed - whether the country has a declared emergency or not.

Accountability of humanitarian actors towards those affected by emergencies is another area of concern highlighted in the humanitarian reform reviews. The article on the integration of CMAM into routine health services in Nepal identifies delays in community mobilisation activities - arguably a key mechanism for ensuring accountability - as the main reason for the lack of awareness of the services available and for the high levels of defaulting. Subsequently, when mobilisation activities were implemented and a dialogue was created between the providers and those in need, coverage of the CMAM programme increased. The Nepal experience is backed up by the article on the study of the determinants of CTC coverage (Valid International and Concern Worldwide). This study looked at 12 programmes across Africa and identified lack of awareness of the programme, previous rejection from the programme and distance to the treatment centres as the key factors inhibiting uptake of the CTC programme.

Servicing the growing demand for Ready to Use Therapeutic Food (RUTF) as more and more governments look to 'roll out' treatment as part and parcel of ongoing child health services is another challenge for those working on CMAM programming. Currently, most

RUTF is supplied for the global market by just a few companies who have secured international accreditation for production (according to food standard and safety criteria). UNICEF and MSF are the main global purchasers and suppliers to agencies on the ground. The article from a local RUTF producer in Haiti describes the experience of trying to obtain international accreditation for a small scale RUTF manufacturer aiming to supply agencies operating in Haiti at a price which is competitive with the large scale manufacturers. The author highlights the need for a rigorous analysis of the opportunities and the obstacles to local production involving a dialogue between local producers and key international stakeholders.

The Haiti RUTF article again raises the issue of the role of humanitarian systems in supporting existing capacities and in developing new capacity at national level. Whilst some countries have made considerable progress in developing capacity to meet the day to day demands for locally produced treatment and prevention products, many others are dependent on supplies from just a few international manufacturers. As highlighted in the CMAM health systems articles and the Nepal article, more sustainable approaches to addressing acute malnutrition that would avoid the 'stop-start' nature of current emergency programming will help deliver tangible emergency preparedness actions, a key focus and goal of the reformed humanitarian system.

As highlighted in previous issues of Field Exchange, the nutrition sector (emergencies and development) lacks strong coordination, coherence and stewardship and it is therefore right for all stakeholders, including the media, to ask questions. Are things any better today as a result of the reform process (and the nutrition cluster)? Has real progress been made? What do we still need to address in order to ensure we have the systems, resources and capacities to safeguard the nutritional status of those affected by emergencies? A common feature of the reviews featured in this issue of Field Exchange is that they clearly identify positive developments with the reformed humanitarian system (and within our sector). These reviews also recommend concrete ways to address existing weaknesses and gaps, of which there are many.

The humanitarian 'system' is not only reforming but is also becoming increasingly complex as more and larger institutions evolve, emergency aid spend increases and many complex mechanisms, policies and procedures, tools and guidance are put in place. Furthermore, the sector is witnessing a growing demand for the professionalisation of humanitarian staff, for greater accountability and for evidence of impact. Whether we are better prepared today for the Haiti of tomorrow, six months on from the onset of one of the largest emergencies in recent history will, sadly, only be known when an emergency of this magnitude occurs again and we examine the speed, content and impact of the response. The (less high profile) emergencies of today, however, need a system which firmly focuses on the impact of collective actions at all levels and recognises that new systems for reform (including the cluster approach) are a means to a better end, rather than an end in themselves.

Carmel Dolan
Guest editor & Technical Director, ENN

**Any contributions, ideas or topics for future issues of Field Exchange? Contact the editorial team on email: office@ennonline.net**



# The Haiti Earthquake

## Country and Global level Cluster Coordination Experiences and Lessons Learnt

C Rudert/UNICEF, Haiti, 2010

The town of Leogane was 80% damaged by the earthquake

**By Carmel Dolan and Mija Ververs**

Carmel Dolan was Global Nutrition Cluster Coordinator-Consultant at the time of the earthquake and located from the UK to UNICEF Headquarters in New York soon after the earthquake struck to support coordination. She has been involved with the Global Nutrition Cluster for the past four years, particularly in the area of capacity development. She is a partner in the consultancy group, NutritionWorks, and recently joined the ENN as a Technical Director.

Mija Ververs was Country Cluster Coordinator for first month of the crisis based in Haiti. Mija has extensive experience of nutrition, food security and public health in emergencies. She has been involved with the Nutrition Cluster as a Red Cross/Red Crescent Societies' representative/independent since its outset.

The findings, interpretations, and conclusions in this article are those of the authors. They do not necessarily represent the views of UNICEF, its Executive Directors, or the countries that they represent and should not be attributed to them.

*This article describes the experiences of the Nutrition Cluster in response to the Haiti earthquake which struck in January 2010. The article aims to capture what the cluster did well and what it did not do so well in the first month of the response and to highlight key lessons for future Nutrition Cluster Coordination and for UNICEF as the cluster lead agency.*

On 12 January 2010 at around 5 pm local time, an earthquake measuring 7.0 on the Richter scale, hit Haiti. The earthquake struck Ouest Province around an epicentre 17 km south-west of Haiti's capital, Port-au-Prince (PauP), which suffered extensive damage. The nearby cities of Carrefour and Jacmel and other areas to the west and south of PauP were also affected, with the town of Leogane, reported to be 80% destroyed (see map and picture). By the 18th February, the number of people killed stood at over 217,000 with over 300,000 wounded. The Government of Haiti (GoH) estimated that three million people had been directly affected, of which 1.9 million lost their homes and over 1 million were displaced[1].

Government, international and national organisation staff in PauP suffered loss of colleagues, family members and friends, as well as the destruction of office buildings and their homes. The seaport, a major route for trade and supplies was heavily damaged and aid (personnel and supplies) had to come in via the capital's airport (itself highly constrained) and overland via the Dominican Republic. The main road into PauP also sustained damage. The extent of physical destruction and loss of life, the emotional and physical trauma faced by survivors and the logistical bottlenecks were considerable. The fact that the earthquake had 'decapitated' much of the capital city posed a particularly challenging context for the humanitarian response.

Haiti, prior to the earthquake, was an impoverished nation with 55% of the population below the international poverty line of US$1.25 per day. The country has a

[1] Revised FLASH Appeal 18 February 2010, Office for the Coordination of Humanitarian Affairs (OCHA).

**What is the Cluster Approach?**

In 2004, following identification of major failings in the humanitarian response to a number of crises, the UN Emergency Response Coordinator commissioned a review of the international humanitarian system and identified major gaps in areas of humanitarian response, as well as problems of coordination. The cluster approach was introduced as part of a general reform to improve overall coordination and response. Other reform measures dealt with humanitarian financing, the Humanitarian Coordinator system and partnership among all humanitarian actors.

With the Cluster Approach, UN agencies with a particular technical and institutional capacity are designated as 'lead agencies' and are responsible for convening and facilitating coordination meetings at the global and country level, undertaking gap analysis, mapping capacities for response and working with partners to fill identified gaps, strategic planning, raising funds and supporting programme quality, expansion and coverage. The lead agency is also expected to act as the 'provider of last resort' where gaps arise in the emergency response. The lead agency for the Nutrition Cluster is UNICEF.

For more information, visit:
http://www.humanitarianreform.org

C Rudert/UNICEF, Haiti, 2010

Wet feeding in Jacmel

**Ready to use infant formula (RTUIF) in place of powdered infant formula**

The Haiti emergency response was unique in that for the first time the Nutrition Cluster partners were able to use RTUIF available in cans or cartons as an alternative way to feed an infant where breastfeeding had been excluded as an option. The quality and quantity of available water was insufficient and the means to mix powdered infant formula, boil water, etc was very limited. The Nutrition Cluster facilitated the use of RTUIF (fed with cups and spoons) under highly supervised conditions and supported by development and harmonisation of guidance, tools and training[12].

history of repeated natural and conflict related emergencies, as well as substantial nutritional problems. The Demographic and Health Surveys over the period 2005-2008 reported that 29% of the under-five age group was stunted and that rates of exclusive breastfeeding (EBF) were 41%[2] (although international non-governmental organisations (INGOs) estimated this was much lower at 20-30%). An estimated 5% of the under-five population were acutely malnourished, of whom 0.8% suffered from severe acute malnutrition (SAM)[3].

## Activating the Cluster Approach

Two days after the earthquake struck, the Cluster Approach was activated. Five clusters were to be immediately established based on previous coordination arrangements laid out in the Haiti 2008 Flash Appeal (for response to the floods). The five clusters/lead agencies were Logistics/WFP, Emergency Shelter/International Organisation for Migration (IOM), WASH[4] /UNICEF, Health/WHO and Food/WFP and Nutrition/UNICEF. The Nutrition Cluster was activated within 1 week of the earthquake, along with a number of other clusters.

## Response and Achievements

### *Global Cluster Coordination*

Two days after the earthquake struck, a Global Nutrition Cluster (GNC) emergency coordination (telephone) meeting was held with many of the global partners. These meetings were convened and chaired by the GNC-Coordinator every two to three days for the first two weeks, then twice per week and thereafter as needed. The meetings provided an opportunity for United Nations (UN) agencies, non-governmental organisations (NGOs) and other agencies and institutions to share information on the assessment of the situation, discuss key nutrition issues of concern and to provide an update on who was doing what and where. The meetings were very well attended and represented around 20 GNC partner agencies[5].

Until such time as the country level, cluster coordination meetings were up and running (see below), the global level meetings provided the main source of information on the nutrition situation. They formed the basis for regularly written updates that were widely disseminated to GNC partner agencies, the Office for the Coordination of Humanitarian Affairs (OCHA) and UNICEF, as well as to agencies on the ground[6] and were translated into French to ensure accessibility in Haiti.

The GNC meetings benefited from direct briefing (via skype or mobile phone) from the Country Nutrition Cluster (CNC) Coordinator in Haiti. The GNC provided up to date information and helped to define the scope and focus of the discussions to respond, in real time, to key questions put forward by the country level to agencies at their headquarters. For example, concerns about WFP's food pipeline and the quality and quantity of the general rations, staff deployment/secondment issues within UNICEF and limitations with available nutrition assessment data were areas discussed.

In addition to providing a mechanism to jointly identify and discuss the main nutrition related issues of concern, the meetings also led to global level action. An immediate area of focus was on infant and young child feeding in the emergency (IFE) because of potential separation of children from mothers, concern around management of newborns and the reduced access to appropriate complementary foods. Previous experiences from responding to earthquakes in Indonesia (2004), in China (2006) and the cyclone in Myanmar and floods in Philippines (2009) were highlighted by the Emergency Nutrition Network (ENN) representing the IFE Core Group[7] and helped in highlighting the range of IFE issues that would need to be addressed.

The following areas of concern were immediately raised by the IFE Core Group:

- Mothers of *newborn infants* needed support for early initiation of exclusive breastfeeding taking into account the reality that some mothers would be forced to give birth amongst the ruins and on the side of the road.
- *Infants* whose mothers have died or been seriously injured needed an assessment of the response options, for example wet nursing, or as a last resort, well managed artificial feeding.
- Urgent action to prevent unsolicited donations of breastmilk substitutes (BMS) and manage those already being sent when they arrived. From early media reports, large donations of infant formula/milk powder were being requested from many sources and despatched to Haiti.

The Operational Guidance on Infant and Young Child Feeding in Emergencies (OG IFE), available in 13 languages, was immediately shared with GNC partners and a link to relevant key resources setup on the ENN and GNC websites. Mindful of the consequences of delays in dealing with IFE issues, the GNC quickly agreed that a UN interagency Joint Statement (JS) on IFE was needed to raise the issues and clarify best practice in dealing with infant feeding. Nine days after the earthquake, UNICEF, WFP and WHO headquarter staff with GNC and IFE Core Group support, had adapted a JS used in Myanmar and China[8] to fit the Haiti context and disseminated this to all operational agencies.

The speed of this action was unparalleled in other emergencies and underscores the value of the Cluster in being able to quickly tap into existing partnerships and having access to pre-prepared resources for adaptation. It also highlights the considerable contributions that partner agencies made to enable the cluster role. The JS was translated into French soon after and a good deal of work was undertaken in-country to get approval from the Ministry of

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[2] At a glance: Haiti – statistics, UNICEF. http://www.unicef.org/infobycountry/haiti_statistics.html#64

[3] Nutrition Cluster update – Haiti, 4 February 2010. See Haiti section of http://www.oneresponse.info

[4] Water, sanitation and hygiene

[5] GNC partner agencies involved in the telecoms were Action Against Hunger Alliance, Center for Disease Control (CDC), Concern Worldwide, CARE USA, Emergency Nutrition Network (ENN), International Medical Corps, Institute of Child Health/UK, Merlin, Oxfam UK, Save the Children Alliance, Standing Committee on Nutrition (SCN), Tufts University Feinstein International Center, UNHCR, UNICEF, Office of Foreign Disaster Assistance (OFDA)/USAID, Valid International, WFP, WHO, World Vision. Médecins Sans Frontières - France

[6] See Haiti section of www.oneresponse.info for meeting minutes.

[7] An informal interagency collaboration concerned with developing policy guidance, capacity building on IFE. Coordinated by the ENN, members are UNICEF, WHO, UNHCR, WFP, IBFAN-GIFA, CARE USA, SC UK, SC US, Concern, and associate member Fondation Tdh. www.ennonline.net/ife

[8] This in turn had been based on a model joint statement produced in a collaborative effort by participants in a regional workshop on IFE in Bali 2008

Health and for the JS to reflect national considerations. The JS was followed by radio broadcasts disseminating ten key messages on IFE in Haiti Creole – modelled on messages prepared for radio to the besieged population during the 2008/09 Gaza conflict and adapted to key issues affecting this population.

A related global action was the development, in the week following the release of the JS, of an UNICEF/WHO technical note on infant feeding in the context of HIV for Haiti[9]. This too was translated and widely disseminated.

Following discussions with the GNC partners and with UNICEF nutrition section infant and young child feeding (IYCF) staff, (and at country level), it became clear that there was an urgent need to procure an appropriate BMS (infant formula) to meet the needs of non-breastfed infants[10]. The OFDA[11], a GNC partner, led on the procurement of ready to use infant formula (RTUIF) and identified Save the Children as the implementing agency in-country for storage, monitoring and distribution under highly controlled conditions. At the same time, OFDA facilitated the secondment to UNICEF of a specialist in IFE and in the treatment of acute malnutrition (CMAM) to coordinate the IFE and CMAM programming.

C Rudert/UNICEF, Haiti, 2010

All the rivers were choked with rubbish

The fact that the RTUIF issue was so quickly acted upon is a credit to the agencies involved. This is a highly sensitive and often emotive issue yet it was addressed openly and objectively. The GNC meetings were an important forum to bring the key stakeholders together and to enable joint decisions to be taken.

In the early stages, it was apparent at the global level that realistic estimates of the proportion and numbers of the total affected children (3 million) that were under 6 months of age, under one years, between one and five years of age, of pregnant and lactating mothers, and of numbers moderately and severely acutely malnourished were needed in order to plan activities. The Centre for Disease Control (CDC) in Atlanta, a key member of the GNC, was able to quickly provide this demographic breakdown based on census data and previous representative nutrition surveys. This information was important at both the global and country level and was used by the country cluster partners for planning. It was also the basis for the revisions to the nutrition section of the Flash Appeal (see below).

## Flash Appeal

An immediate focus of the GNC Coordinator was to work with UNICEF Nutrition Section staff to produce the nutrition component of the Flash Appeal (FA) for the first month. Unusually, the global level had to take a lot of responsibility for writing the FA due to the enormous demands faced at country level. The revision to the FA took place less than one month after the initial FA was released. Again this involved considerable global level input but also benefited from increased country level capacity to inform the revisions.

### *Human Resources*

Considerable time at global level was needed to identify, brief and deploy the cluster coordination Team for Haiti[13]. The GNC had previously invested in the development of a roster of candidates to be deployed for cluster coordination as part of building its surge deployment capacity. This roster includes candidates who have had previous cluster coordinator training and those who have coordination experience but no formal cluster training. The roster, managed by UNICEF Emergency Human Resources section (HR), was used on day one of the earthquake to identify potential CNC Coordinators. A cluster coordination team was put together between the 15th and 18th January 2010 which was remarkable and a credit to the HR section.

### *Inter-cluster*

The GNC Coordinator had useful and regular informal interaction with other global cluster coordinators based in UNICEF HQ which helped to clarify process and to make sense of the constantly changing situation. Opportunities to listen in on briefings/updates from the country based WASH staff, for example, were particularly useful, as well as the regular participation of UNICEF Health staff in the GNC meetings.

### *Country & Regional Level support*

The enormous constraints in Haiti in terms of logistics, as well as affected populations moving to the border with Dominican Republic, meant that the UNICEF's Office in Dominican Republic became a significant hub to support efforts in Haiti, as well as for addressing the needs of those displaced. Regional level staff from Panama were actively involved in the regular GNC hosted teleconferences and fed information into the written situation reports.

## Country Level Coordination

### *Nutrition Cluster Team*

Three weeks after the earthquake struck, the CNC Team was fully functional with one CNC Coordinator, one deputy CNC Coordinator, one IFE/CMAM/Assessment-Monitoring[14] specialist and Information Management (IM) specialist. Later, additional CNC staff were appointed including an IM assistant (local) and a Nutrition Cluster Coordinator[15] for areas affected outside PauP (sub-clusters).

The immediate concerns of the CNC Team were on ensuring the scale-up of critical nutrition interventions to prevent and treat acute malnutrition as follows:

- Blanket supplementary feeding
- Protecting and supporting optimal infant and young child feeding
- Minimising the risks of artificial feeding
- Micronutrient supplementation-Vitamin A (and zinc/ORS and de-worming)
- Mapping referral centres for the treatment of severe acute malnutrition
- Control and coordination of BMS donations
- Capacity building in infant feeding in the emergency context, CMAM and in-patient care.

In addition, the CNC Team wanted to focus on the needs of other potentially vulnerable groups particularly the disabled/injured and the elderly, but information on these groups was patchy which made it difficult to determine needs and the necessary response.

### *Country Cluster meetings*

The cluster coordination meetings were the main forum for bringing together agencies and government concerned with the nutrition response. The first Nutrition Cluster meeting was held on January 20th 2010 led by a senior nutritionist from UNICEF HQ. Thereafter, the CNC Coordinator took responsibility for these meetings from 24th January. The meeting frequency was initially three times per week for up to 1.5 hours. The scope of these meetings was on exchanging information on population needs, funding streams, use of the JS, press releases, training needs, scaling up of response plans, supply plans, geographical mapping, etc. Cluster partners also used these meetings to express their operational constraints, challenges and needs and to discuss possible solutions.

Following the coordination meetings, technical meetings on IFE and CMAM (called thematic working group meetings) were held

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[9] Available at http://www.ennonline.net/resources/738

[10] Non-breastfed infants with no potential to breastfeed were considered most urgently in need of identification and support. Artificially fed infants who were also breastfeeding may need artificial feeding support in the immediate term but re-establishing full breastfeeding would be supported as a preferable less risky option.

[11] Office for US Foreign Disaster Assistance

[12] Since the Haiti response, an evaluation of the use of RTUIF is being planned by global and country cluster partner agencies, focused especially on the first two months. An addendum to the Operational Guidance on IFE (2007) around provision of BMS has been agreed by the IFE Core Group in collaboration with UNICEF programming and cluster leads. This has been informed by Philippines and Haiti experiences especially (see news item, this issue of Field Exchange).

[13] There were also considerable demands for HR for the Dominican Republic to provide cluster coordination for the programming for populations displaced at the border as well as within the Dominican Republic.

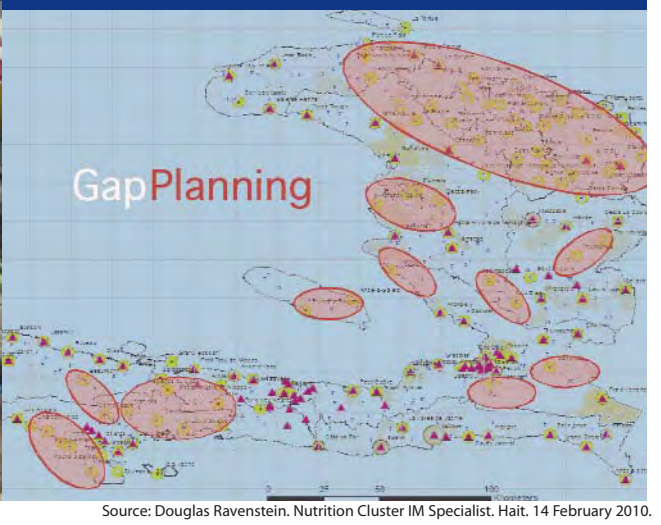
[14] The tasks varied over time and was dependant on the emergency phase and the available expertise within Unicef that complemented the NCC Team.

[15] This person was employed to engage half in Nutrition Sub-Cluster work, half in UNICEF's nutritional programme activities.

C Rudert/UNICEF, Haiti, 2010

A market in Port au Prince

**Figure 1: Map of Haiti showing areas of concern** (insufficient nutrition coverage and services but possibly with high needs) marked by circles




Source: Douglas Ravenstein. Nutrition Cluster IM Specialist. Hait. 14 February 2010.

for another 1.5 hours. On average 30 to 40 participant from 20 to 30 organisations regularly took part in these meetings. Critically important, the Director of Nutrition of the Ministry of Health almost immediately co-chaired the meetings with the CNC Coordinator. Government leadership helped ensure that the cluster was working within existing national nutrition policies and guidelines and that new policy and guidance was not being agency driven but government led. Minutes of all meetings were posted on the Cluster website (www.oneresponse.org/nutrition).

### *Key areas of activity*

The following components were put in place within one month by the CNC Team with the support of the GNC in UNICEF HQ, the Haiti Nutrition Cluster partners including UNICEF Haiti:

- A website where all relevant nutrition information was accessible for all partners in a 'one stop shop' (see Box 1)
- An overview of interventions from nutritional partners covering the 'three W's' – Who, Where and What.
- A draft CNC strategy with short and mid term objectives and activities.
- A JS and press releases with Ministry Of Health (MoH) and UN agencies on IFE
- Numerous tools and guidance notes (especially on infant feeding)
- A gap analysis (a detailed analysis on which geographical areas were of humanitarian concern and that were insufficiently covered by nutritional services from NGOs and MoH) (see Figure 1)
- An 'antenna service' of NGOs to verify daily reporting of groups of children with uncovered and urgent nutritional needs

**Box 1: Information included on the Nutrition Cluster website**
**www.oneresponse.org/nutrition**

- guidance notes/tools/protocols
- situation reports
- minutes of meetings
- nutrition cluster strategy
- policies
- maps
- partner contact lists
- nutritional supplies information
- statements, press releases
- notice/alert board
- related links

Source: Douglas Ravenstein. Nutrition Cluster IM Specialist. Haiti. 14 February 2010.

- Geographical mapping of existing referral points for the treatment of SAM
- The first blanket supplementary feeding programme initiated, managed and conducted by the CNC Team, WHO and UNFPA volunteers with supplies from WFP
- Functioning CNC coordination meetings twice weekly with active engagement of all partners.
- An operational Nutrition Sub-Cluster in Leogane
- Nutritional programmes for Residential Child Care centres throughout PauP (International Medical Corps as requested by the CNC)
- A support system for partners to scale up IFE programmes (capacity building) especially those implementing 'baby tents' and nutritional/psycho-social counselling points for mothers or caregivers (Action Contre la Faim, Concern)
- A phone helpline on infant feeding for nutrition partners
- Active participation of the CNC Coordinator in inter-cluster meetings (initially daily, later 2 or 3/week) and humanitarian forums (initially 3 or 4/week, later weekly).
- Mediation in conflicts and areas of tension between cluster partners

### *Information Management*

Whilst some Clusters resorted to Google-email groups, the CNC Team decided to use the OneResponse website[16] as the official way of communicating with its partners, both nationally and globally. This was only possible because internet connection was fairly good and reliable. Maintaining an updated distribution list was seen as too time consuming and there was significant staff turnover in partner organisations. The Nutrition Cluster website acted as an accessible platform to share harmonised, up to date knowledge and information among partners (see Box 1). There was great effort on the part of the CNC Team to ensure that information on this site was useful.

It was particularly important to have a cluster IM specialist from the first day of the emergency. In a highly demanding working environment, a person solely dedicated to mapping out the '3 Ws (who, what, where)' and somebody who provides population estimates per area and calculations, for example, on how many children at risk in a given geographical area is invaluable. The work by the IM specialist was not only important for supply forecasting but through mapping activities, the CNC Team and Cluster partners were also able to identify gaps and organise the response accordingly (see Figure 1 for an example of a map).

### *Global and National Cluster Partnership*

A strong GNC partnership and the engagement of the GNC Coordinator at the onset contributed significantly to the success of CNC Team in an emergency of this scale. The GNC provided a great resource and network to obtain expertise and support where needed. GNC Partners acted as colleagues and effectively offered their services leading to a constructive atmosphere, both nationally and globally, with collectively borne responsibility and positive outcomes.

## Key Challenges

### *GNC and UNICEF HQ capacity*

For the year preceding the Haiti emergency, the GNC did not have a dedicated full time GNC Coordinator but had relied on temporary coordinators to fill the gap. When the earthquake struck, the GNC had one half-time Cluster Officer (shared with another section in UNICEF but largely working full time for the GNC) and one part-time GNC Coordinator based in the UK. The GNC Team was, therefore, running at about one third of its required capacity. The GNC Coordinator quickly re-located to UNICEF HQ to work full time on the earthquake response but the team remained without the one full time Cluster Advisor position. UNICEF's HQ Nutrition Section was also without key people having one Senior Advisor covering Nutrition in Emergencies (NIE) but one unfilled NIE post.

The challenge of meeting the unusually high demands of the Haiti crisis on the global level was keenly felt within UNICEF in terms of its nutrition programming and in relation to its role as lead agency for the Nutrition Cluster and as the provider of last resort[17]. The earthquake highlighted bottlenecks in the UNICEF system with respect to these crucial areas of responsibility. However, within many UN and NGO agencies weaknesses surfaced, not least because of the unprecedented scale of the disaster.

At the regional level, UNICEF's NIE capacity and understanding of the Nutrition Cluster was low. This added to the demands on HQ for tech-

[16] http://oneresponse.info/Disasters/Haiti/Nutrition/Pages

[17] Other Nutrition Section staff rallied to support the response from HQ and this undoubtedly helped to fill a significant gap.

nical support and for staff deployment to the Dominican Republic – all at a time when demands in Haiti were already stretching UNICEF's capacity.

Linked to the capacity constraints is the fact that the GNC has been without operating funds since 2008 for staffing and for new areas of development. Examples of unfunded but important capacity building initiatives include the much awaited Nutrition Cluster Handbook for CNC Coordinators and partners[18], the shortage of training opportunities in cluster coordination, and capacity development of regional and country level staff (including government) in NIE during 2009. Had funds been available, the GNC would have been fully staffed, the pool to draw on trained coordinators increased, capacity in the regions and country improved and a key tool for cluster coordination would have been available.

Also linked is the disproportionate amount of time the GNC staff had to spend on identifying and contracting staff and in navigating their way through the HR bureaucracy. In the first few weeks, it became clear that UNICEF needed to urgently re-establish the emergency HR section, which had recently been closed. Dedicated and highly experienced staff were re-installed to speed up the recruitment and contracting process. Whilst the GNC Roster contributed to the identification of cluster coordination staff, there was still a disproportionate need to rely on the re-deployment of UNICEF staff from other needy countries for UNICEF programming and for cluster coordination. This left gaps in some countries losing key nutrition staff and again highlights the need for UNICEF and the GNC to increase resources and processes for surge capacity.

In the first month, the twelve person combined CNC Team/UNICEF international team had just four external staff and further expansion of the team continued to be made up largely of UNICEF staff. The CNC Coordinator opted to secure funding[19] and hire qualified international staff from NGOs, expediting hiring procedures. Bringing in NGO staff proved to be an effective stop-gap measure for hiring staff quickly. Another advantage was inclusivity in showing that the Nutrition Cluster was not an exclusively UN concern.

The humanitarian needs in Haiti were tremendous, especially in relation to food, health, shelter and sanitation. The onset of the early rains in February added to the urgency to scale up of what was a slow response in many of the sectors as all struggled to overcome enormous operational challenges. For example, the general food distribution overseen by WFP that aimed to reach two million people, did not achieve coverage for some weeks. The quality of the ration (rice) was also poor, prompting the need for blanket supplementary feeding of children under five and other vulnerable groups.

A lack of implementing partners for programming was a key underlying constraint for many agencies. For nutrition, capacity for the treatment of SAM was particularly low[20]. This was compounded by the lack of available nurses as many had died after the collapse of a central nursing school. It also proved hard to get French or Creole speaking nutrition experts and many in-country-nutrition staff (both national and international) who survived the earthquake, were deeply traumatised and were unable to work effectively while others left their posts to deal with personal matters arising from the earthquake.

### *Understanding the Cluster Approach*

The Cluster approach was not fully understood in the early stages of the emergency by some of the HQ, regional or country staff. For example, UNICEF internal and external reporting and briefing documents did not clearly distinguish between cluster partner nutrition programmes and UNICEF's own nutrition programmes, and the differing roles and responsibilities of the coordinator and advisor were not readily distinguished. At country level, the CNC Coordinator was discouraged from reporting back during internal UNICEF meetings on cluster activities as these were not readily viewed as a UNICEF specific concern. Over time, however, these problems were resolved as awareness and understanding of the Nutrition Cluster increased.

An additional challenge was when the Nutrition Cluster focus in Haiti went beyond the mandate of UNICEF. The Nutrition Cluster identified the elderly as a particularly vulnerable group that falls firmly within the cluster's mandate. However, UNICEF's mandate which focuses on women and children conflicted with this and senior UNICEF staff in Haiti voiced resistance to the Nutrition Cluster providing programming to the elderly population. The Nutrition Cluster was required to advocate for the needs of the elderly to be incorporated in the FA to ensure that agencies with a mandate to meet their needs were able to access funds and thereby, avoid any potentially serious omissions for this group.

### *Flash Revisions*

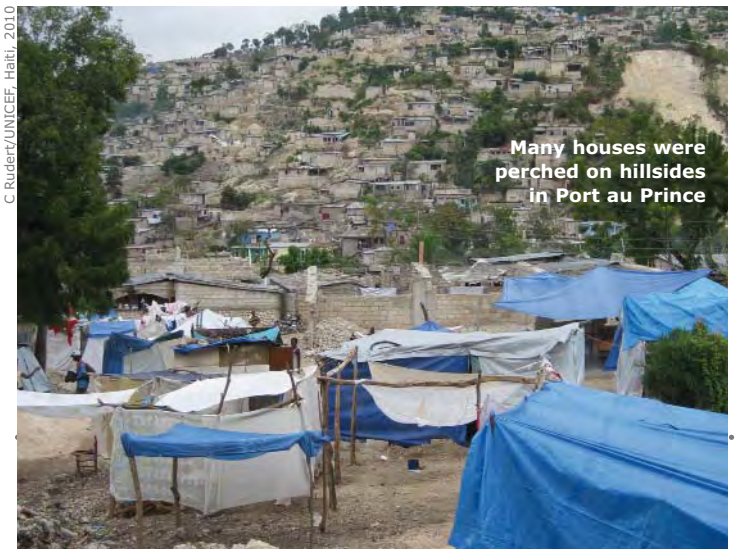
The FA revisions were intended to take account of new assessment information, agencies project proposals and a one year time horizon for programming. The work involved in overseeing the revisions, though a key and important function of the Cluster Coordinators, placed a considerable strain on the cluster, particularly at country level at that time in terms of managing the huge demands. As aptly stated by the CNC Coordinator, 'Time spent on the Flash Appeal text was time not spent on support to scaling up of life saving programmes'. In order to mitigate the potentially negative impact on country level activities, the global level took a central role in the FA revisions. A key constraint, however, was that although various assessments had been undertaken, reporting from these was very limited and so new information on needs was not readily available to inform the revisions.

### *Infant and Young Child Feeding*

An unknown number of children had been separated from their parents and other infants had traumatised mothers that impacted their care practices. Unsolicited donations (e.g. powdered infant formula, milk powder, frozen donor breast milk) entered or were about to enter Haiti. Some organisations initiated or accepted donations based on lack of knowledge, responses to 'dying babies' alerts (army, individual well wishers, US congress men, etc) whilst others were influenced by media pressure to engage in action – particularly visible activities such as handing out infant formula. The CNC Team regularly heard reports of organisations randomly distributing infant formula and the International Code on Marketing of Breast Milk Substitutes was often breached. It took an estimated 25 percent of the CNC Coordinator's time to try to control unsolicited goods.

Assessment of need for artificial feeding proved extremely difficult due to lack of data on which to base case estimates. For example, some infants housed in orphanages were not 'true' orphans but had families. The lack of detailed programming guidance on how to manage artificial feeding in an emergency and the remit of breastfeeding support units, e.g. 'baby tents', meant that the CNC team and partners had to work from scratch to develop terms of reference, supply chain management, monitoring tools, etc. This concerted effort by those on the ground led to a rapid technical response, and significant developments in IFE programming and learning as a result[21]. However, the inadequacies of the general food ration were a major concern, to the degree that staff found it difficult to counsel on optimal infant and young child feeding practices when mothers were reporting their ongoing lack of food. The Operational Guidance on IFE emphasises the need for basic cross-sectoral interventions to accompany IFE – adequate food, shelter, security, WASH, cooking equipment for families with children under 2 years. Without these, technical interventions on IFE are undermined. The Haiti response really 'stepped up' in terms of technical interventions, both on skilled breastfeeding protection and support and interventions to minimise artificial feeding risk. The Haiti experience indicates that concerted effort is now needed to establish how to ensure that basic needs are met in future emergencies.

The CNC Team used the JS with the MoH, issued national press releases and recommendations for customs clearance texts in order to reduce the risks and damage done by those importing the breast milk substitutes. The Associated Press and Reuters were used to convey messages to the international humanitarian forum and subsequently, naming and shaming of those that breached the Code. The CNC Team did, to a certain extent, correct



C Rudert/UNICEF, Haiti, 2010

Many houses were perched on hillsides in Port au Prince

[18] This would contain key tools for the CNC Team such as examples of press releases, joint statements on specific pressing issues, generic job descriptions for national and international cluster staff, examples of nutrition strategies, etc

[19] This funding came from the Emergency Relief Response Fund (ERRF) from OCHA in Haiti.

[20] There was a good national treatment protocol in draft form and a national training on CMAM was planned to take place on 18 January 2010, 6 days after the earth quake struck.

[21] ACF and Concern's existing baby tents helped to guide other NGOs in implementing similar programme initiatives.

malpractice concerning IFE but it was highly labour and time intensive. Also lacking, was the ability to quickly adapt global guidance such as the JS in a more accessible format for those working on the ground and ultimately making the key decisions.

Apart from the nutrition sector, one aggravating factor was that infant feeding is generally not appreciated as a consideration in the general emergency response. Because of this, the protection, promotion and support of appropriate infant feeding practices is often not prioritised in other sectors or integrated within programmes, e.g. offering/referral for breastfeeding support to mothers undergoing trauma surgery who have young infants. Whilst many deaths had been counted in Haiti and patients in need of operative care had been treated, appropriate feeding of infants is a life saving activity that needs protection and support across sectors and at many levels.

## Supplies constraints

The nutrition supply pipeline from UNICEF in Haiti was complex and the system did not function well. Changes to the nutrition supply lists were made at higher organisational levels including HQ and the regional office, over-ruling decisions made by nutritionists at field level which created confusion, delay and tensions. UNICEF nutritionists did their utmost to start mapping out the availability of supplies and forthcoming needs as early as possible, especially because scaling up of programmes was envisaged. However, the biggest weakness was on coordination of the logistics chain and subsequently UNICEF was unable to move supplies from well stocked warehouses to the field in a timely manner at the beginning.

## Future Action Points

UNICEF and the Nutrition Cluster donors need to carefully consider the human, financial and institutional resource requirements that are necessary for UNICEF to fully realise its mandate as the Nutrition Cluster lead agency and as provider of last resort for NIE. The Haiti crisis has highlighted significant gaps that place the Nutrition Cluster at risk of not fulfilling the stated aims of humanitarian reform.

The substantial bottlenecks felt in the early stages of the crisis underscore an urgent need for the GNC and UNICEF to consider institutional contracts/Memoranda of Understanding with key nutrition technical agencies that can deploy at short notice and provide the needed surge capacity in key areas such as IFE, CMAM, IM and for UNICEF programmes. It would have been more effective to expand the CNC Team with externally recruited staff as far as possible, to avoid the risk of 'depleting' other countries and regions of key staff. The secondment of the FANTA IFE/CMAM specialist to the CNC enabled the cluster to have this key person in country very quickly and provides one option for the future for UNICEF and the GNC to explore the creation of a more effective surge capacity. Surge capacity is a priority area previously identified by the GNC which requires financial resources from the Nutrition Cluster donors.

The necessity of revising the FAs so soon after the initial Flash is questionable given the lack of new information on assessment of needs and the pressure all staff were under trying to recruit, plan, coordinate and respond on a massive scale.

In order to reduce breaching of the Code and uphold the provisions of the Operational Guidance on IFE, a stronger stand (inter)nationally is needed prior to and during emergencies. Within the IFE Core Group and collaborators, much effort has been put into realising technical interventions on IFE in emergencies. There is much to learn from the Haiti response in this regard. Furthermore, any evaluation of the IFE response in Haiti should include whether the basic needs of mothers and children were met. The experiences reflected here indicate that meeting these basic needs in emergencies requires particular attention and should become a priority focus of the IFE Core Group. It is also important to consider whether there was an opportunity cost given considerable time and resources spent by agency country and international staff in dealing with issues around infant formula for the minority of infants. Consideration also needs to be given by UNICEF and WHO to RTUIF as a generic commodity and possibly, as a 'borderline' substance on an essential drug list, for example, and mechanisms by which this could be managed.

The understanding of the Nutrition Cluster and UNICEF's accountabilities in fulfilling its mandate as the lead agency and the provider of last resort for Nutrition at HQ, Regional and Country level needs strengthening and there is a pressing need for the GNC to focus on building understanding and capacity for cluster coordination at all these levels. Priority must be given to an orientation on the Cluster Approach and the Cluster responsibilities for UNICEF HQ level staff as much can be gained by improving communication to bring about much greater clarity and appreciation of the roles and functions of the Cluster. In addition, training on Cluster roles and responsibilities and in particular, on coordination will be needed for UNICEF staff at regional and country level with priority given to disaster prone countries and regions. Cluster coordinator training should also be re-established to expand the GNC Roster and thereby, increase the pool of potential coordinators (UNICEF and non-UNICEF) for short and medium term cluster related deployment. This too requires donors to provide adequate resources.

Lastly, it is evident that reliable donor support to fund (nutrition) Cluster positions is of utmost importance to help ensure a timely and coordinated response at country and global level. The Haiti experience clearly shows what can be achieved where dedicated cluster teams are actively coordinating emergency nutrition response.

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# UNICEF's perspective on cluster coordination and programme response in Haiti 2010

*This postscript is a consolidated response by Nutrition cluster coordination team and UNICEF Nutrition programme staff involved in the Haiti humanitarian response, to some of the issues raised in the field article.*

UNICEF's response to emergencies is built largely around two strategies. First, the Core Commitments for Children in Emergencies (CCCs) which outline the vital, life-saving interventions that should be undertaken immediately in the first six to eight weeks of a crisis – and secondly the broader spectrum of activities that are often needed once the initial response has been undertaken. A recent revision of the CCCs incorporates the cluster approach where UNICEF's role as a cluster lead agency as a part of the humanitarian reform is clearly outlined. The CCCs outline new modes of partnership, collaboration, and accountability linked to UNICEFs role in coordination among humanitarian actors. Essential to fulfilling this crucial mandate is the capacity to identify and address technical and operational gaps for nutrition preparedness, response and recovery within the context of UNICEFs Cluster Coordination role and its emergency nutrition response.

UNICEF appreciates the efforts of the two consultants in documenting and highlighting lessons learnt during the initial implementation of the Nutrition Cluster approach in Haiti, based on their own experiences and views. The article captures a part of the initial four weeks of the humanitarian response in Haiti. It also offers the authors' views about certain aspects of UNICEF's internal procedures that touched on the areas in which the consultants were working but were outside their remit. UNICEF is providing additional information on how it approached the issues raised by the two consultants and how UNICEF plans to continue its efforts in improving the functions of Nutrition Cluster coordination.

## Human resource mobilisation

The challenges faced in human resource (HR) surge capacity during the Haiti response reinforced the need for UNICEF to bolster its HR capacity for emergencies, including by improving our global roster of external candidates. This action has been taken on by Division of Human Resources (DHR) and the special DHR Emergency Unit has been strengthened and restructured. One problem we faced in Haiti is a general shortage of qualified nutritionists globally, and we know of far too few who are fluent in French and can be deployed on short notice. Whenever there is an emergency, UNICEF finds itself competing for those with the right skill sets with other United Nations (UN) agencies and non-governmental organisations (NGOs) and where properly qualified and equipped people are in short supply, we sometimes struggle to meet our needs as quickly as we would want. The Nutrition Cluster is trying to promote in-country capacity building via pre-service training linked

to universities in developing countries where the Global Nutrition Cluster Harmonised Training Package (HTP) is being used. However, attaining funding for such an initiative has been difficult, thus there is a need for resources to prioritise this as well as other capacity building initiatives.

### Understanding of UNICEF's programme and cluster responsibilities

There were initially some misunderstandings about the links between UNICEF's emergency response/programme and cluster responsibilities. The Nutrition Cluster Coordinator's job description is very clear and UNICEF acknowledges that any confusion in this area could have originated from the fact that, long before the cluster approach was initiated in 2006, some responsibilities of what the Nutrition Cluster Coordinators currently do today were already part of the job descriptions of UNICEF programme staff. The Haiti experience has highlighted the need for UNICEF to systematically review the two roles and to ensure that the differences and the complementary aspects of the roles become clearer at country level. This task has already been undertaken and terms of reference for UNICEF programme staff have been revised. The next step is to work closely with other humanitarian actors to ensure that all roles, responsibilities and accountabilities are understood by everyone, and preferably in advance of the next crisis we collectively face. This search for clarity forms part of ongoing, wider inter-agency discussions.

### UNICEF management understanding of the cluster approach

In parallel with the need to clarify cluster and coordination roles, UNICEF is also engaged in building a clearer understanding within the organization about what clusters do. Information on the cluster approach is part of the induction package for new UNICEF representatives. Working with our cluster partners, we are putting in place a systematic induction for nutrition staff about Nutrition Cluster roles, and regional and country based training targeting cluster coordinators and partners as well as senior UN, NGO and government officials is in preparation. Cluster countries and corresponding regions are being targeted in 2010-2011 and training will include orientation on the cluster approach, nutrition in emergency and cluster coordination.

Clarity on the responsibilities and the accountabilities is not only a pre-requisite for the Cluster Lead Agency on Nutrition (UNICEF) but also the partners who are being coordinated. The Haiti experience has brought to light an urgent need to develop the respective accountability structures not only within UNICEF and but also for the partners. UNICEF's CCCs in emergencies have already incorporated the cluster approach and UNICEF has embarked on mainstreaming these commitments through the process of developing guidance on how cluster accountabilities can be reflected in all job descriptions for its country representatives, their deputies and other programme staff. We will ask cluster partners to adopt similar processes. The accountability framework will be accompanied by indicators that can track achievements relating to these accountabilities.

### UNICEF's emergency response capacity for programme and cluster response

The Haiti emergency occurred at a time when the Global Nutrition Cluster Coordinator position (an established post with internal UNICEF funding) was vacant. One position within the GNC and one post within the Nutrition in Emergency unit were also vacant. UNICEF has since then filled the position of the GNC, and is in the process of recruiting the two additional positions. We had undertaken two recruitment processes in one year for the Cluster position and had great difficulty to find suitably qualified candidates willing to take on this challenging position. In order to mobilise human resource quickly, UNICEF normally deploys existing staff from HQ, regional and country offices to fill a capacity gap in the aftermath of a significant emergency. This is what was done during the initial stages of the very complex Haiti response, and the new search for suitable staff for Haiti was initiated simultaneously. The acting Global Cluster Coordinator arrived in New York HQ within a reasonable time frame and the recruitment of both the Country Cluster Coordinator and Information Manager positions for Haiti were achieved as quickly as possible. Internal temporary redeployment, which results in decreased capacity in other countries or offices, causes us challenges but it is likely to continue to be an essential response to complex large emergencies as long as local capacity is limited and all emergency requirements cannot be met by the surge human resource capacity. At the same time, greater emphasis is now being placed by UNICEF on filling key cluster positions at regional and country level on a sustainable funding basis. For this to happen, donor support and close collaboration with partners is essential.

C Rudert/UNICEF, Haiti, 2010

Breastfeeding counselling in a 'baby tent'

### Supply and logistics management

Unfortunately, the damage caused by the earthquake severely compromised UNICEF's existing logistics capacity in Haiti. In terms of the assessment of the supply pipeline management, a critical underlying issue that UNICEF has acknowledged is the need for greater clarity on the accountabilities of the Country Office and the Regional Office. A regional hub in the Dominican Republic was created to manage supply issues in the short term, with responsibility shifted to the country office as its capacity increased. In this process, there were occasional communication gaps and some further complications caused by the logistical challenges of having a supply-logistics hub in Dominican Republic. Despite the logistics problems, essential nutrition supplies did arrive in time and the emergency nutrition programme did not face a major shortfall in stock of essential commodities.

### UNICEF's capacity to act as Provider of Last Resort (PoLR)

Effective response must be a shared responsibility of clusters, including both lead agencies and members, and further discussion on this is needed within the Nutrition Cluster. UNICEF normally provides 50 to 90% of the nutrition supplies for emergency programmes. Therefore, UNICEF is a major cluster partner, but not the only one, in the emergency nutrition response. It is important to note that in the Haiti response, UNICEF did provide a significant supply component as a Cluster partner. It is also clear, that cluster members and partners faced significant capacity challenges which affected entire sectors of response and programme scale up. As an emergency response is not the responsibility of the cluster lead agency alone but rather of all members, it was felt that the supply of Ready to Use Infant Formula (RUIF) by a donor through an NGO was a good example of cluster coordination and the Nutrition Cluster's ability to draw on cluster partner resources in response to a need. However, UNICEF acknowledges that further discussion is needed on the issue of provision of RUIF, and how UNICEF would meet its cluster lead agency accountability as the provider of last resort (PoLR) if required in future emergency situations. The PoLR responsibility has significant implications on UNICEFs ability to ensure good coordination, provision of the right supplies, logistics, operations and human resource capacity at the right time to meet the organisation's own programming needs and while ensuring gaps of the sector are filled. To fulfil this major accountability, we highlight the need for increased resource availability to enable UNICEF to have the capacity to truly fulfil PoLR responsibilities. UNICEF implements programmes through governments and NGOs, and given the magnitude and context of the Haiti humanitarian crisis, both the government and NGOs have experienced challenges.

It is however worth mentioning that, UNICEFs pre-existing country office presence facilitated understanding of the situation and contributed to better relationships with government. Before the earthquake, UNICEF's support for Nutrition to the Ministry of Health in Haiti focused around development of tools and guidelines, and the availability of these guidelines facilitated consensus building, ownership and mutual interest among all partners working together, and even with less traditional nutrition partners. Capacity building initiatives by UNICEF and the cluster have contributed to improved programme quality and emergency preparedness and response, and this is worth noting.

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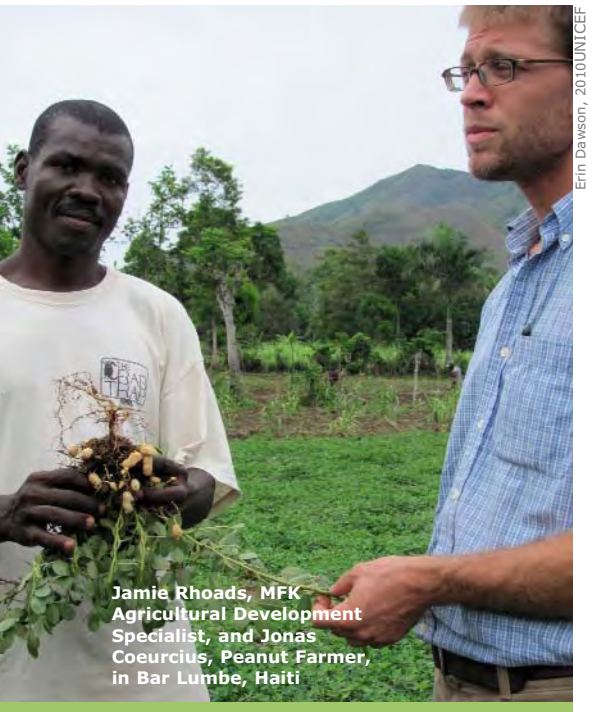


Erin Dawson, 2010UNICEF

Jamie Rhoads, MFK Agricultural Development Specialist, and Jonas Coeurcius, Peanut Farmer, in Bar Lumbe, Haiti

# Trials and tribulations of local RUTF producer in Haiti

**By Steve Taviner**

Steve is Development Director of Meds & Food for Kids (MFK) based in St Louis, USA. Before taking on this role, he spent the last 15 months overseeing MFK operations in Haiti, including coordinating the earthquake response. He holds a Masters in Social Work.

Thanks go to Thomas Stehl, Coordinator of Operations, and Patricia Wolff, Founder and Executive Director of MFK, who both provided valuable input for this article. We collectively extend our gratitude to all of the partners, donors, volunteers and staff who share and support our vision, and most importantly to the citizens of Haiti, whose courage and spirit help turn adversity into opportunity.

MFK, Haiti, http://mfkhaiti.org

Production of local RUTF

Meds & Food For Kids

*This article presents Meds & Food for Kids, an independent local producer of therapeutic and supplementary foods in Haiti, and its pursuit of accreditation as a manufacturer of Ready to Use Therapeutic Food and acceptance in international supply chains. This story serves as a backdrop to a wider conversation on the viability of the national production model for Ready to Use Foods, and the obstacles and opportunities that are present for specialised manufacturing in developing world contexts.*

Meds & Food for Kids (MFK) is a social benefit enterprise that is dedicated to preventing and treating malnutrition in Haiti's vulnerable populations, especially its children. It was founded in 2003 by Dr. Patricia B. Wolff, an American paediatrician based in St. Louis, Missouri, after many years of working in Haiti and witnessing the plight of its children.

In 2001 and 2002, Dr. Wolff travelled to Africa to visit Dr. Mark Manary, a fellow St. Louis resident and colleague at Washington University School of Medicine, and his Ready to Use Therapeutic Food (RUTF) project in Malawi. Witnessing first hand the benefits of not only using RUTF to treat acute childhood malnutrition, but also of the intention of producing it in the country of use, Dr. Wolff took this model to Haiti, introducing both the product and the idea of national production.

MFK is now both a U.S. not-for-profit organisation and a registered non-governmental organisation (NGO) with the Haitian Ministry of Planning. Its offices are based in St. Louis, Missouri, and its production facilities are located in Cap Haitian, in northern Haiti. MFK's RUTF (called "Medika Mamba" in Haitian Creole, meaning "Peanut Butter Medicine") is made in Haiti, employing Haitians, and, where possible, using Haitian raw materials. MFK is reimbursed for part of the production costs by humanitarian organisations, hospitals, health clinics and other groups that purchase and distribute the product. The remaining costs are supported by grants and donations. Since 2003, MFK has provided Medika Mamba to treat over 15,000 acutely malnourished children.

From the start, MFK has worked closely with the Ministry of Health and Population in Haiti to build commitment to RUTF programming as the preferred treatment for childhood malnutrition. In 2007, it received a two-year grant from the World Bank Development Marketplace to pilot RUTF treatment in Hôpital Universitaire Justinien, the country's second largest public hospital, as well as in rural clinics in northern Haiti, to train health workers in community management of malnutrition, provide an evidence base for RUTF in Haiti, and to build capacity in the public sector.

In addition to RUTF, MFK also produces Mamba Konple (Haitian Creole for 'complete peanut butter'), a Ready to Use Supplementary Food (RUSF). This product was designed in consultation with a PhD candidate from Cornell University's Division of Nutritional Sciences, Rebecca Heidkamp, for the nutrition support programme at the GHESKIO Centres in Port-au-Prince, Haiti's leading HIV treatment and research centre. Mamba Konple is being used as part of a supplementation and education strategy to improve infant feeding practices among HIV-exposed infants.

## National production

MFK believes treating malnourished children with imported RUTF, however effective, will remain a palliative measure, as treatment per se does not address the root causes of the problem. Through national production, MFK hopes to contribute to development processes across multiple sectors – economic, social, health and agricultural – as well as supplying public health providers with the best treatment for malnutrition. Our organisation now works across four sectors:

- Producing and distributing safe, high-quality nutritious foods and training Haitian employees to make this possible
- Improving the quality of peanuts produced by farmers, decreasing aflatoxin contamination and augmenting agricultural productivity of Haitian peanut farmers
- Working with and training Haiti's healthcare providers to implement therapeutic and supplementary feeding programs using MFK's products
- Developing new food products for vulnerable populations (HIV+, elderly etc.) and designing programs to deliver them.

## Current production facility

From humble beginnings in 2003, using local market produce and a church school room, MFK has moved production site five times. Its current facility is in a converted rental house, retrofitted to meet international food safety standards. In 2009, MFK produced over 75 metric tons (MT) of Medika Mamba, sufficient to treat over 7,000 acutely malnourished children. MFK has trained and employs over 30 Haitians in Cap Haitian, from where it distributes Medika Mamba to public and private clinics throughout Haiti, through either direct sales to organisations such as World Vision, or by donations to missions, clinics and orphanages, supported through grants and individual donations. The facility, the quality control processes and the product all conform to international food safety specifications, passing a food safety audit by Supply Chain Management Systems led by a Food and Drug Administration (FDA)-trained auditor. The product has a shelf life of 15 months and is packaged in 0.5 kg and 1 kg re-sealable sachets that caregivers use to give the recommended daily dose to each child.

MFK would prefer to purchase all its raw materials in-country, to direct capital to local markets where it is most needed, and to encourage investment in the agricultural sector. However, current technical requirements for RUTF ingredients and the low level of industrial production in Haiti mean that for now, MFK restricts its sourcing to working with local peanut


MFK, Haiti, http://mfkhaiti.org

Part of local RUTF production process

farmers, with training to boost production and avoid aflatoxin contamination. Thanks to funding from the USAID Peanut Collaborative Research Support Programme, MFK has connected Haitian farmers with leading scientists from the University of Georgia, Oklahoma State and Cornell University. With the help of these scientists, MFK have worked with over 500 Haitian farmers and agronomists on interventions designed to produce greater yields and better quality. This involves partnering to test different cultivars, seeds, tillage methods, row spacing and weed control, irrigation, harvesting and improved post-harvest drying and storage methods.

## The importance of accreditation

The joint statement issued in 2007 by UNICEF, WFP, WHO, the United Nations Standing Committee on Nutrition (UNSCN), and supported by many other agencies, including Médecins Sans Frontières (MSF), marked a major policy milestone for the treatment of severe acute malnutrition. It recommended a community-based approach for children without medical complications by treatment with RUTF, provided nutritional specifications for these foods, and required that the product comply with the Recommended International Code of Hygienic Practice for Foods for Infants and Children of the Codex Alimentarius[1]. The statement did not detail how these standards could be applied to RUTF production, or what body would be responsible for monitoring and regulating this production.

In response, the two main purchasers of RUTF, UNICEF and MSF, took on the responsibility of validating and accrediting suppliers according to their own purchasing needs, following Codex Alimentairus, ISO 22000[2], and HACCP[3] procedures. As a consequence, other agencies by default now defer to these auditing decisions when choosing suppliers. It is of course essential that suppliers of RUTF conform to the highest standards of quality and food safety, given the nature and purpose of the product, but currently manufacturers that do not supply UNICEF or MSF are de facto excluded from supplying other agencies, due to the lack of accreditation.

In Haiti, this means that an independent manufacturer such as MFK is excluded from contracts issued by UNICEF and USAID's President's Emergency Plan for AIDS Relief (PEPFAR) – who distribute the product to such implementing partners as Action Contre la Faim, Concern, Save the Children, among others – and which accounted for over two-thirds of the market in 2009 in Haiti, and are expected to account for over 90% in 2010.

Certification and long-term contracts are vital for MFK's future, as it is a prerequisite to:

- Supplying NGOs and health care providers currently serviced by UNICEF and other agencies through imported RUTF
- Obtaining supply contracts from other large-scale health care providers in Haiti
- Building and ensuring our production capacity and supply chain management systems
- Enabling and validating MFK's agricultural development programmes that support and develop capacity and quality of peanut farming in Haiti
- Supporting and making credible MFK's plans to raise funds for a new, dedicated production facility to open in 2011.

## MFK's pursuit of accreditation

### *MSF*

Following the publication of therapeutic food manufacturing standards in October 2007, in 2008 MFK approached the quality control division of MSF to request a food safety audit of MFK's manufacturing process. MSF agreed to visit MFK's facility in December 2008. MSF issued an Audit Report at the beginning of January 2009, which MFK addressed the same month with a Corrective Action Plan for all noted deficiencies. In March 2009, MSF informed MFK that for internal reasons, all pending certifications had been put on hold. Therefore, no result for MFK's audit would be issued.

### *UNICEF*

MFK contacted UNICEF, the remaining Consortium member with audit capabilities, to review the MSF proceedings. In April 2009, UNICEF declined to audit MFK, but suggested that an auditor from Supply Chain Management Systems (SCMS), the new contract holder in Haiti for USAID PEPFAR funds, could be approached about auditing MFK's Cap Haitian factory to determine compliance with the previous audit's findings and to certify MFK for food safety.

### *SCMS*

In May 2009, USAID Washington and Haiti informed MFK that SCMS would inspect MFK's production facilities in August 2009. The final audit report was issued in December, and after nearly two years of pursuit of accreditation, MFK was placed on the list of SCMS validated suppliers for RUTF. On January 4th, 2010, MFK was asked to submit a bid by January 6th, 2010, on a Request for Proposal from SCMS for 50,000 kg of RUTF for the period February to August 2010. After requesting and receiving an extension of a few days to reply, MFK submitted a bid on January 8th. MFK learned the following month that this tender has been supplied by imported RUTF for two reasons: packaging and price.

### *Rhetoric and reality*

UNICEF and MSF have both issued statements underlining their support for diversifying production of RUTF, and for implanting suppliers in the countries of treatment. This not only simplifies supply chains, but also, in line with MFK's mission, introduces desperately needed development investments. However, as the above narrative demonstrates, small, independent and certified RUTF producers such as MFK appear to be excluded from the most important national and international markets due to organisational preferences for manufacturers producing in the developed world at industrial scale. While MFK supports these producers in their endeavours to supply large quantities of RUTF at competitive pricing for worldwide demand, it also contends that part of the budgets of agencies like UNICEF and USAID could be targeted to purchasing RUTF in developing countries, instead of channelling resources back to the developed world, thus perpetuating the cycle of 'rescue' instead of 'development'.

MFK introduced RUTF to Haiti in 2003, when RUTF was just emerging as an international commodity. In its first few years of operations, MFK supplied all of the RUTF used in Haiti. Following the joint statement in 2007 and the adoption of RUTF by major relief organisations, a new paradigm took root. This reflected a preferential option for RUTF distributed free of charge by UNICEF to eligible partners, from either developed world producers or from the newly emerging UNICEF-certified local production bases in the developing world. The emphasis on developed world production was an appropriate response for quick scale up and increased coverage. However, without parallel support, encouragement and a transparent policy for national production this approach will ultimately be instrumental in inhibiting local solutions. The surplus benefits created by national production will fail to accrue to those in most desperate need, including workers, farmers and health specialists in the developing world.

Clearly, growing and developing the market for locally-made RUTF in Haiti depends on two factors – supply and demand. It is MFK's responsibility to ensure that its production standards and capacity fulfil the expectations of both national and international organisations. We also believe that it is the responsibility of the large organisations that control demand to adopt a holistic strategy in organising supply chains of RUTF, that includes both international and local producers, in the interests of diversification and local development.

Many requirements presented to MFK by UNICEF and USAID have been met:

- Approval and endorsement of Ministry of Health and Population
- Acceptance of RUTF and Medika Mamba in the national protocol governing malnutrition
- International food safety certification
- Becoming a validated supplier for SCMS

But in 2010, important barriers remain: packaging, acceptance of accreditation, and price.

## Packaging

The international customer community is accustomed to Plumpy'nut®, packaged in 92g individual dose sachets. MFK's current packaging (500g sachets) is appropriate for our current level of technology, and has been readily accepted for over three years of use throughout Haiti. However, it is clear that in order to be competitive for new bids, MFK must retool its packaging machinery, starting in its current facility. However, this technology is complex and expensive, and when MFK purchases such equipment, trains Haitians in its repair and

[1] The Codex Alimentarius is a collection of internationally recognized standards, codes of practice, guidelines and other recommendations relating to foods, food production and food safety. See http://www.codexalimentarius.net

[2] The ISO 22000 international standard specifies the requirements for a food safety management system, and is developed by the International Organisation for Standardisation dealing with food safety.

[3] HACCP stands for 'Hazard Analysis Critical Control Point'. It is an internationally recognised and recommended system of food safety management.

maintenance (possible but costly), does MFK have any assurance that there will not be yet another barrier to purchasing nationally produced Haitian RUTF?

### Accreditation

Our products are made in a facility that has been certified to conform to international food safety standards. SCMS recognises our quality assurance processes, but prefers not to purchase due to questions of packaging and price. UNICEF has not offered to recognise formally the SCMS certification, so is unlikely to consider contracts with MFK anytime soon. And the third main purchaser of RUTF in Haiti, the Clinton Foundation, relies upon UNICEF certification decisions to guide its purchasing, resulting in product being imported.

### Price

MFK has historically charged around $5 per kg, to remain competitive against the price of imported RUTF. However, the fully-burdened cost per kg of Medika Mamba is considerably higher. This is due to limited production capacity, the high cost of doing business in Haiti, MFK's direct support of health programmes, and our additional work on agricultural development programmes necessary to abate aflatoxin if MFK is to buy peanuts locally. MFK desires to lower prices to be near cost-parity, but this requires scale, something unobtainable in the current context.

### The future

MFK recognises the necessity of a larger and more efficient factory, and in 2009 it launched a capital campaign for this purpose. On completion, this factory will enable MFK to increase annual production capacity to 800 MT, install machinery to package in individual doses to meet international client expectations, comply with all international food safety prerequisites, and make enough Medika Mamba and other products to treat over 80,000 children a year.

In order to realise these ambitions, MFK has had to rethink its strategy. Independence and small scale – restricting ourselves to one country – while useful to introduce and pilot a model, may not be the most effective attributes with which to engage international purchasing networks. MFK has entered into conversations with the global leader in production, Nutriset, with the intention of joining the PlumpyField network, which now counts 11 members in such countries as Niger, Ethiopia and India. The benefits of joining an established production and distribution network are clear: Nutriset will provide support for quality control and technical assistance, and MFK will also benefit from their research and development experience and extended product line as production increases and diversifies in the future. MFK will also be benefit from more formal links to Edesia, a Nutriset affiliated supplier and not-for-profit foundation in the US, in helping to expand local production capacity and product range. Finally, with PlumpyField's experience in supplying larger markets, the partnership should provide a more stable and long-term future for local production in Haiti, in essence the core mission of MFK.

MFK's plans for a new factory will enable economies of scale, which combined with future long-term contracts, will help make its operations financially sustainable in Haiti by 2015. Yet MFK will need to continue to be able to participate in bids, sell MFK products while this transition happens, and raise the necessary funds to cover capital and operational expenses once the new factory comes on line. All before it reaches financial self-sustainability.

We believe that this experience raises a broader set of critical questions for the international nutrition community about the role and involvement of the private sector, private and public sector partnerships, and how to utilise local market mechanisms to address some of the root causes of malnutrition in developing countries. In addition, it also highlights the need for a third-party body for certification, relieving the major purchasers from the role.

Following Steve Collins' Postscript in issue 38 of Field Exchange, we would add the desirability of creating transparency in purchasing policy and supply chain management in Ready to Use Foods (RUFs), so that all stakeholders can establish their needs and expectations to provide both a satisfactory business and development contract. We must remember the context in which these investments are being made. Haiti is consistently in the bottom quarter of the World Bank's 'Ease of Doing Business' rankings and Transparency International ranks Haiti in the bottom tenth of countries in its annual Corruption Perceptions Index. In order to help overcome the extreme uncertainty and risk of investing in countries like Haiti, major purchasing and development organisations must help to mitigate this uncertainty.

At their best, major purchasing organisations can facilitate the investment in, and increase the likelihood of success for, the national production of RUFs. We refuse to believe that anyone wants to see national production fail; the benefits to all parties are far too great. To prevent failure, however, we must create a more enabling environment for success.

MFK's experiences and difficulties in rooting national production in Haiti provide an example of the obstacles that must be overcome if national production is to be successful in other developing world countries. To achieve this, we call for:

- Major stake holders to state publicly their commitment to national RUF production as a central component to the global supply chain for RUFs.
- Leading organisations to convene a meeting that brings together multiple stake holders to identify the barriers to the successful implantation of RUFs in the world's poorest countries, and agree on appropriate action and policy to overcome these barriers.

The situation in Haiti post earthquake is both a reminder and an opportunity of how the international community can help to support interventions across multiple sectors that make sense both in the short and the long term, and how we can and should invest more aid dollars directly in the places that most need them.

For more information, contact Steve Taviner, email: staviner@mfkhaiti.org



## Research

# Patterns of mortality rates in Darfur

**Summary of published research[1]**

Several mortality estimates for the Darfur conflict have been reported since 2004, but few accounted for conflict dynamics such as changing displacement and causes of deaths. A recent study analyses changes over time for crude cause-specific mortality rates, and assesses the effect of displacement on mortality rates.

Retrospective mortality surveys were gathered from an online database (CRED[2]). Quasi-Poisson models were used to assess mortality rates with regard to place and period in which the survey was done, the proportions of displaced people in the samples were the explanatory variable. Predicted mortality rates for five periods were computed and applied to population data taken from the United Nations (UN) series about Darfur to obtain the number of deaths. This series of reports also provided data on humanitarian issues, such as displacement of people and humanitarian aid staff and food supply.

Sixty-three of 107 mortality surveys met all criteria for analysis. The results show significant reductions in mortality rates from early 2004 to the end of 2008, although rates were higher during deployment of fewer humanitarian workers. In general, the reduction in rate was more important for violence-related than for diarrhoea-related mortality. Displacement correlated with increased rates of death associated with diarrhoea, but also with reduction in violent deaths. Estimated excess number of deaths was 298,271 (95% CI 178,258-461,520). More than 80% of excess deaths were not a result of the violence.

Although violence was the main cause of death during 2004, diseases have been the cause of most deaths since 2005, with displaced populations being the most susceptible. However, the effect of displacement is different if mortality rates are split into violence-related and non-violence related mortality. Mortality associated with violence is generally lower in samples with many displaced individuals, but that associated with non-violence is significantly higher. This suggests that internally displaced people are protected from attacks, but overcrowding and precarious situations in which they live increase the risk of death from communicable diseases. Any reduction in humanitarian assistance appeared to lead to worsening mortality rates, as was the case between mid 2006 and mid 2007. During this period, there was an 18% reduction in number of humanitarian aid workers while the number of affected people increased from 3.5 million to 4.2 million.

The authors acknowledge a number of study limitations associated with retrospective mortality surveys, i.e. access to affected populations, survival bias and risk of recall bias. In addition, the CRED database may not have been exhaustive and surveys in the database may not have included all affected populations evenly. In spite of these and other study limitations, the authors conclude that the Darfur conflict shows a typical pattern of mortality rates with time. This was characterised by a peak in the number of violent deaths followed by a protracted phase of increased disease-related mortality rate. This latter phase particularly affects displaced individuals living in conditions of poor sanitary infrastructure, making them susceptible to diseases associated with diarrhoea.

[1] Degomme. O and Guha-Sapir. D (2010). Patterns of mortality rates in Darfur. vol 375, January 23, 2010, pp 294-299. www.thelancet.com

[2] Centre for Research on the Epidemiology of Disasters. www.cred.be

# Acceptability trial of a novel RUTF based on soy, lentils and rice

Dehulled rice, lentils and soya beans

F Dibari/Valid International, Sri Lanka, 2009

**By Filippo Dibari, Valid International**

Filippo Dibari studied Food Science and Technology and more recently Public Health Nutrition at the London School of Hygiene Tropical Medicine. After four years in the Amazon working with poor farmers and doing research with local universities, he then worked for the UN and for international NGOs in Africa, Latin America and Asia. With Valid International since 2005, he develops and clinically trials novel ready-to-use foods.

This study was conducted under the supervision of Anne Walsh (Valid International) in partnership with Renuka Jayatissa (Medical Research Institute, Colombo) and in collaboration with Moazzem Hossain and Diane Stevens (UNICEF Sri Lanka). The author acknowledges the support of the field coordinator Ngetich Weldon (Valid International), local support from Mrs Sunanda (Sujan Ltd, Colombo) and Brother Rajen (Lasallian C.E.S.S., Colombo) and desk officer support from Samantha Owen and Laura Banks (Valid International). The study was funded by Concern Worldwide and Valid International

*This article shares the preliminary results of an exploratory trial of a ready-to-use therapeutic food based on soy, lentils and rice, produced in Sri Lanka.*

This article[1] details the preliminary findings of an exploratory study by Valid International that compared the acceptability of a new ready-to-use therapeutic food (RUTF), against equivalent products (Plumpy'nut® and BP100) currently produced in Europe. The new RUTF comprises soy/lentil/rice' (from here onwards called SLR-RUTF), and was produced in Sri Lanka using local facilities and ingredients. SLR-RUTF matches the UN 2007[2] nutritional guidelines for the RUTF macronutrients. The study also compared some acceptability elements of BP100 with Plumpy'nut®.

## Method

Thirty children aged between three and five years old from three different schools in a Colombo slum (total n=90) were recruited to the study. The trial adopted a crossover design and was split into three phases. Each child consumed one of the three products (Plumpy'nut® (control), BP100, SLR-RUTF) once a day, five days a week, for two weeks. This was done under the direct observation of the research staff members and with the aid of the children's caregivers.

Quantitative data (food intake and clinical aspects) and qualitative information (through focus groups and hedonistic sensory scales) were collected to judge three main acceptability criteria that were established:

1. At least 75% of the children eat more than 75% of SLR-RUTF offered, within 1 hour (meal acceptance).
2. Energy consumption not less than 75% of the energy intake (kcal/kg/day) from the control food (energy intake).
3. Frequency of ill-effects associated with the two products requiring withdrawal from the trial <10% (ill-effects).

MRI official visit to the study site

F Dibari/Valid International, Sri Lanka, 2009

A simple taste-test (n=10 children) took place a few days before the acceptability trial in order to choose between two possible SLR-RUTF formulations: one with and one without lentils. The formulation with lentils was chosen.
Before undertaking the analysis of the data, it was checked whether a carry-over effect[3] could have occurred and biased the results.

## Limitations

The sample size partly reflected budget constraints. No statistical cluster analysis was undertaken at this point, when pulling together the results from the three schools. For ethical reasons the trial enrolled non-malnourished children aged 3 to 5 years – acceptability may be different in malnourished children and in younger children. Rates of weight gain are different in nutritional rehabilitation than in normal child growth. Due to the stage of the project design, SLR-RUTF formulation did not contain a premix of vitamins and minerals. Therefore the acceptability of SLR-RUTF with a premix added could differ from the results of this trial.

The time span of this trial to measure acceptability may have been too short. In this study, all the RUTF products were tested for two weeks per child per phase, whereas in a feeding prog - ramme the minimum duration of the nutritional therapy would generally be eight weeks. The study did not account for the amount and nature of food intake for the rest of each child's day.

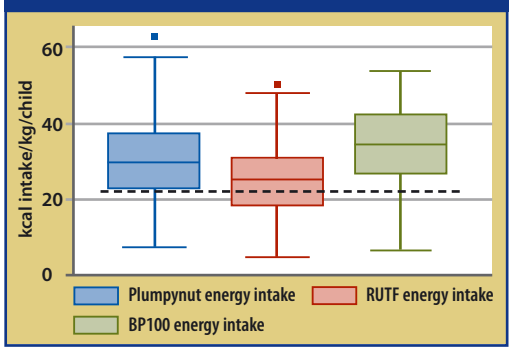
BP100 was provided as a dry biscuit during the first two days of the trial and then replaced by the porridge form. This was because of low acceptance of BP100 as a biscuit, and also to adhere with what is recommended for use in Sri Lankan refugees' camps settings. Therefore the data from the first two days could not be included in the data base. The comparison of BP100 porridge with SLR-RUTF and Plumpy'nut® does not respect iso-caloric conditions.

A crossover design with three groups should theoretically include six combinations of the three products among the three groups (ABC, ACB, BAC, BCA, CAB, and CBA). This was not done because of the exploratory nature of the trial and its budget constraints. The sequence of products assigned to each group was randomly chosen.

**Table 1: Cross over design of the trial**

| | Weeks 1 and 2 | Washout week | Weeks 3 and 4 | Washout week | Weeks 5 and 6 |
|---|---|---|---|---|---|
| School 1 | 83 | 45 | 55 | 35 | 79 |
| School 2 | 79 | 41 | 55 | 40 | 70 |
| School 3 | 102 | 61 | 68 | 61 | 93 |

**Figure 1: Comparison of average energy intakes (n=69)**




Note: The dashed line represents 75% of the Plumpy'nut® energy intake

## Results

The gender balance of study differed by school with females representing 72%, 50% and 44% for schools A, B and C respectively, and was significantly different between schools A and C, ($p=0.04$). The number of adults per child household also varied (3.3, 3.5 and 5.7 adults/household). This difference was significant ($p<0.01$) between schools A and C, and schools B and C. No carry-over effect was detected (all p-values >0.05).

### *Meal acceptance*

All three products were offered during one of the school breaks that lasted ~1 hour. All the children were offered 500 kcal/92 g of Plumpy'nut®, or 500 kcal/100g of SLR-RUTF, or 500 kcal/310 g of BP100 (in the form of porridge[4]). Any extra amounts requested by the children were recorded and monitored.

The criterion is satisfied because 81% of children ate more than 75% of the offered amount of SLR-RUTF. The SLR-RUTF intake (median: 5.0 g/kg/child/day; IQR 3.5-6.1) of these children was higher ($p<0.001$) than the amount consumed by 75% of the control food intake (4.2 g/kg/child; IQR 3.0-5.3). For all children, Plumpy'nut® showed a median intake of 5.6 g/kg/child/day (IQR 4.1-7.0).

It was decided that comparison of BP100 (in the form of porridge) with Plumpy'nut® (in the form of paste) is not valid because of the different forms in which the two products were presented.

[1] Dibari F, et al. (in review). Development and acceptability of milk-free ready to use therapeutic food (RUTF) based on industrial extrusion cooking process.
[2] Source: http://www.who.int/child_adolescent_health/documents/a91065/en/index.html.
[3] A carry-over effect, likely to happen in crossover designs, occurs when the effect of the first product in the first phase carries over to the second phase when providing the second product; and/or when the second product carries over the effect to the third phase when providing the third product.
[4] According to instructions, clean water was added to BP100 tablets in the proportion of 2 dl: 2 tablets (2x28.4 g; 300 kcal). The water was boiled (evaporation: loss ~30%) and mixed to the tablet without further prolonged boiling.

### *Energy intake*

The data suggest that the median energy intake (25.0 kcal/kg/day; IQR 17.8-30.6) from SLR-RUTF was significantly higher (p=0.04) than 75% of the energy intake from the control food (22.4 kcal/kg/child; IQR 16.4-28.2). The energy intake from BP100 (34.5 kcal/kg/child; IQR 26.1-42.5) was higher (p=0.02) than the energy intake from Plumpy'nut® (29.9 kcal/kg/child; IQR 26.1-42.5). Surprisingly BP100 showed a statistically significant (p<0.001) lower weight gain (0.7 g/kg/child[5]; IQR 0.0-2.0) than SLR-RUTF (1.9 g/kg/child; IQR 0.0-2.8), and when compared with Plumpy'nut® (2.1 g/kg/child; IQR 0.8-4.6).

### *Ill-effects*

Any reason for absence/defaulting was carefully investigated. No child withdrew from the trial because of clinical symptoms associated with the ingestion of any of the products. Any sign of illness, fever, vomit, belly pain, flatulence, or itching was recorded daily by supervised direct observation and by carer weekly recall. The statistical analysis of these records demonstrated that there was no relevant difference between the products.

### *Sensorial analysis*

The general pattern was that the caregiver/child preferred Plumpy'nut® to SLR-RUTF in terms of general acceptability (p=0.001), colour (p<0.001), taste (p=0.01), and texture (p=0.03). BP100 was preferred to Plumpy'nut® for colour (p<0.01), and texture (p=0.04). No difference was reported for the level of sweetness (see Table 2).

### *Consumption trends*

The results of the consumption trends seemed to show that intake of SLR-RUTF remained constant, while the intake of Plumpy'nut® increased slightly. BP100 intake increased remarkably over the course of the trial (see Figure 3)

## Discussion

Despite the sample size limitations, there seems to be sufficient evidence to consider the new SLR-RUTF product sufficiently acceptable and safe, even if some of its characteristics are still to be improved. Furthermore SLR-RUTF seems to provide a weight gain close to that attributed to Plumpy'nut® and indicatively superior to that of BP100. However, the metabolic conditions of the healthy study children and their expected weight gain are different from those of acutely malnourished children. Also, the study did not account for the food intake for the rest of each child's day.

In terms of general sensorial analysis, BP100 seems to perform better than SLR-RUTF, when compared with Plumpy'nut®. Sugar levels in SLR-RUTF were found by the children to be satisfactory, but colour/appearance of SLR-RUTF requires further improvement. Since SLR-RUTF will eventually be packaged in opaque multi-layered sachets rather than in the transparent jars used in the study, colour may prove to be less influential in final acceptability tests.

Scores related to taste and texture were also higher for BP100 than SLR-RUTF. The Plumpy'nut® score was particularly high and there could be many reasons for this. For example, the high content of milk powder in Plumpy'nut® (~30%) makes the final product very creamy and extremely appealing. In the case of BP100, the children and the caregiver might have felt more familiar with its appearance and consistency. However no complaints about the 'beany' flavour from soy, one of the main ingredients of SLR-RUTF, were reported.

## Conclusions and follow-up

The findings from this study support future randomised controlled clinical trials in South Asian countries affected by severe acute malnutrition (SAM). These should include a more in-depth multivariate analysis (including possible confounding factors). From this study, it appears that the general acceptability of SLR-RUTF, particularly in terms of taste and texture, could be improved. The impact on taste of introducing the vitamin and mineral premix to SLR-RUTF will require careful assessment before initiating the trials.

For more information, contact: Filippo Dibari, email: filippo@validinternational.org.

[5] Expressed as: (weight at the end of the phase – weight at the beginning of the phase) / (weight at beginning of the phase x no. of days in the same phase).

**Figure 2: Weight gain (g/kg/child), n=69**

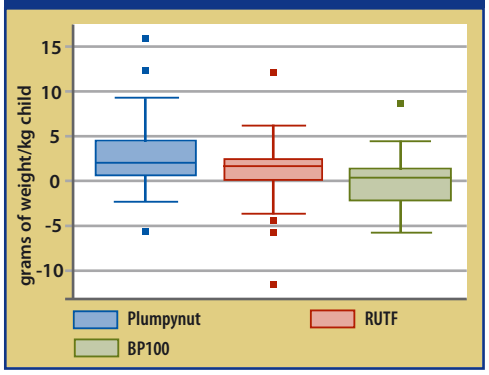
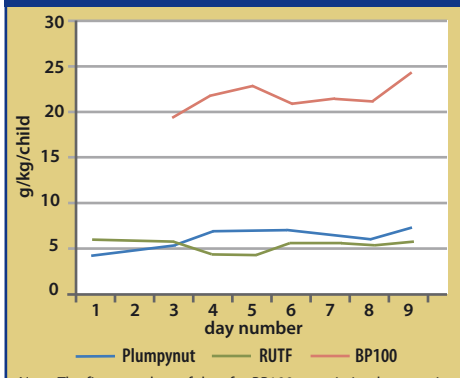



**Figure 3: Consumption trends across the three schools**




Note: The first two days of data for BP100 are missing because it was provided as a biscuit, rather than a porridge.

**Table 2: Summary of Sensorial Analysis results**

| | |
|---|---|
| General acceptability | Plumpy'nut® = BP100 > SLR-RUTF |
| Colour | BP100 > Plumpy'nut® > SLR-RUTF |
| Taste | Plumpy'nut® = BP100 > SLR-RUTF |
| Sweetness | Plumpy'nut® = SLR-RUTF = BP100 |
| Texture | BP100 > Plumpy'nut® > SLR-RUTF |


F Dibari/Valid International, Sri Lanka, 2009



# ALNAP review of humanitarian system

### Summary of published report[1]

A recently published report, commissioned under ALNAPs[2] Humanitarian Performance Project, set out to chart the performance and progress of the humanitarian system. It is based upon a respondent survey of 499 individuals and in-depth interviews with 89 humanitarian professionals. The report also benefited from views and feedback of the ALNAP Steering Committee and ALNAP membership.

The report set out to define key criteria for assessing system performance and progress and assess the system's performance over the past two years against these criteria. It presents new previously unavailable descriptive statistics and highlights some new initiatives in policy and practice.

The research team synthesised the findings of roughly 500 global survey responses, 100 recent evaluations, 89 interviews, staffing and budget information of over 200 aid organisations and a financial analysis of global humanitarian aid flows. The resulting report represents a pilot effort to broadly assess the 'state of the system' with the intent, if it is found useful, to repeat the exercise once every two years. The study was necessarily limited to assessing operational performance of the international humanitarian system, rather than taking the measure of beneficiary-level impacts.

The review focused on emergencies for which an appeal for international assistance was made and in which international aid agencies were involved. To do so, it examined three main categories of humanitarian actor: the major providers (non-governmental organisations (NGOs) and the International Red Cross/Red Crescent Movement), the programme conveners/coordinators (the main role of United Nations (UN) humanitarian agencies and offices), and the official donors. The scope of the mapping exercise was limited to the 'formal international system'. Time and resource constraints did not adequately allow for a comprehensive survey of national, local and community-based organisations or an in-depth examination of the evolving engagement of militaries and the private sector.

The review found that the international system has shown considerable growth in recent years. Global staffing levels have increased at an average annual rate of 6% over the past decade, and have now reached a total population of roughly 210,800 humanitarian workers in the field. In 2008, some $6.6 billion was contributed by donors directly to international emer-

gency response efforts, a nearly three-fold increase since the start of the decade after allowing for inflation.

In terms of performance, findings indicate overall progress in areas having to do with the internal workings of the humanitarian system, such as coordination mechanisms, funding vehicles and assessment tools. At the same time, some fundamental issues, such as leadership and the system's engagement with and accountability to beneficiaries, remained weak.

Key findings against the review assessment criteria were:

### *Funding*

Humanitarian funding has increased and is being distributed more equitably across sectors and emergencies, facilitated in large part by new pooled funding mechanisms. On average, total humanitarian contributions equalled over 85% of total stated requirements in 2007 and 2008, compared with 81% in 2006 and only 67% in 2005. However, the needs of affected populations have gone up as well and are still not matched by resources. The result is a nearly universal perception of insufficiency, despite quantitative evidence of progress. In a few contexts, humanitarian access is seen to be declining, owing to insecurity and/or host government restrictions. In the most contested environments, insecurity for aid workers has increased markedly.

### *Assessment*

The quality of needs assessments was seen to have improved. A majority of respondents indicated that interagency needs assessments were taking place in their contexts and were adequate. Despite improvements, however, humanitarian actors felt that needs assessment remained a weakness in the system. Evaluations and beneficiary consultations continue to note problems of multiple assessments without sufficient follow-up. Beneficiaries continue to be inadequately consulted and involved in assessments and subsequent programme design. Prioritisation has improved with the advent of new tools and methodologies based on assessment frameworks. An impressive amount of innovation has occurred in the past two years, in both inter-agency needs assessment methodologies and mechanisms for strategic prioritisation of allocations based on the assessments. (In fact, the glut of new initiatives has raised concerns of too many parallel processes potentially having a counterproductive effect, and the possible need for some consolidation). Relevance/appropriateness was also seen to benefit from the array of new types of programming now under consideration, including cash transfers and new interventions to support livelihoods and promote market development.

### *Timeliness of response*

Improvements were identified in the timeliness of response. Significant agency investments in standby capacity and new mechanisms, notably the UN Central Emergency Response Fund (CERF), and in at least one case the Cluster Approach, had enabled rapid action. Current efforts to increase humanitarian engagement and investment in disaster risk reduction (DRR) should reap future benefits in terms of improved preparedness and more timely, efficient and locally grounded responses. The need to focus on DRR has been highlighted by studies looking at the humanitarian implications of climate change.

### *Coordination*

Overall, coordination was seen to improve with the introduction of the Cluster Approach. Although it remains a subject of debate, positive views about the value of clusters outnumbered negative ones. Beyond these improvements in sectoral coordination, however, overarching leadership for coordination was a noted weakness. In particular, the strengthening of the Humanitarian Coordinator (HC) system is seen as vital but still a work in progress, with too many HCs lacking sufficient knowledge of the humanitarian system to coordinate and advocate effectively. Other coordination trends highlighted included a growing role for regional bodies such as the Association of Southeast Asian Nations (ASEAN) and increased investments in consortia approaches, promoting greater collaboration between NGOs.

### *Monitoring*

Monitoring continues to be consistently identified as a particular weakness within the system in many evaluations, although survey respondents did feel that the quality of monitoring was improving. Beneficiary consultations have stressed a desire for greater follow-up and monitoring from donors and implementing agencies. Stronger monitoring of pooled funding arrangements is also seen as a critical issue. Many agencies have made real efforts to increase investment in operational capacity and quality of human resources. The survey and interviews did note improvements in the professionalism of humanitarian staff. However, evaluations continue to identify problems with high staff turnover and a need to invest more in human resource management systems. There continues to be widespread acknowledgement of the need to invest more in national staff development. There are also growing capacities on the part of national governments to meet the needs of their own citizens in times of disaster in many contexts, which should be considered in advance of launching response efforts.

### *Local and national capacity*

The paucity of investment in local and national capacities was a repeated concern, as were the top-down orientation of the system and the risk of undermining local capacities. However, there are also signs of improvement in how international agencies work with local humanitarian actors. A solid majority of survey respondents indicated that efforts at capacity building had increased in the past two to three years. There is also clear momentum around the need for greater downward accountability and participation. Investments in feedback and complaint mechanisms and greater transparency are becoming more commonplace, which benefits programmes.

### *Efficiency*

Efficiency issues, including the risks of corruption, continue to be relatively unaddressed in the literature and evaluations of humanitarian action, although Transparency International is developing an anti-corruption toolkit. There has been widespread concern about agency overhead and programme support costs, particularly in relation to new financial mechanisms. People also noted, however, that the constant drive to minimise administrative costs was leading to chronic underinvestment in key capacities that could serve to improve performance. Efficiency therefore seems to be neglected in terms of analysis, and has arguably too great a focus on driving down administrative costs. In terms of the transaction costs of coordination (staff time and resources required to participate in new mechanisms and common processes), a consensus of reviews and survey respondents was that the benefits of coordination exceeded the costs of these new administrative burdens.

### *Humanitarian law and principles*

The sum of interviewee comments, survey respondents and recent research findings does seem to suggest a growing concern about the lack of respect for International Humanitarian Law (IHL) and core humanitarian principles in many recent conflicts. Humanitarian aid agencies identify a lack of respect for principles on the part of warring parties, but also on the part of donor governments and their militaries. This is a result of comprehensive and 'whole of government' approaches (integrating humanitarian action with broader foreign policy goals) on the part of Western governments. Aid agencies also noted, however, that collectively they themselves were not doing enough to maintain principled approaches or to advocate effectively for respect for humanitarian principles and IHL vis-à vis governments.

Integrated missions continue to cause concern for some agencies, regarding the challenge they pose to humanitarian independence. However, there is a more nuanced perspective on their role and impact as compared with previous years. In some contexts, integration is seen to present real opportunities. Overall, the role of UN integrated missions and UN peacekeeping forces was considered to be significantly less threatening than the growing involvement of Western militaries in providing aid in conflicts in which they are involved.

Recent years have seen an increased focus on the issue of protection within the humanitarian system. Guidelines and policies have been developed, and unprecedented numbers of humanitarian organisations now undertake protection activities. However, confusion over what protection is and which actors have responsibility for it continues to be an issue. There has been criticism of the quality of protection work, including the deployment of inexperienced staff, breaches of confidentiality of affected populations and inconsistent knowledge and application of relevant laws.

### *Cross-cutting issues*

Regarding the crosscutting issues of illness, age, gender and disability, there is an evident tendency within the humanitarian system towards sudden bursts of attention to particular issues, such as that given to HIV/AIDS in the early 2000s or to gender mainstreaming in the 1990s, followed by a relative lull. Several interviewees noted that it was a challenge to maintain sufficient attention within organisations on these issues that need to be mainstreamed.

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[1] Harvey. P et al (2010). The state of the humanitarian system. Assessing performance and progress – a pilot study. ALNAP

[2] Active Learning Network for Accountability and Performance. www.alnap.org

# Impact of conditional cash transfers in Mexico

**Summary of published research[1]**

Conditional cash transfer programmes are increasingly popular, but the impact on household nutrient consumption has not been studied. A team has recently evaluated the impact of the Programa de Apoyo Alimentario (PAL), a cash and in-kind transfer programme, on the energy and nutrient consumption of poor rural households in Mexico. The first objective of the study was to investigate whether the PAL transfer lead to the consumption of healthier household diets.

Beneficiary households received either a food basket (including micronutrient-fortified milk) or cash. A random sample of 206 rural communities in Southern Mexico was randomly assigned to one of four groups - a monthly food basket with or without health and nutrition education, a cash transfer with a cost to the government equivalent to the food basket (14 USD/month) with education, or control. The food basket contained a number of staple and basic food products and powdered whole milk (Liconsa) that was fortified with zinc, iron, vitamin C and folate. This composition conformed to the Mexican norm for food aid programmes. It contributed 450 kcals per adult in an average sized household. The impact after 14 months of exposure was estimated in a panel of 5,823 households using a double difference regression model with household fixed effects.

PAL was associated with increases ($p<0.01$) in the consumption of total energy (5-9%), energy from fruits and vegetables (24-28%), and energy from animal source foods (24-39%). It also increased iron, zinc and vitamins A and C consumption ($p< 0.05$). The consumption of energy and all nutrients was greater in the food basket group ($p<0.05$). The food basket had a significantly greater impact on energy and nutrient consumption than the cash transfer. One possible reason is that the local value of the food basket was an estimated 30% higher than the cost to the programme and thus to the value of the cash transfer. The proportionally greater impact on energy consumption from animal source foods and fruits and vegetables is consistent with other conditional transfer programmes in Mexico.

A key question is why households increased energy consumption when the diet at baseline was not energy deficient. This is an alarming finding given that 60% of adult women were overweight or obese in the baseline survey and the national prevalence of overweight and obesity is 72% for women and 67% for men. These results suggest a revision of food aid is needed in Mexico. This should be based on micronutrient rather than macronutrient requirements. The appropriateness of 'Liconsa' milk should also be evaluated as this seems to contribute to most of the difference between the groups in the study. Fortified whole milk may not therefore be the best vehicle to improve micronutrient intake in this population. The use of low fat milk or of micronutrient powders that do not contain energy should be considered as alternatives in this programme. However, the author's caution that the decision about use of 'Liconsa' also needs to take into account the nutritional benefits of the high quality protein and potentially positive effect on child linear growth.

The findings suggest that cash and in-kind transfers in populations that are not energy deficient should be carefully redesigned to ensure that pulling poor families out of poverty leads to improved micronutrient intake but not to increased energy consumption. While these programmes may have a positive impact on household diet, the effect may not be unequivocally healthy.

[1] Leroy. J et al (2010). Cash and in-kind transfers in poor rural communities in Mexico increase household fruit, vegetable and micronutrient consumption but also lead to excess energy consumption. Community and International Nutrition. First published online January 20, 2010,: doi:10.3945/jn. 109.116285

# Child stunting in Brazil

**Summary of published research[1]**

A study to assess trends in the prevalence and social distribution of child stunting in Brazil and to evaluate the effect of relatively recent income and basic service redistribution policies has just been completed.

The Brazilian government has prioritised the elimination of hunger and poverty since 2003. Recent reports suggest that redistributive policies have successfully redressed one of the most skewed income distributions in the world. The prevalence of stunting (height-for-age z score below -2[2]) among children aged less than 5 years was estimated from data collected during national household surveys in 1974-5 (n=34,409), 1989 (n= 7,374), 1996 (n=4149) and 2006-07 (n=4,414). Absolute and relative socio-economic inequality in stunting was measured by means of the slope index and the concentration index of inequality, respectively.

The study found that over a 33 year period, there was a steady decline in the national prevalence of stunting from 37.1% to 7.1%. Prevalence dropped from 59% to 11.2% in the poorest quintile and from 12.1% to 3.3% among the wealthiest quintile. The decline was particularly steep in the last 10 years of the period (1996 to 2007). During this time the gaps between poor and wealthy families with children under 5 were also reduced in terms of purchasing power, access to education, health care and water and sanitation services and reproductive health indicators. The analysis shows that two-thirds of the decline could be attributed to improvements in four factors, maternal schooling, family purchasing power, maternal and child health care and coverage of water supply and sanitation services.

Estimates from national annual socio-economic surveys indicate that family income remained relatively stable from 1996-2002. Beginning in 2003, however, an increase in average income, combined with better income distribution, led to strong declines in the proportion of people living below the poverty line. There appear to be three main explanations for these trends. First, the reactivation of economic growth and the consequent reduction in unemployment rates. Secondly, systematic annual increases in the official minimum wage received by unskilled workers and thirdly, a major expansion of cash transfer programmes for poor families. One fifth of the recent improvement in income distribution in Brazil has been attributed to cash transfer programmes. There has also been progress in primary school enrolment and completion in the 1990s. A minimum proportion of the country's budget was earmarked for public primary education and for reducing disparities between poor and rich municipalities.

In 1994, the Family Health Strategy was set up for the specific purpose of promoting equity in access to primary health care. The strategy has succeeded not only in targeting the poorest rural municipalities and peri-urban slums but also in contributing to reduced child mortality. By 2006, over 26,000 Family Health teams were present in over 90% of municipalities and covered 86 million individuals, mostly from low-income families. In addition, expansion of sanitation services in the last decade have benefited the poor more than the more affluent, while severe food insecurity at the family level was reduced by 27% between 2004 and 2006-7.

Other determinants of reduced stunting appear to be improvements in maternal education that have led to reduced parity (i.e. fewer children ranking 5th or higher in birth order), a widening of birth intervals and nearly universal access to modern contraceptives with greatest improvements seen amongst the poor. In addition, preliminary assessment of recent breastfeeding trends in Brazil indicates that median duration increased from seven to 14 months between 1996 and 2006-7. Exclusive breastfeeding, however, remained very brief, duration having increased from 1.1 to 1.4 months only, in the same period.

Given these trends, it is not surprising that child morbidity and mortality have declined in Brazil. Diarrhoea was responsible for 17.3% of all registered infant deaths in 1985-07, but by 2003-05 accounted for only 4.2% of all deaths. Brazil is now among the few low and middle income countries that are on track to reach the Millenium Development Goal (MDG) of reducing mortality in children under 5 years of age.

The authors conclude that in Brazil, socioeconomic development coupled with equity-oriented public policies have been accompanied by marked improvements in living conditions and a substantial decline in child under-nutrition. They have also seen a reduction of the gap in nutritional status between children in the highest and lowest socio-economic quintiles. Future studies will show whether these gains will be maintained under the current global economic crisis. However, these policies should be at the top of the agenda of governments truly committed to reducing under-nutrition and improving the quality of life of future generations.

[1] Monteiro. C et al (2010). Narrowing socioeconomic inequality in child stunting: the Brazilian experience, 1974-2007. Bulletin of the World Health Organisation, vol 88, pp 305-311

[2] WHO 2006 Growth Standards

# ACF review of humanitarian reform

## Summary of review

Action contre la Faim (ACF) has published a review of recent humanitarian reforms that include the Cluster Approach, new humanitarian financing mechanisms and the introduction of a Humanitarian Coordinator (HC) and Principles of Partnerships[2]. While ACF believes that Humanitarian Reform is a positive step, the review has concerns regarding roll out of the reform and believes that there are major issues that urgently need to be addressed before proceeding further.

The reforms were launched in 2005, since which time ACF's engagement with the reforms has been on an ad hoc and largely case by case basis. The review is based on the past three years of experience and on a series of internal consultations that took place during 2009. At the beginning of 2009, questionnaire-based feedback was received from eleven Heads of Mission across the ACF International Network, two of ACF's representatives in the Global Water, Sanitation and Hygiene (WASH) and Logistics Rapid Response Team, and the Head of the Emergency Pool in ACF-France. Two working groups were formed at the headquarters of ACF-France. The first working group was comprised of personnel from key departments (mainly operations, techniques, logistics and finances). The second working group was comprised of members of the ACF-France board. These groups discussed and analysed information regarding ACF's experiences around the operational, technical and financial components of the reform.

The review states that ACF's policy is to actively participate in the Humanitarian Reform framework, at both global and country level. However the organisation would like to reserve the right to limit participation in cases where and/or when:

- The implementation of the Humanitarian Reform may enter into conflict with ACF principles and/or the ACF Charter.
- The Principles of Partnership are not strictly observed.
- The added value to the humanitarian operations in the areas ACF is working is not demonstrated.

ACF considers that each situation will require specific analysis that will, in turn, decide their level of engagement and participation. ACF remain concerned regarding certain key issues, such as the risk of politicisation of aid previously experienced in places like Ethiopia, Afghanistan or Zimbabwe, and the extension of United Nations (UN) integrated missions. The reform may serve to potentially align political, military and humanitarian objectives within specific contexts, and could possibly merge these aspects under a single country leadership. ACF feels it would be prudent not to commit to such a systematic and equal participation at country level.

[1] ACF Network Discussion Paper. ACF and Humanitarian Reform.

[2] The Global Humanitarian Partnership (GHP) has established the following Principles of Partnership to set out a common understanding of and approach to partnerships: Equality, Transparency, Result-oriented approach, Responsibility, Complementarity. These provide a template to gauge coordination between agencies.

| **The principles recommendations described in the ACF Review are:** | |
|---|---|
| ***Accountability and partnership*** | |
| Develop an effective partnership through the unconditional respect for Principles of Partnership | There is an improvement in inclusiveness for all humanitarian actors in the coordination process. However, the strict respect of the Principles of Partnership in the rollout of the Reform remains a challenge, especially when it comes to the principles of equality, transparency and results oriented approaches. |
| Ensure the implementation of the recommendations from independent evaluations | The tangible benefits of the partners' actions towards beneficiary populations are increasingly assessed through independent evaluations of the Reform. However, gaps in the implementation of their recommendations are often perceived. |
| Improve accountability towards beneficiaries | Concrete measures should be taken by the humanitarian actors to improve and show accountability to beneficiaries within the framework of the Humanitarian Reform. There needs to be an improved dialogue and coordination on assessed needs, planned responses, results achieved and gaps so that the system better serves populations affected by disasters. |
| ***Coordination*** | |
| Improve coordination of humanitarian action by standardising the country Cluster role and processes | The Cluster implementation presents a very mixed picture, a high dependence on personalities and a lack of consistency. There are a number of good practices emerging in the roll out of the Cluster approach which could enhance its impact and efficiency. |
| Further contribution by humanitarian funding to cover NGO resources allocated to coordination | Increasing coordination implies more cost for the participants in the Reform process. The extra time and costs of non-governmental organisations (NGOs) are not usually covered by extra resources dedicated to coordination functions. When NGOs are requested to play an active coordination role, the costs of this should be acknowledged and covered for NGOs equally, as they are for UN-lead agencies, through humanitarian financing. |
| Strengthen inter-Cluster coordination | There is a danger of the Cluster approach reinforcing the barrier between sectors. The global coordination is a critical area where the office for the Coordination of Humanitarian Affairs (OCHA) can establish its added value in providing solid support and link between the different sectors. Facilitating inter-Cluster assessments to emergency situations and cross-Cluster strategic planning should be prioritised by all actors involved. |
| ***Humanitarian financing*** | |
| Ensure direct funding to guarantee timely transfer of funds in rapid-onset emergencies | Recent examples of the use of pooled funding mechanisms in rapid-onset emergencies have resulted in delays in getting funds to implementing agencies. Direct funding in specific contexts should be a priority to ensure an efficient and timely humanitarian response. |
| Design accountability lines and funding schemes for Cluster lead-agencies | High levels of transparency and timeliness in the allocation of humanitarian funds are crucial. Accountability lines and funding schemes must be designed in order to increase the transparency and to draw a line between the lead-agencies responsibilities of coordination, funding and programming. The management of the funds should be under the responsibility of the coordination team and not under the chief of the agency implemented programmes. |
| Increase the predictability and efficiency of humanitarian funding through standardised Pool Fund/Common Humanitarian Fund (PF/CHF) allocation procedures across countries | Clear guidelines and criteria for the prioritisation of funds should be established together with strategic and technical advisory boards to support the HC in its decision process for PF/CHF allocation. NGOs should be represented in those boards and independent audits should be conducted. |
| Set a clear and adequate overhead costs policy when funding is passed through to NGOs and reduce transaction costs. | Inadequate management of funds can directly decrease the efficiency of the process and cause financial losses, mainly through the multiplication of administrative layers and duplication of the overhead costs. |
| ***Leadership*** | |
| Improve humanitarian leadership by standardising the HC role and functions | The roles of HC and Resident Coordinator (RC) should be clearly separated, and no longer be combined, especially in tense political contexts. In addition, efforts should be made to regulate, standardise and reinforce the role of the HC, according to the different contexts. |

# Validation of the Household Food Insecurity Access Scale in rural Tanzania

**Summary of published research[1]**

In developing tools to measure household food insecurity, researchers have most often either adapted a version of the Cornell/Radimer measuring tool or a tool based on research on how households experience food insecurity. Food insecurity measurements have sometimes relied in part on an index of coping strategies. It has been recommended that strategies to supplement household income and resources be excluded from measurement tools. This is because they represent a different aspect of food insecurity and do not always fit statistically with other questions in the scale in measuring the same concept. Some strategies are not always accessible to all households. They also vary widely across cultures and countries, making it difficult to identify a universally relevant set of resource supplementation questions.

The US Agency for International Development (USAID) and the Food and Nutrition Technical Assistance (FANTA-2) developed the Household Food Insecurity Access Scale (HFIAS) for use cross culturally as a way of measuring household food insecurity. The scale is based on a household's experience of problems regarding access to food. A recent study set out to test the construct validity, internal consistency and convergent validity of the HFIAS in measuring household food insecurity in rural Tanzania.

Six villages in the Iringa Region in Central Tanzania were assessed using HFIAS to determine socio-economic characteristics associated with household food insecurity. Key informant interviews with 21 purposively selected male and female village leaders were conducted. Cross-sectional surveys, involving 257 households with mothers (caregivers) and at least one child between one and five years of age, were carried out in February and March 2008.

The study found that approximately 20.7% of the households were categorised as food secure, 8.4% as mildly food-insecure, 22.8% as moderately food-insecure and 48.1% as severely food-insecure. Two main factors emerged from the rotated principal component factor analysis: insufficient food quality and insufficient food intake. Both factors explained 69% of the total variance. The full food insecurity scale and the two sub-scales had good internal consistency. Food security, as measured by HFIAS, was positively associated with maternal education, husband's education, household wealth status, being of an agricultural rather than pastoral tribe and animal-source food consumption. Food security was negatively associated with maternal age and household size. These findings are similar to correlations found in other studies in Tanzania.

Strengths of the study were the use of a random sample, a food insecurity instrument designed to be used in a cross-cultural setting, and key informants to guide instrument development and wealth status categorisation. Additional strengths are the systematic assessment of multiple measures of the scale's validity and the variety of socio-economic characteristics assessed for correlations with food insecurity. However, there was no true gold standard to judge criterion validity. Instead the study examined convergent validity, by correlating food insecurity and household wealth.

The authors concluded that the HFIAS measurement instrument shows validity and reliability in measuring household food insecurity among poor households in rural Tanzania. It is argued that the HFIAS addresses the shortcomings of the Radimer/Cornell food insecurity measure by more clearly capturing problems of both food quality and quantity in the local context. It also avoids the drawbacks of relying heavily on coping strategies that supplement a household's resource base, in assessing food insecurity. Importantly, this simple instrument can be used by non-specialists and is relatively easy to analyse and interpret. This minimises the time and cost for organisations to identify and target groups that might benefit from programmes to reduce food insecurity.

[1] Knueppel. D, Demment. M and Kaiser. L (2009). Validation of the Household Food Insecurity Access Scale in rural Tanzania (2009). Public Health Nutrition 13 (3), pp 360-367

# Simulation model to estimate micronutrient levels in fortified blended foods

**Summary of published research[1]**

WFP/Azeb Asrat, Sri Lanka, 2009

**A child with his ration of Corn Soya Blend, a common fortified food**

Current micronutrient levels in Public Law 480[2] fortified blended foods (FBF) may not be appropriate for all food aid beneficiaries, particularly infants and/or young children and pregnant and/or lactating women. FBFs were specifically developed for pre-school aged children and designed on the premise that beneficiaries' diets were sufficient in energy but inadequate in protein, vitamins and essential minerals. Thus, the FBF was developed to supply one-third of the energy but two-thirds of the 1968 U.S Recommended Dietary Allowances (RDA) for protein, vitamins and minerals for a 1-2 year old child. Similarly, the FBF provides one-sixth of the energy but one-half of the nutrient RDAs for a 6-8 year old child. Vitamin B12 was added at 100% of the RDA because of a perceived lack of animal products in the diet of the target group.

Currently, these products are consumed by individuals of all age groups, including infants and pre-school aged children, pregnant and lactating women, and people with HIV/AIDS. SUSTAIN[3] implemented a Food Aid Quality Enhancement Project in 2004 to address unresolved issues on food aid quality identified in prior projects and to assess how food aid can better serve today's vulnerable recipients. A simulation model was developed as part of this project to determine the micronutrient fortification levels to include in FBF for food aid programmes. The aim was to reduce the risk of inadequate micronutrient intakes without exceeding the tolerable upper intake level (UL) for any recipient group.

For each micronutrient, the age and gender group with the highest daily Recommended Nutrient Intake (RNI) relative to energy requirement was identified and the effect of providing different percentages of the RNI (66%, 75% and 100%) was simulated. The researchers also examined consumption of the FBF at 25% (the usual level), 50% and 100% of daily energy requirements.

Results indicated that two FBF products are needed: a complementary food for age 6-36 months and a supplementary food for older groups. Both of the FBFs could be fortified to supply at least 75% of the RNI to all groups, without exceeding the UL for most nutrients, if consumed at 25% of the energy requirement. Even if consumed at 50% of energy requirements, mean intakes of most micronutrients would not exceed the UL At 100% of the energy requirements. However, several micronutrients were undesirably high.

The authors concluded that fortifying a FBF to provide 75% of the RNI would be appropriate for most micronutrients. This level of fortification would not be appropriate for long-term consumption of the FBF at 100% of energy requirements.

[1] Fleige. L, Sayhoun. N and Murphy. S (2010). A new simulation model estimates micronutrient levels to include in fortified blended foods used in food aid programmes. Journal of Nutrition. Published online December 9th 2009; doi:10.3945/jn.109.106146

[2] Public Law 480 or P.L. 480 (also known as the Food for Peace Act (FPA)) has three titles. Each title has a specific objective and provides assistance to countries at a particular level of economic development. Title I is administered by US Department of Agriculture, and Titles II and III are administered by USAID.

[3] http://www.sustaintech.org

# Quantitative and qualitative analysis of CTC programme coverage

Saul Guerrero/Valid International, Sudan, 2008

**Summary of published research[1]**


A study has recently been published on determinants of community-based therapeutic care (CTC) coverage based on collaborative work between Valid International and Concern Worldwide as part of the CTC Research and Development Project. It draws lessons from 12 different CTC programmes across Africa, implemented 2003 to 2006.

The study set out to assess the most common barriers to access and their relative impact on programme coverage, using a retrospective analysis of quantitative and qualitative data. Quantitative data were collected from questionnaires implemented as part of centric systematic area sample (CSAS) coverage surveys. These were completed by all caregivers of malnourished children found within the target area who were not enrolled in the relevant components of the local CTC programme. A total of 1,696 caregivers were surveyed. The reasons for non-attendance were analysed to establish their frequency and their modality. Qualitative data from socio-cultural assessments conducted in the first four to eight weeks of programme implementation in the 12 programmes and prior to CSAS surveys were also analysed. These surveys were carried out to identify local perceptions of malnutrition, barriers to access to programmes and health seeking behaviour. Data were collected using semi-structured interviews, and focus group discussions with key informants and groups in the targeted communities. The results of the CSAS survey questionnaires and the socio-cultural assessments were compared to pinpoint concordance and discordance in their identification of barriers within the same programme.

On average, previous rejection accounted for 38.5% of cases of non-attendance. While these were the result of direct prior experience of the programme, rejection was found also to have indirect consequences for attendance. Rejection of a 'known child' (in the family or community for example) was found to contribute to non-attendance in four of the 12 programmes surveyed. Its significance was less than direct rejection, but on average, 'rejection of known child' was found to be responsible for 4.8% of cases of non-attendance. The use of different anthropometric standards for screening and admission was a major cause of the problem. Children who were rejected at programme sites following referral from the community often did not return for subsequent screening or admission – even when their condition had deteriorated or they had been referred again. The authors argue that the standardisation of referral and admission criteria through the use of single method that ensures that all of those referred are admitted to the programme, is an essential step towards reducing the negative feedback associated with rejected referrals. They also advocate that mid-upper arm circumference (MUAC) criterion could be used for both assessment referral and admission.

The study also found that on average, lack of awareness of the existence of the CTC programme was responsible for 6.7% of non-enrolled cases. Misinformation and confusion also play a part. In areas with a high concentration of non-governmental organisations (NGOs) and humanitarian programmes, confusion about the different operating programmes can influence programme coverage negatively. High programme uptake depends on the degree of awareness of malnutrition as a condition that can be treated successfully, and the availability of treatment at low cost to the beneficiary household. The study found that, on average, 18.8% of malnourished children not in the programme had not been identified as malnourished by their primary caregivers. CTC programmes have traditionally addressed this 'recognition gap' through community sensitisation. Adequate resources must therefore be devoted to community sensitisation.

Distance to sites was found to be the primary barrier to access for 10.8% of severely malnourished cases not enrolled in CTC programmes. The site selection process should make use of socio-cultural assessments for the identification of local variables that define accessibility in its broadest sense. Such variables can include the appropriateness of the existing health infrastructure, the hidden costs of travelling, security and perceptions of acceptable distance.

Integrated CTC interventions often aim to support existing primary health care systems but these may not always be accessible to all groups in the community. For the nomadic populations of the Somali region of Ethiopia, for instance, fixed health structures were found to be unsuitable even in times of food insecurity. Socio-cultural assessments helped to pinpoint locations without any physical infrastructure but with a strong socio-economic significance. Security also plays a role in local perceptions of distance, as a factor that can facilitate or hinder access to the programme. During a socio-cultural assessment in the south Wollo CTC programme, for instance, caregivers and community leaders highlighted the issue of security when travelling to and from the sites. Further dialogue with these groups allowed the CTC programme to ascertain local solutions to the problem, such as travelling in groups or whenever possible, being in the company of husbands or other men from home communities.

Identification of the 'hidden costs' of travelling is another important element of ensuring the optimal selection of sites. Transport costs, for example, are notable variables that influence people's perception of distance. There is no universal definition of acceptable distance, and perceptions of acceptable distance vary from community to community. In south Wollo, caregivers often travelled for upwards of 12 hours on return trips to the distribution sites. By comparison, caregivers in the CTC programmes in Aceh Province in Indonesia considered much shorter treks of around 30 minutes to be too demanding.

The results of this study show how previous rejection, distances to sites and awareness of the programme are commonly associated with failure to achieve high coverage. These three issues combined were responsible for almost 75% of cases of non-attendance. The authors suggest that all CTC programmes must address these issues proactively and rigorously. The study also demonstrates that socio-cultural assessments and CSAS survey questionnaires are useful, complementary tools for distinguishing barriers to access. Each method offers insights for CTC programme implementers. Socio-cultural assessments are capable of spotting early potential barriers and should be conducted in the early phase of programme implementation. The strength of CSAS survey questionnaires, meanwhile, lies in their ability to identify barriers that have developed since the start of the programme. These surveys therefore need to occur later in the programme cycle but with enough time to transform the results into concrete steps to overcome any identified barriers to access.

[1] Guerrero. S, Myatt. M and Collins. S (2010). Determinants of coverage in Community based Therapeutic Care programmes: Towards a joint quantitative and qualitative analysis. Disasters, vol 34 (2), pp 571-585

# The MAMI Project – Key findings and recommendations

**Summary of report[1]**


Child malnutrition is a major global public health issue. The burden of acute malnutrition in children 6 months to 5 years is well recognised, and the evidence base to guide treatment is strong. However the management of acute malnutrition in infants <6m is much weaker. Challenges in managing acute malnutrition in infants <6m have been reported over the past eight years, often in the pages of Field Exchange. Non-governmental organisations (NGOs) have undertaken different interventions to address acute malnutrition in infants < 6m, sometimes guided by field research. However, until now, this accumulated and often informal body of experience has remained largely disparate and 'hidden'.

The ENNs perspective on the challenges of led to the Management of Acute Malnutrition in Infants (MAMI) Project. The aim was to investigate the management of acutely malnourished infants <6m in emergency programmes. The objectives were to:

- Establish the burden of acute malnutrition is in this age-group
- Identify what guidelines, policies and strategies currently stipulate with regard to case management
- Determine practice in the field and make recommendations for future practice and research.

The MAMI Project was implemented from March 2008 to July 2009 in a partnership between the Emergency Nutrition Network (ENN), University College London Centre for International Child Health and Development (CIHD) and Action Contre la Faim (ACF). The project was funded by the UNICEF-led IASC Nutrition Cluster. A research advisory group (RAG) and an inter-agency steering group (IASG) informed research questions and the process. A draft framework for MAMI, modelled on the UNICEF conceptual framework on the causes of malnutrition, informed early planning and was further developed during the course of the project.


ACF, DRC, 2008

**A recovered infant enrolled in an ACF therapeutic feeding programme in DRC**

## Key findings

### *Infant <6m burden of disease*

Secondary analysis of 21 Demographic Health Survey (DHS) national datasets was carried out. This found that wasting in infants <6m is a prevalent public health problem. Infant <6m wasting prevalence ranged from 1.1% to 15.0% with National Centre for Health Statistics (NCHS) growth references and 2.0% to 34.1% using WHO Growth Standards (WHO-GS). Severe wasting increased over three fold and moderate wasting 1.4 fold when transitioning from NCHS to WHO-GS. Use of WHO-GS will result in particularly large increases in infants <6m eligible for admission to selective feeding programmes. As many selective feeding programmes use weight-for-height % of median (WHM) indicators, the implications of moving from WHM using NCHS to WHZ based on WHO-GS needs additional urgent investigation.

Further implications of these findings are that nutrition surveys should more routinely include infants<6m to establish the local burden of disease in this demographic group.

### *Guidelines review*

A review of 14 international and 23 national guidelines for management of acute malnutrition found wide variation in the way acute malnutrition in infants <6m is addressed. Some only implicitly recognise the problem. Both inpatient and community-based guidelines recommend inpatient care for severe acute malnutrition (SAM) in infants <6m. These focus on nutritional treatments with the aim of restoring exclusive breastfeeding (using the supplementary suckling technique). Very few guidelines give details of moderate acute malnutrition (MAM) management in infants <6m or infant and young child feeding/breastfeeding support. MSF guidelines (2006), ACF Assessment and Treatment of Malnutrition guidelines (2002) and IFE Module 2 were found to be important exceptions.

### *Field data*

Data on infants <6m from selective feeding programmes was analysed to investigate the proportion of admissions that are infants <6m, and describe their anthropometric status, clinical profiles, and outcomes. Thirty-three 'raw' databases with individual-level data from 12 countries were the main focus of analysis. In addition, summary databases from 22 programmes in 7 countries were used to assess the difference in mortality as an outcome between infants <6m and children. A total of 25,195 children (4,002 infants < 6m) were included in the main analysis. Infants <6m accounted for 16% of admissions, ranging from 1.2% in Uganda to 23.1% in Tajikistan. The majority of infants <6m did not fulfil standard anthropometric SAM criteria for admission. In line with expectations, % mortality in infants <6m was significantly higher than children aged 6 to 59 months (4.7% vs. 4% respectively, p<0.01). Lack of survey data on infants <6m meant it was not possible to compare inpatient mortality figures with those of infants <6m in the general population. Few countries met all Sphere exit indicators for therapeutic care (Correction of Malnutrition Standard 2)[2]; current Sphere Standards have their limitations with regard to this age-group.

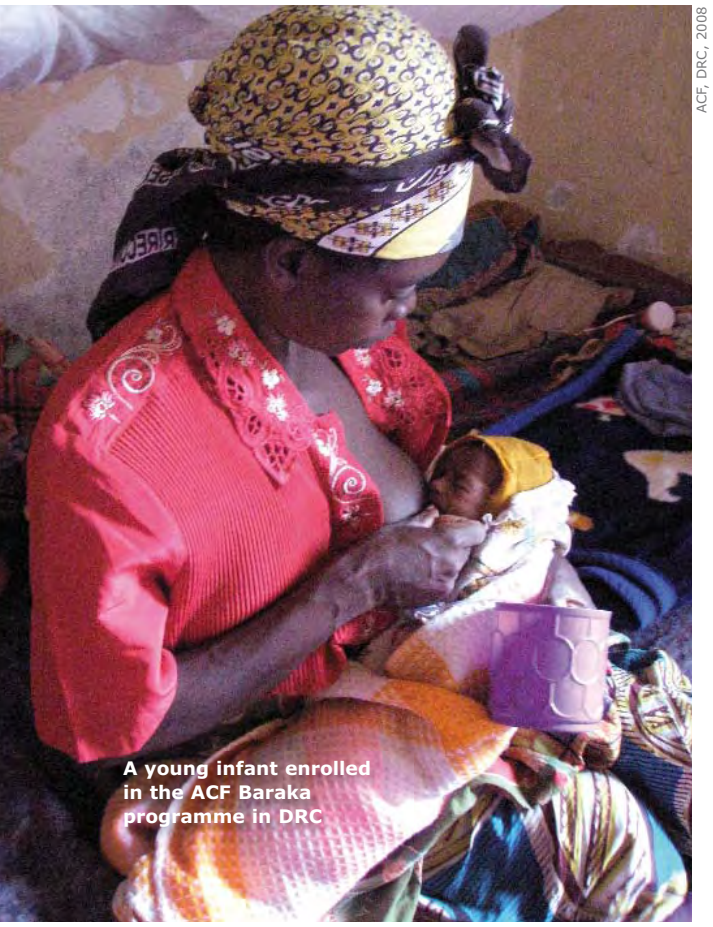
The analysis also showed that significant work is needed to harmonize and improve the quality of field databases. Standardisation in reporting is needed, including database structure, case definitions, outcome coding and variable formatting, to facilitate future research and routine audit.

### *Field experiences*

Key informant interviews found that many therapeutic feeding programmes struggle in treating malnourished infants <6m. There is much inter-programme variation in the profile of admission, with a combination of clinical judgement and/or anthropometric indicators often used. Nutritional and psychosocial care of the mother was often lacking. Experiences with the supplementary suckling technique were sometimes good but varied; staff time and experience were important limiting factors. Interviewees identified 'ways forward' that centred on admission criteria, guidance devel-

[1] Management of Acute Malnutrition in Infants (MAMI) Project. Technical Review: Current evidence, policies, practices & programme outcomes. ENN, UCL CIHD, ACF. Jan 2010.

[2] Sphere Handbook, 2004.


ACF, DRC, 2008

A young infant enrolled in the ACF Baraka programme in DRC

opment, linking with other services, building staff capacity and 'on the job' training and support.

### *Breastfeeding assessment tools*

Fifteen breastfeeding assessment tools were reviewed to explore their potential application to MAMI in both inpatient and community-based settings. No one tool was identified as sufficiently sensitive for community use and specific for use in inpatient settings. Quality research studies to test the validity of existing breastfeeding assessment tools in different settings are needed. In the interim, UNICEF b-r-e-a-s-t, the UNICEF 2006 breastfeeding observation aid and the aids described in IFE Module 2 can be used to assess breastfeeding in programmes managing infants <6m. Severe maternal wasting and maternal and infant HIV status are just two of the important wider considerations when assessing breastfeeding effectiveness.

### *Psychosocial considerations*

WHO 1999 guidelines on treatment of SAM include guidance on psychosocial support and stimulation for children under five years and their mothers. The MAMI Project identified little guidance on specific stimulation activities for infants <6m, a lack of knowledge concerning the impact of severe malnutrition in infants <6m on psychosocial development, and little evidence of the long term effects of psychosocial support on this age group. Psychosocial stimulation is not currently integrated into community-based management of acute malnutrition (CMAM) recommendations and not routinely integrated into emergency programmes in general. Building upon a recent review of maternal depression and child growth, our review indicates evidence of the adverse consequences of maternal depression on breastfeeding, child development and the ability to seek treatment. The available evidence is sufficient to recommend detection and appropriate treatment of maternal depression within the framework of management of infant malnutrition. Strengthened psychosocial stimulation/support of the inpatient infant <6m, the mother-infant dyad and their families is needed. Studies are needed to explore which psychosocial support activities are most effective, when they should start, the minimum duration of intervention, the impact on social and emotional development of the child and/or on the mother-child relationship, and how to adapt these activities to the community care of malnutrition.

### *Antibiotics review*

Review of antibiotic use in infants <6m shows the evidence base on antimicrobial treatment in infants <6m is severely lacking, and for malnourished infants and children needs urgently updating. Sensitivity to amoxicillin, which is the commonest currently recommended antibiotic, is low. There is a lack of intervention trials. New trials are needed which use current case definitions of acute malnutrition, especially in settings where HIV is now prevalent.

### *Change in model of care?*

The population burden of acute malnutrition in infants <6m, the varied profile of current caseloads and the challenges in inpatient management suggests a radical shift in the model for management of acute malnutrition in infants <6m is needed. A move towards community-based care is an appropriate model to consider. Such a development would harmonise acute malnutrition management for infants <6m with that of older children and broaden opportunities to tailor care for larger numbers. It may also offer a more appropriate and safer setting to manage infants <6m that present early and with more manageable feeding problems ('uncomplicated' cases). Inpatient care could be reserved for those infants needing specialist clinical and dietetic care ('complicated' cases). Research is needed to explore the safety, practicality and cost-effectiveness of such an approach. Improved clinical assessment strategies are needed to enable triage, to identify those with urgent need and to enable inter-programme comparisons.

## The way forward

In the immediate term, there are many resources, good practices, and initiatives to consolidate and build upon. Existing guidelines with strong MAMI components are MSF guidelines 2006, ACF Assessment and Treatment of Malnutrition, 2002 and IFE Module 2. Strategies with potential to improve inpatient outcomes of 'complicated' infant <6m SAM include implementation of routine kangaroo care, breastfeeding 'corners' with skilled breastfeeding support, and tailored psychosocial stimulation/support of infants <6m. Strategies with potential for effective outpatient-based care of infant <6m with MAM and 'uncomplicated' SAM include community-based breastfeeding support, psychosocial support programmes and women's groups programmes. Closer links are needed with existing programmes that may impact on infant <6m malnutrition, such as reproductive health services, the Baby Friendly Initiative, Integrated Management of Childhood Illness (IMCI) and growth monitoring programmes. Strategies to treat infant malnutrition in the context of HIV should not only consider interventions that seek to avoid HIV transmission, but also those that support maternal and child survival. Access to anti-retroviral treatment (ARV) for HIV-exposed mothers and infants and safer infant feeding practices are key determinants of HIV-free child survival.

The MAMI Project has identified research needs on a range of topics, from anthropometric indicators suitable for use in the community, to breastfeeding assessment tools, to nature and effect of skilled breastfeeding counselling on severely malnourished infants. Resources needed – monetary, time, skill set – must be quantified to enable cost-benefit analysis and to ascertain the viability of scale-up of interventions.

Assessment of how well programmes are treating infant <6m malnutrition needs to be strengthened and based upon robust data. Critically, performance must capture the clinical, psychosocial and contextual complexity of infants treated and establish programme population coverage of infant <6m SAM/MAM.
Key collaborative initiatives to learn from include the SFP Minimum Reporting Standards Package, the Vermont-Oxford Network to improve neonatal care, and experiences from the rollout of the 1999 WHO guidelines. Data sharing and partnership are needed to enable continued inter-agency dialogue. Harmonised databases and coding systems would enable easier audit. In this regard, an update in the SFP Minimum Reporting Standards package to include infants <6m is recommended.


ACF, DRC, 2008

A young infant enrolled in an ACF therapeutic feeding programme in DRC

The lack of an evidence base to formulate MAMI guidelines remains a big gap and a combination of systematic reviews, high quality randomised control trial-type studies and operational research is needed. Formal frameworks, such as GRADE and the Child Health and Nutrition Research Initiative (CHNRI) might usefully guide which policies and research projects should be prioritised. More resources should be devoted to future guideline development and tools such as GRADE and AGREE used to better enhance their quality.

## Conclusions

The lack of explicit consideration to infants <6m in current guidelines and lack of explicit recognition of this age-group in recent statements on malnutrition treatment and 2006 WHO-GS rollout is of immediate concern. This risks the presumption that care for older children can safely be extended to infants <6m and/or perpetuates the assumption that infants <6m are all well nourished. A valuable contribution to help address this would be a statement on MAMI that highlighted the concerns, gaps and immediate considerations for this age-group to guide practice in the short-term. Such a statement could have significant impact if made by the Global Nutrition Cluster through engagement of Nutrition Cluster members, the MAMI Project research team, RAG and IASG members.

In the future, a more radical shift in the model for MAMI is likely needed. For older children, the evolution to community based management of acute malnutrition was driven by a strong vision, a clear research agenda and well documented field experiences. The challenge now is how to improve nutritional, clinical and public health outcomes in infants <6m.

*Full and summary MAMI Reports are available to download from www.ennonline.net or on CD. A limited number of print copies are also available. Contact MarieMcGrath, email: marie@ennonline.net or via the ENN office.*

A hospitalised artificially fed infant

A Maclaine, Philippines, 2009

# Analysis of looting in the Somali war

**Summary of published research[1]**

In an attempt to fill the academic void around looting, a recent paper has examined practices of looting in the Somali war. Somalia has experienced violent conflict and war since the end of the 1970s. The state collapsed completely in 1991 and southern parts of the country especially have since been characterised by intermittent violence, banditry and looting. This paper is based on field research but also relies on descriptions found in newspaper articles and academic literature on the Somali war, as well as on internet blogs. Field research was conducted between 2002 and 2005 in the Kismayo, Mogadishu, Bay and Bakool regions of Southern Somalia.

The author finds that rather than being inspired primarily by economic objectives, lootings are complex and ambiguous social activities, which are embedded in daily practices and the political rhetoric of the war. In Somalia, looting activities have been driven by a broad range of motives, including military-strategic considerations and/or desire to revenge past atrocities and (perceived) injustices, as well as economic interests. Furthermore, the organisational structure, the performance of actions and the main targets of looters have differed widely. Based on an empirical analysis of different waves and phases of looting in the context of war and state decay in Somalia, the paper identifies six types of looting (see Table 1). These types are not exclusive and different kinds of looting may occur simultaneously or at different locations. Types may also overlap or over time, change from one to another.

The most common is *strategic* looting, which remains embedded in the political or ideological programme of war actors and draws on the rhetoric of friend and foe. *Protest* looting demonstrates a collective claim to common goods, *levelling* looting aims to balance social and material differences. In prolonged wars, *poverty* looting becomes likely. If *organised* looting materialises, violent actors usually cooperate with business people and regularly with local or national authorities and international partners. However, widespread looting leads to exhaustion. Outside input is required to sustain looting economies, which in Somalia took the form of humanitarian aid.

Although international organisations contributed to the prolongation of violence, they also stimulated the transformation of local security arrangements. Protection *rackets* promises to confine violence and looting, and therefore enjoy a certain degree of legitimacy. In Somalia, such rackets provided the basis for localised forms of domination, which emerged in the southern and central parts of the country in the second half of the 1990s. These arrangements were clan-based and relied on co-operation between clan militias and businesspersons and traditional authorities. Although violence continued, the new power arrangements enhanced security and stimulated economic revival.

The study reveals that looting is not an expression of political chaos, but rather is patterned by and rooted in local moral universes. These have been fundamentally transformed during the course of the violent conflicts in the country since the end of the 1970s.

[1] Bakonyi. J (2010). Between protest, revenge and material interests: a phenomenological analysis of looting in the Somali war. Disasters, vol 34 (S2): S238-S255

**Table 1: Cross over design of the trial**

| Type | Objects | Main motivation | Actors | Performance |
|---|---|---|---|---|
| Strategic looting | Properties of enemies | War strategy | Militias, government forces | Selective targeting, humiliation of enemies, revenge, displacement |
| Protest looting | Public goods | Protest exclusion | Mobs, masses, gangs | Selective attacks on public facilities, often angry and aggressive |
| Levelling looting | Properties of privileged groups | Protest social injustices | Mobs, masses | Urban riots with festive character |
| Poverty looting | Food, medicine | Survival | Gangs, urban masses, militias | Raids on food stores, markets, harvests |
| Organised looting | Exchangeable and sellable goods | Material benefit | Gangs, militias in cooperation with businesspersons | Goal oriented raids, strategic planning |
| Rackets | Sale of protection | Material benefit, power and domination | Violent organisations and business people | Vigilantism, police functions, cooperation with population/business people/NGOs |

# Public financing of health in developing countries

**Summary of published research[1]**

Increasing amounts of international aid have been given to health sectors in developing countries. Development assistance for health (DAH) has risen steadily since 1995 from about US$8 billion to nearly $19 billion in 2006. In addition to direct health aid from donors, debt relief to low-income and middle-income countries allows recipient governments to redirect funds from debt servicing to health spending. Certain debt relief initiatives – the Heavily Indebted Poor Countries and Multilateral Debt Relief initiatives – have conditioned debt relief on spending intended to benefit low-income populations in developing countries, especially government expenditures on health and education.

Government spending on health from domestic sources is an important indicator of a government's commitment to the health of its people. It is also essential for the sustainability of health programmes. A recent study aimed to systematically analyse all data sources available for government spending on health in developing countries and describe trends in public financing of health. The study also tested the extent to which spending trends were related to changes in gross domestic product (GDP), government size, HIV prevalence, debt relief and DAH to governmental and non-governmental sectors.

The study systematically analysed all data sources available for government expenditures on health as agent (GHE-A) in developing countries, including government reports and databases from the World Health Organisation (WHO) and the International Monetary Fund (IMF). GHE-A consists of domestically and externally financed public health expenditures. The researchers assessed the quality of the sources and used multiple imputation to generate a complete sequence of GHE-A. With these data and those for DAH to government, they estimated government spending on health from domestic sources. Panel-regression methods were used to estimate the association between government domestic spending on health and GDP, government size, HIV prevalence, debt relief, and DAH disbursed to governmental and non-governmental sectors. Robustness of conclusions was tested using various models and subsets of countries.

The study found that in all developing countries, public financing of health in constant US dollars from domestic sources increased by nearly 100% (IMF 120% and WHO 88%) from 1995-2006. Overall, this increase was the product of rising GDP, slight decreases in the share of GDP spent by government, and increases in the share of government spending on health. At the country level, while shares of government expenditures to health increased in many regions, they decreased in many sub-Saharan African countries. The statistical analysis showed that DAH to government had a negative and significant effect on domestic government spending on health. This meant that for every US dollar of DAH to government, government health expenditures from domestic resources were reduced by $0.43 (p=0) to $1.4 (p=0). However, DAH to the non-governmental sector had a positive and significant effect on domestic government health spending. Both results were robust to multiple specifications and subset analyses. Other factors, such as debt relief, had no detectable effect on domestic government health spending.

The authors conclude with recommendations to address the negative effect of DAH on domestic government health spending. There is a need for strong standardised monitoring of government health expenditure and government spending in other health-related sectors. Establishment of collaborative targets to maintain or increase the share of government expenditures going to health and investment in the capacity of developing countries to effectively receive and use DAH are needed. Careful assessment of the risks and benefits of expanded DAH to non-governmental sectors and investigation of the use of global price subsidies or product transfers as mechanisms for DAH are warranted.

[1] Lu. C et al (2010). Public financing of health in developing countries: a cross-national systematic analysis. www.thelancet.com, vol 375, April 17th, 2010.

# Evaluation of accelerated Child Survival and Development programme in West Africa

**Summary of published research[1]**

UNICEF implemented the Accelerated Child Survival and Development (ACSD) programme in 11 West African countries between 2001 and 2005, to reduce child mortality by at least 25% by the end of 2006. Three packages of interventions were implemented: immunisation 'plus' (i.e. including vitamin A supplementation and distribution of insecticide treated nets (ITNs)), antenatal care and improved management of pneumonia, malaria and diarrhoea. Researchers from John Hopkins University undertook a retrospective evaluation of the programme in Benin, Ghana and Mali.

Data from Demographic Health Surveys (DHS) and Multiple Indicator Cluster Surveys (MICS) were used to compare changes in coverage for 14 ACSD interventions, nutritional status (stunting and wasting), and mortality in children younger than 5 years in the ACSD focus districts with those in the remainder of every country (comparison areas), after excluding major metropolitan areas.

The study found that mortality in children younger than 5 years decreased in ACSD areas by 13% in Benin, 20% in Ghana and 24% in Mali. However, these decreases were not greater than those in comparison areas in Benin or Mali. ACSD districts showed significantly greater increases in coverage for preventive interventions delivered through outreach and campaign strategies in Ghana and Mali than did comparison areas, but not in Benin. Coverage in ACSD areas for correct treatment of childhood pneumonia, diarrhoea, and malaria did not differ significantly from before to after programme implementation in Benin and Mali. However correct treatment decreased significantly in Ghana for malaria (from 78% to 53%, $p < 0.0001$) and diarrhoea (from 39% to 28%, $p = < 0.05$). No significant improvements in nutritional status attributable to ACSD were recorded in the three countries.

The authors concluded that the ACSD project did not accelerate child survival in Benin and Mali focus districts relative to comparison areas, probably because coverage for effective treatment interventions for malaria and pneumonia were not accelerated, causes of neonatal deaths and under-nutrition were not addressed, and stock shortages of ITN restricted the potential effect of this intervention. Changes in policy and nationwide programme strengthening may have benefited from inputs by UNICEF and other partners, making an acceleration effect in the ACSD focus districts difficult to capture.

The authors also stated that future programmes should learn from these results. Examples of steps to be taken include:

- Active promotion of country policies supporting community case management for pneumonia and malaria and the incorporation of zinc into the management of diarrhoea.
- Incorporation of simulation models to estimate potential lives saved into programme planning exercises nationally to ensure that decision makers have access to up to date information about local causes of child deaths and reliable evidence for intervention effectiveness
- Definition and implementation of stronger compensation, motivation and supervision approaches for community-based workers, and
- Strengthening the nutrition component of country programmes.

[1] Bryce. J (2010). The Accelerated Child Survival and Development programme in west Africa: a retrospective evaluation. www.thelancet.com, vol 375, February 13th, pp 572-582, 2010.


Susan Momanyi, Somalia, 2010

Milk vendors in Garowe, Somalia

# Study on hygiene practices and market chain of milk and milk products in Somalia

**By Susan Momanyi and Andreas Jenet**

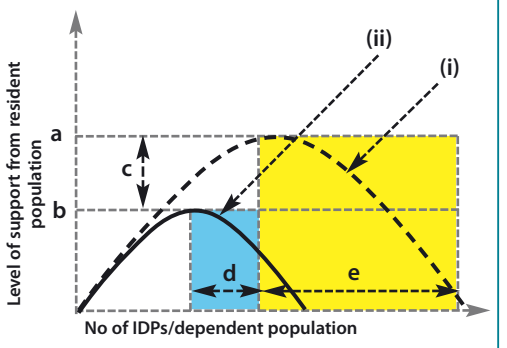
Susan Momanyi joined Vétérinaires Sans Frontières (VSF) as a nutritionist in 2009 and has been working with fresh food vouchers in South Sudan. Since 2010 she has been based in Puntland, responsible for the food aid component in the ECHO intervention. Susan holds a B.Sc. in family and consumer sciences.

Andreas Jenet joined VSF in 2007 as Head of the Programme Department. He has worked for the research institutes CATIE, ILRI, ETHZ and the International Committee of the Red Cross. He holds a Ph.D. Natural Sciences.

The authors acknowledge the support of the European Union Directorate General for Humanitarian Aid for funding the action in Puntland/Somalia under which this assessment was carried out.

Since 2006, Vétérinaires Sans Frontières - Germany (VSF) has implemented several projects in Somalia. The VSF strategy focuses mainly on improving food security and value chain development. Past interventions have achieved significant improvements in supporting the production of 'safer' milk and compliance with minimum standards in milk marketing. Through training and capacity building for slaughterhouse staff, setting up quarantine and control points along the livestock routes, but also through management training for service delivery, significant improvements in food hygiene have been obtained. Other interventions have focussed on capacity building for communities, public and private sector institutions and enhancing the risk management associated with animal diseases that limit trade. The latter applies in particular to trans-boundary animal diseases, including some zoonoses.

**Figure 1: Conceptual framework for support to pastoralist residents and internal displaced people**




**Key to figure 1:**
The ability and the willingness of the resident population to support a set number of internally displaced people depends on the level of support and the number of dependents (dashed line II). The resident population's own capacity to sustain (b) the set group of dependent people depends on external shocks (insecurity, disease outbreaks, drought). Additional external support (c), e.g. emergency livelihood support, will lift the level of ability and willingness of the resident population (a) to support a greater number of dependent people (d) in their livelihood. This ability and willingness is expressed in level of support (peak a) and results in a larger number of absorbed dependent people (e).

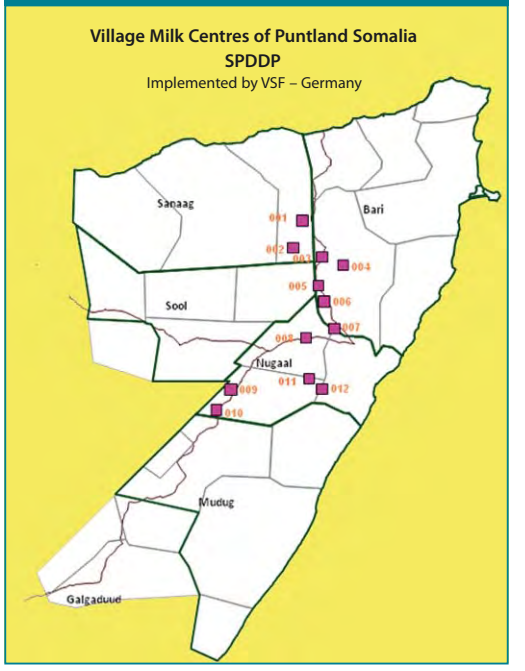
## VSF project

VSF currently implements a European Union DG Humanitarian Aid (ECHO) funded project 'Somali Livelihood and Food Security Assistance (SOLAFA)' in Mudug (Jariiban, Goldogob) and Nugal (Garowe, Burtinle and Eyl) of Puntland. The intervention aims at contributing to the minimum food basket through food distribution to the destitute and internally displaced population (IDPs), cash based interventions to resident pastoralists, and income generation through asset protection for the resident pastoralist groups using existing local structures.

## IDPs

The protracted crisis in Somalia, in which civil conflict among groups is further aggravated by natural calamities, loss of assets and economic pressure, has led to an increase of IDPs to more than 1.2 million people (UNHCR 2009). Many of those displaced people are leaving the urban centres in Somalia and taking refuge across the borders in Kenya or Ethiopia. With the spread of the radical religious groups in rural areas, the increase in areas under conflict and subsequent limitation of livestock movement, there is a growing number of pastoralists who have dropped out of their livelihood system. A large group of the internally displaced pastoralists are moving north and settling in Beledwein, Galkayo, Garowe and Bossaso. An estimated 60% of the Somali population is being considered as pastoralist, for whom 55% of their overall dietary needs are derived through consumption of meat and milk. Among these groups, livestock is considered to be the most valuable asset, generating approximately 60% of their subsistence income requirements. Pastoralist IPDs and drop outs only change their nutrition and feeding habits very slowly. Milk and meat are therefore still considered the most important food sources for this group and take a central position in their food basket.

**Figure 2: Milk collection centres and milk sheds in Puntland**



## Food distribution to destitute and IDPs

In order to improve the household nutrition basket and to encourage food diversification, food distribution for the destitute and IDPs included locally available food commodities made available through existing structures using a voucher based distribution system. An assessment was conducted to evaluate the availability of milk and the local capacities of milk marketing structures and to improve understanding of the dairy sector capacity.

## Materials and methodology

Forty vendors, selected using stratified random sampling from five sections in Garowe markets, were questioned on the milk supply chain, their milk sales and prices. Focus group discussions were carried out involving Ministry of Livestock representatives, milk suppliers and local government authority members. Key informant enquiries were held at markets and fifteen milk collection centres in Mudug, Quardo and Nugal milk sheds.

## Milk markets

The milk market in Garowe is an open market with no defined areas for selling dairy commodities. This contrasts with the market stands of other foodstuffs such as meat, fruits and vegetables which have specific market areas. The conditions around the milk market are harsh as there are no proper shelters, hence the vendors have to move from one shaded area to another during the afternoon heat. Small scale traders, predominantly women, are the major stakeholders in milk marketing, while men are mainly involved in transportation and the delivery of milk from the production areas to the main markets, and may act also as brokers.

The standard measurement of milk in the market is the kombo which is equivalent to 750 ml. While large scale traders prefer to trade in American dollars, small scale traders favour the Somali shilling. The latter currency is unstable and there is currently hyperinflation in the market.

## Milk transport containers

Milk is stored traditionally in containers known as the dhiil, which are made from palm or wood fibres. The dhiil container is very expensive due to the craftwork involved in its manufacture, so most small scale vendors have only one, which they refill as they sell the milk. The dhiil containers are traditionally disinfected and sterilised by smoking which in turn provides the familiar taste which is requested by the consumers. In more recent years, the dhiil has been rapidly substituted with the cheaper, and more practical, recycled vegetable oil plastic container. Transportation is easy (e.g. they can be ferried without couriers on minibuses) and a loss is affordable when empty containers get sent back from the market. Precipitation of milk solids and fats settle in the container and are difficult to clean due to its small outlet. The plastic containers cannot be easily disinfected and even simple washing is difficult for most types of container. In spite of their high value, aluminium containers are easy to clean and get sterilised rapidly in the sun.

## Milk contamination in the market chain

The assessment concluded that there are weak linkages between pastoralist milk producers and urban milk consumers due to the informal nature of the market chain. Raw milk collection and marketing was characterised by an absence of hygiene and cooling and the prevalence of cheap recycled plastic containers for transport that cannot be sanitised. In particular, the pooling of different camel milk batches along the collection and marketing chain led to a increased contamination, since milk has not been tested prior to the pooling. This practice increases prevalence of Streptococcus agalactiae. Most of the plastic containers are becoming porous and are difficult to clean; laboratory analysis in another study found high levels of Lactococcus, Leuconostoc, Lactobacillus, Enterococcus and Streptococcus ssp. An assessment of an urban market in the same region found pathogens in 50% of transport containers taking milk directly from producing herds, in 62% of milk containers sampled at primary collection sites and in 70% of milk containers sampled in urban makets.

## Trader structures and groups

In general, about 3,000 litres of raw milk per day were handled by the informal market and supplied daily to urban consumers.

Milk traders were asked about organisational structures. Most of the traders (85%) were organised in trader groups commonly known as Shrika. These groups are responsible for milk transportation from producing herds to markets. Groups require consistent membership for them to operate well in the business. The main means of getting milk to the market for the traders is hiring transport (87.5%) while 12.5% used their own transport. Milk producers send the milk to the markets using trucks or any kind of transport that is available. Fifteen percent of the respondents were not members but were generally willing to join a group. The main reason for not joining a group was the expensive membership fee used for transport, especially during the dry season when milk income is low.

Most milk vendors are specialised in one commodity, only 0.5% of the vendors sell other goods (rice, soap, sugar) apart from milk. The most common form of payment was cash on receipt of milk (85%) while 15% of buyers pay at the end of the week. The main customers include families who buy on average 1.5 litres of milk daily, others are tea shops, restaurants and hotels. Tea shops and hotel owners mainly pay at the end of the week.

## Milk production

The milk price fluctuates between seasons and is affected by livestock migration which creates seasonal scarcity of milk at the market. Transport costs during the rainy season vary as roads are impassable and the use of inappropriate containers causes rapid deterioration in the quality of the milk. The price of milk generally ranges from 0.3 to 1.6 USD per 750ml. Milk that has soured fetches a 25% to 40% lower price compared to fresh milk.

Table 1 shows how much and what type of milk vendors receive from the producers. All milk is received fresh. Camel and goat milks are sold both fresh and sour while cow's milk is discarded once it has turned sour. The value of soured cow's milk is reduced by more than 50% so that vendors end up making a loss.

The roughly estimated overall daily traded amount of milk in Garowe during the Gu period was 12.8 tons. The quantities of fresh milk sold were higher than the quantity of fermented milk. There was slightly more camel milk traded than goat milk. In Garowe, fresh milk from cattle had a lower importance.

The majority of the market sellers (92%) receive between 37 and 225 litres of pooled fresh camel's milk per day from the pastoralist production sites. In general camel's milk from small traders is more frequently sold as sour milk, compared to traders that sell larger batches. There is a larger variation among traders selling goat milk. Nearly a third is sold as sour milk. The majority of traders (67%) receive large batches of 37 to 225 litres daily. Trading of sour milk from goats and camels (sosac) usually involves batches of smaller size (36 litres per day).

The lowest milk offers in the markets are during the Hagaa (June - August), while the season with the highest sales turnovers is Gu (March – May). In line with findings from the FSNAU, our survey found that the highest milk prices are however expected in September (Deyr season) a period of relatively low milk availability in the markets but regular production in the dry season grazing areas. During this time there is a capacity for receiving about 3,000

**Figure 3: Level of contamination of Garowe milk market chain at different stages (in containers from producing herds, collection sites and urban markets)**

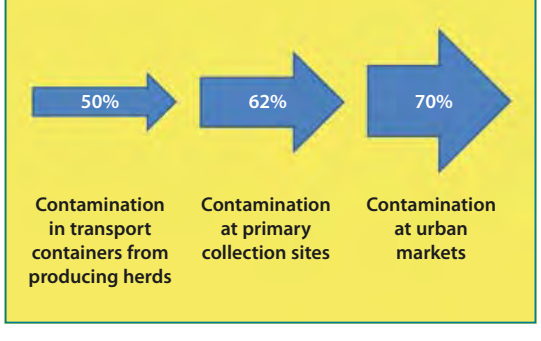



**Table 1: Milk batches of different animal origin received, sold and sour milk sold by traders in Garowe (n = 40)**

| | Camel | | | Goat | | | Cow | | |
|---|---|---|---|---|---|---|---|---|---|
| Litres/day | Traders received (n) | Traders sold (n) | Traders Sosac* (n) | Traders received (n) | Traders sold (n) | Traders Sosac * (n) | Traders received (n) | Traders sold (n) | Spoil (n) |
| 0-36 | 1 | 9 | 19 | 10 | 12 | 26 | 24 | 30 | 36 |
| 37 – 75 | 14 | 13 | 10 | 9 | 11 | 4 | 9 | 4 | 3 |
| 76 – 150 | 9 | 9 | 9 | 9 | 11 | 2 | 3 | 3 | 1 |
| 151– 225 | 13 | 8 | 2 | 8 | 5 | 7 | 4 | 3 | 0 |
| >226 | 3 | 1 | 0 | 4 | 1 | 1 | 0 | 0 | 0 |
| Total estimate litres per day | <6,000 | <4,000 | <2,000 | <5,000 | <3500 | <1500 | <1800 | <1400 | <400 |

* Sour milk

litres a day in the market during this period (including morning and evening sales). The Deyr season therefore seems to be the best season for the traders to sell milk at higher prices but there are logistical challenges due to the large distance and difficult transport connection to the dry season grazing areas.

## Conclusions

This assessment has increased understanding of the milk market in the area and allowed formulation of various strategies to strengthen livelihoods around milk marketing.

In order to reduce the milk contamination, appropriate milk containers and rehabilitation of milk market shelters are recommended. Based on the findings we concluded also that an early cash based intervention in areas of milk production would stabilize resident livelihoods, while voucher distributions to IDPs will ensure their access to high value commodities like milk at times of scarcity in the year. Findings indicated that households consume on average 10.5 litres of milk weekly. Thus, a voucher worth two litres per week provides economic support of 2-3 USD weekly and guarantees nutritional diversity for one or two children. Such quantities will not undermine the market but will promote and support local commodity trade. The combination of vouchers and cash based interventions for the producers could strengthen livelihoods and stabilise local markets as well as build the capacity of the traders.

The milk market assessment survey has also shown that it may be appropriate and feasible to distribute fresh milk to vulnerable households during the year and in particular during the deyr season (Sept – Nov) when there is a low milk availability and high milk prices. During the proposed intervention, milk price monitoring should be introduced as well as milk quality testing at the milk bulking places and markets.

Relatively high levels of bacterial contamination in the milk market chain suggest the need for greater milk hygiene awareness among consumers (e.g. IDPs). Though consumption of raw milk is the cultural practice in Somalia, additional education needs to stress the requirement for both boiling milk and making sure that raw milk is not used for feeding of children less than 6 months.

Further research in regard to food diversity, household economy and milk consumption patterns among the groups and within the households is needed to determine the importance and impact of fresh food consumption in dependent and resident communities in Somalia.

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# How to assess and respond to Iraqi refugee needs in Syria

ACF, Hassakeh, Syria, 2009

Interviewing an Iraqi mother regarding nutrition practices and breastfeeding

**By Lucia Oliveira**

Lucia Oliveira has been working with ACF Spain since 2005 and is currently Head of Mission in Syria. Her background is International Relations, European studies and professional training in nutrition and food security. With ACF, she has worked also on programme management in nutrition, food security and livelihoods, in South Caucasus and in the Middle East.

The author would like to acknowledge the support of Elisa Dominguez of ACF Spain, Elena Vallespin ACF volunteer, Ester Ogonda from LATH, ACF Spain Syrian team and SARC volunteers.

*This article shares the challenges of conducting a survey of the health, nutrition and livelihood conditions of Iraqi Refugees living amongst the local population in the North East of Syria.*

Iraqi families, displaced by sectarian violence and increasing economic hardship, have been moving both within and outside their country for many years. Iraqis started leaving Iraq in the 1990s after the first Gulf War and their departure intensified after December 2007, when the second Al Asquari Samarra Mosque bombing took place. Since the onset of this protracted crisis, several Middle Eastern countries have received a considerable influx of Iraqi refugees. Syria continues to host the largest population of refugees from Iraq. The total number of Iraqi refugees in Syria remains unconfirmed - official figures from the Syrian government point to the presence of 1.2 million refugees, while UNHCR's registered number has fallen to 163,000 refugees in 2010.

Iraqi refugees have settled mainly in rented accommodation in the suburban clusters on the outskirts of Damascus, Aleppo, Homs and in the border governorates in North East Syria. Integration in the northern governorates is very good in the North-East (Hassakeh Governorate) of the country, since refugees and the local population belong to the same ethnic group[1]. Those living in Hassakeh have settled within a relatively stable Syrian population that is mainly agricultural but also keeps some animals for meat and milk production. Cotton, wheat, lentils, barley and chick peas are the main agricultural products.

Iraqi refugees are totally dependent on the humanitarian assistance provided by the aid agencies in Syria, namely UNHCR, WFP, UNICEF and international non-governmental organisations (INGOs). These agencies operate together under the umbrella of the Syrian Arab Red Crescent (SARC). One of the main types of assistance provided is in the form of food aid (bi-monthly ration of rice, pasta, sugar, tomato paste, bulgur, oil, pulses, tea, non food items and hygiene kits) and monthly cash assistance to the most vulnerable households selected by UNHCR. In addition, Iraqi refugees have free access to health services and education, provided by the Syrian government. In education, there have been many projects providing school kits and uniforms, school rehabilitation and extension, and remedial extra classes for children who drop out of school.

## ACF in Syria

Action Against Hunger Spain (ACF) started operations in Syria in January 2009. With fund-

[1] June (2009) WFP/UNHCR/SARC/SPC JOINT ASSESSMENT MISSION Refugees in Syria- Syria Assessment Joint Mission.

ACF, Hassakeh, Syria, 2009

**Box 1: Survey phases**

**Phase 1: Anthropometry and Nutrition Evaluation**
This was subdivided into five parts:
- Anthropometric measurements of children
- Mortality Results
- Measles Vaccination Results
- Infant and Young Feeding
- Health Services

**Phase 2: Food and Livelihood Evaluation**
**Eleven parameters were evaluated:**
- Household composition
- Living conditions
- Education
- Food consumption and sources
- Household income
- Household expenses
- The hardest times to cover the needs of the families, i.e. hungry season
- Household coping strategies
- Support received from the hosting communities
- Livelihoods/Skills Development
- Water usage and habits

ing from UNHCR and materials support from UNICEF, ACF has focused on prevention of malnutrition through a community based programme in the North Eastern governorates, which is one of the poorest regions of Syria. In order to plan and design a programme, information on the needs of an affected population was required. This has not been easy in Syria due to a lack of accurate and reliable information and statistics, especially primary data. This is, in part, a consequence of Syria's 'closed institutional culture' which restricts assessments and limits access to potential beneficiaries. Therefore, the first challenge of the new mission was to secure government approval to conduct a survey to identify the problem, confirm whether or not the Iraqi refugees needed assistance and if so, what form should this take. The second challenge was to overcome some of the limitations in access to the population.

The study was conducted by ACF and SARC from 29th October to 11th November 2009 in the North Eastern Governorates of Hassakeh and Der Ezzor of the Syrian Arab Republic. The survey targeted urban and rural refugees in these catchment areas.

## Survey objectives and methods

The objectives of the survey were to ascertain the current nutritional status of the Iraqi refugees in the target areas and to prioritise health, nutritional and food/livelihoods needs in order to initiate, intensify and/or recommend appropriate interventions. The target population was 13,964 Iraqi refugees, 11,165 in Hassakeh and 2,799 in Der Ezzor with an estimated under 5 population size of 2,793 (20% of total population). Based on SMART methodology, the evaluation used a simple random sampling to select children surveyed. A four day training that included a pilot evaluation was conducted with all the data collectors prior to the actual fieldwork.

### *Challenge around household surveying*

A key challenge to surveying was that refugees could not be visited in their homes. This delayed the survey for some time.. The eventual solution was to employ a simple random sampling methodology using the UNHCR food distribution list of Iraqi refugee households of July 2009. The households from the list were selected at random (using random tables generated by ENA software), giving each household and child in the total population an equal chance of being selected. Families were then contacted by phone to verify location and organise their visit to the closest SARC clinic, rather than assess at home. All the children in the randomly selected households between the ages of 6 and 59 months were included in the evaluation and were measured and interviewed at specific SARC clinics. This proved a successful methodology and a considerable achievement since, to date, ACF Spain has been the only INGO so far to carry out a survey of this population.

### *Target groups*

The target group for the survey was Iraqi refugee's households with or without children aged 6-59 months. The nutritional survey was complemented by a qualitative study using focus group discussions (FGD). In addition, a food status survey was conducted among 304 families to contribute to analysis on the potential causes of malnutrition. Thirteen FGDs were conducted with key informants, leaders, men and women belonging to the target population. The nutrition element of the survey included anthropometric assessment as well as biochemical tests for anaemia. The sample size was 555 children aged 6 – 59 months for anthropometry and 353 children for anaemia. A total of 643 households were sampled for mortality information. The survey was divided in two phases (see Box 1)

## Results: Phase 1 Anthropometry and Nutrition Evaluation

### *Anthropometry*

Results indicate a low proportion of moderately malnourished children with 5.4% global acute malnutrition (GAM) prevalence and 3.5% moderate acute malnutrition (MAM). Underweight prevalence was 5.9% and stunting prevalence was 11.9% of the children sampled. Major concerns are the relatively high proportion of severely malnourished children (1.9%) and the presence of anaemia in just over 50% of all children, which indicates serious micronutrient deficiencies (see Figure 1 and below). Prevalence by gender, age groups or governorates were not statistically significant. However, the highest prevalence of acute malnutrition (2.4%) was recorded amongst the youngest (aged 6-17 months), indicative of the influence of poor feeding practices.

### *Infant and young child feeding practices*

Cross tabulation of diarrhoea cases and malnutrition cases indicates that 48% of the malnourished had suffered diarrhoea. Coupled with the higher percentage of malnutrition among the youngest, this suggests that poor breastfeeding and poor complementary feeding practices are significant contributing factors. The rate of exclusive breastfeeding in infants < 6 months is much lower in the North Eastern governorates when compared to refuges in Damascus (18.8% vs 35.7%). This could be attributed to a lower level of awareness among the less educated residents in the north or be the result of less support to mothers in the North. Although a high proportion of mothers (41%, n=127) give breastmilk as the first drink to their newborn, a significantly higher proportion (53.5%, n=166) also give either water or sugared water in the first few hours after delivery. Some also mix breastmilk with water in the first hours of breastfeeding, while others gave foods, camomile or juice. It was suggested that the high numbers of mothers giving water and sugar is likely to be as a result of religious beliefs that encourage newborns to be given honey on delivery. Mothers who cannot afford the honey may substitute this with water and sugar, which is less costly. This contributes to the low exclusive breastfeeding rate of 18.8% (n=59) at 6 months of age.

It was observed that 2% of mothers continued exclusive breastfeeding for infants aged 6-12 months. However the majority of the mothers (66%) gave breastmilk and semi-solid foods at this age while 10.5% gave only solid foods. Amongst the remaining mothers who had stopped breastfeeding, 8% gave mainly commercial processed fresh milk to their infants, while 6% gave yoghurt and 7.5% gave other foods/drinks such as soups, tea and juices.

Between the ages 12-24 months, one third (30.5%) of mothers introduced semi-solid food in addition to breastfeeding. Of all mothers of children in this age group:
- 29.8% gave breastmilk and solid foods
- 1.3% were still exclusively breastfeeding
- 15% gave only semi-solid foods

[1] Anecdotal information from Al Qamishly hospital estimated the prevalence of anaemia for both Syrian and Iraqi refugees in the region as 25-30%.


ACF, Hassakeh, Syria, 2009

Focus group discussion with Iraqi men

**Figure 1: Prevalence of anaemia (total and by severity) in surveyed children under 5 years**

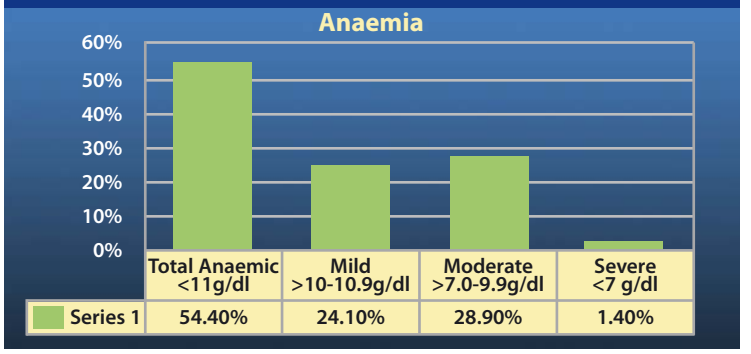
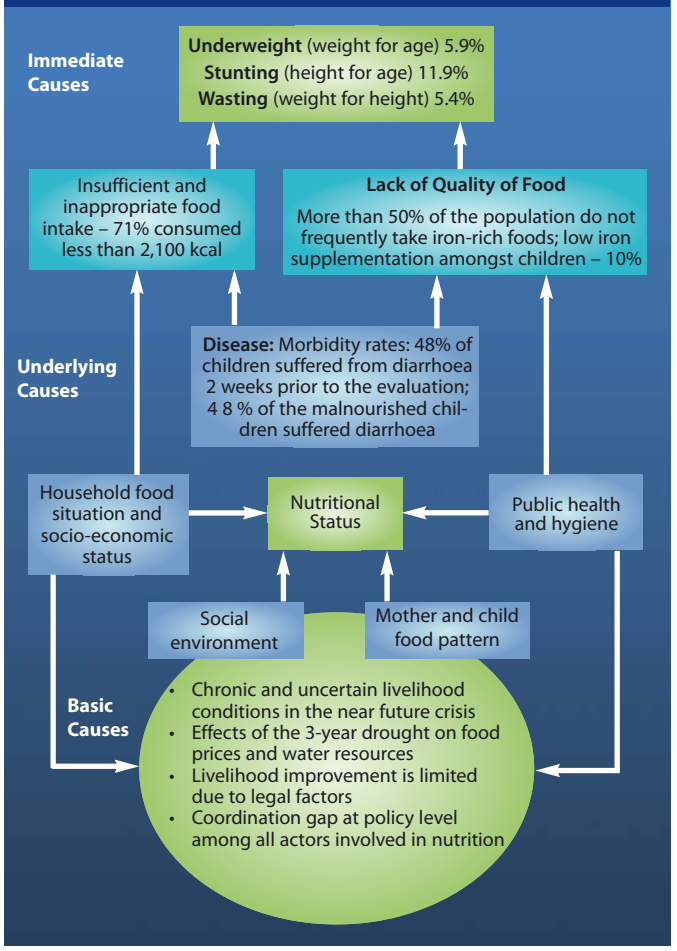


**Figure 2: Conceptual framework of the causes of malnutrition for Iraqi refugees in Syria (December 2009)**




- 9.5% gave only commercial processed milk
- 3% gave only solids
- 10.9% gave either yoghurt, a combination of breastmilk and water, soups or tea.

The frequency of feeding reduced as the children became older. Feeding patterns with respect to iron rich foods available locally were also analysed. This found that iron consumption in foods was very low. The majority of the population (69.8%) never give their children liver. Only 13.6% eat liver once a week and 16.6% rarely eat liver. These percentages were almost similar for fish paste, kidney, heart, sardines, and much lower for tongue, which is eaten by just 1% of the sampled population although commonly eaten amongst adults.

Refugee children also showed low immunisation coverage for measles (6.3% with card and 73% including caregiver recall) and low Vitamin A supplementation (10.9%). Vitamin A supplementation is much lower than the national coverage rate of 35.6% and the coverage of 47% amongst refugees in Damascus.

### *Anaemia a significant problem*

The high anaemia prevalence and low percentage of iron rich complementary foods used show that anaemia is a huge nutrition concern in the area[2]. Half of the children surveyed had a haemoglobin (Hb) level under 11 g/dl, although the rates of severe anaemia are low (1.4%). The highest anaemia rates were recorded in the 6-12 months age group. This may be attributed to the mothers' unawareness of the optimal complementary feeding age and/or their failure to introduce appropriate complementary foods at the right time, since breastmilk does not contain sufficient iron to meet the infant's requirements and to protect the baby from anaemia. Other factors include mothers giving tea, which inhibits iron absorption, inadequate attention during pregnancy and delivery, and low intake or sub-optimal cooking of iron rich foods to preserve their iron content. Clearly, this issue merits further consideration from ACF and partners. Children with severe anaemia should be promptly referred to secondary health facilities for diagnosis and treatment.

### *Access and use of safe water*

The insufficiency of safe, protected water amongst this refugee population could be linked to poor hygiene practices reported and closely associated to diarrhoea diseases which were found to be highly (42.9%), prevalent among malnourished children and in the community and one of the main causes of deaths in the population. The lack of accessibility to safe water points and preventive health education services needs addressing in this population.

## Results: Phase 2 Food and Livelihood Evaluation

Although the majority of the children and the adults ate 3 or 4 meals per day, they still consumed less than 2100 kcal per day. The average size of the households was 6 members, and 14.5% of households were female headed households.

The majority of the refugees live in rented houses and have no access to kitchen gardens or agricultural activities. Their expenditure priorities are rent, food, and health services. A key economic issue is their lack of legal status and therefore their entitlement to work. Their sources of income and coping mechanisms in order of importance are the sale of the food rations, followed by loans, UNHCR cash allowance, sales of assets and savings. The reason given by three-quarters (75%) of Iraqi families surveyed as to why 40.9% of them sell the food ration is that the UN diversified food basket distributed cannot fulfil their essential food needs. The food basket comprises 25 kg of rice, 2 kg of sugar, 5 kg of lentils, 2 kg of bulgur (cereal), one box of tea, 2 kg of pasta, 1 kg tomato paste, 2 litres of oil. The remaining 25% of those interviewed considered the ration to be sufficient. The survey also found that as household size increased so did the reported dissatisfaction with the food basket.

There are five main foodstuffs that are traditionally considered to be priority items amongst the refugee population: oil, sugar, meat, rice and milk. Oil, meat and milk were all considered 'missing' or inadequate from the diet by those surveyed. Other items such as vegetables, fruits, dairy products, pasta, bread, chicken, bulgur, potatoes, lentils and fish were consumed by the population but reported as insufficient amounts.

The majority of the Iraqis said they usually sought help from local Syrian families who responded by helping without asking for something in return, despite the fact that some Syrian families were no better off financially than the Iraqis. As one participant said, many of the families in the community were poor and all "have the same pain". This situation is reflected in the basic causes element of the malnutrition conceptual framework presented in Figure 2 and which, in this case, is compounded by a 3 years consecutive drought cycle. This drought has severely affected many Syrian farmers and herders who lost the majority of their animals, fodder, harvests as well as income so that they could neither afford to purchase seeds and feed for the next season or repay back their loans. The Iraqis are therefore living in a distressed economic area where agriculture used to provide a source of seasonal labour.

The overall livelihood conditions presented in the report show continued economic deterioration and worsening debt leading to a decrease in food access and intake. The coping strategies being used, i.e. debt, are not sustainable. While these strategies allow payment for accommodation and diversified food access they do not allow for treatment of chronic health diseases, education fees, transport, fuel, and water costs. Savings and remittances from abroad are too low to make up these shortfalls or allow these other critical expenditures.

## Conclusions

In conclusion, while the Iraqis may not be suffering from high rates of malnutrition or unusually high mortality rates, there are considerable concerns over issues that affect their day-to-day living. The refugee population is clearly vulnerable to poorer nutrition and health of both children and adults. Anaemia is already a significant problem and Syria is not alone in this; iron deficiency is a widespread problem globally. WHO states that 2 billion people have iron deficiency, while studies have shown that half of refugees suffer from iron deficiency anaemia[3]. ACF is currently negotiating with UNHCR and UNICEF and the Ministry of Health for an extension of the project that could include mass distribution of micronutrient powders (Sprinkles) to prevent anaemia in the area. However, it is also important to address these problems with longer-term strategic food and public health measures that tackle the underlying problems of malnutrition, in addition to managing existing acute malnutrition through the health infrastructure currently in place.

At policy level, there appears to be a gap regarding coordination among all actors involved in nutrition that hampers addressing nutrition problems in Syria. Regular meetings or set up of specific working groups of specialists regarding issues identified are recommended.

The absence of a legal framework to allow work and consequent inadequate purchasing power amongst the refugee population will contribute to further increases in malnutrition rates. If not adequately addressed, the nutritional and health status of this population can only get worse. It is therefore imperative for this refugee population that health and nutrition preventive responses must be implemented in conjunction with food access and income monitoring.

For more information, contact: Lucia Oliveira, email: hoc-sy@acf-e.org and Elisa Dominguez, email: edominguez@achesp.org

[3] CRED, (2009). Anaemia in Complex Emergencies

# Humanitarian Sudies at Tufts University

Three Masters Degree programmes in Humanitarian Studies at Tufts University in the US encompass offer a variety of specialisations. Graduates gain an understanding of how crisis environments evolve, how affected communities cope, and how the international humanitarian system intervenes. They understand the operating environment of contemporary disasters and complex emergencies and can analyse the policy processes behind emergency response and international engagement in crises. On course completion, employment opportunities include humanitarian agencies, donor organisations, the United Nations agencies, advocacy groups, and research institutes.

The degree programmes include:

**Food Policy and Applied Nutrition (Humanitarian specialisation)**
*Meeting the challenge of food security, livelihoods and nutrition in humanitarian emergencies*
Contact: Matthew Hast, nutrition-admissions@tufts.edu

**Master of Arts in Humanitarian Assistance**
Offering mid-career humanitarian professionals an academic setting in which to develop their knowledge and skills in humanitarian action
Contact: Peter Walker, peter.walker@tufts.edu

**Master of Arts in Law and Diplomacy (Humanitarian concentration)**
*Addressing displacement and refugee, gender, conflict, human rights and protection issues in emergencies*
Contact: Laurie Hurley, fletcheradmissions@tufts.edu

For more information on all three programmes, go to http://www.friedman-fletcher.org/

# Humanitarian Studies Conference

The second World Conference on Humanitarian Studies organised by the International Humanitarian Studies Associational (IHSA) and hosted by Tufts University, is scheduled for 2 to 5 June, 2011. The conference is open to all researchers and practitioners active in the humanitarian field. The conference focus is on *Changing Realities of Conflict and Crisis.* Panels and papers will be hosted under four themes:

- Emerging from protracted crises
- New Directions in Policy
- Innovations in Humanitarian Practice
- Advances in Public Health and Food Security in Crises

Registration and a call for panels will be available on the conference website in early September. For more information and to sign up for the mailing list, visit http://www.humanitarianstudies2011.org/

# Updated Nutriset 'red scoop' instructions for mixing F75 and F100

Nutriset's F-75 and F-100 therapeutic milks come in sachets of, respectively, 410 g and 456 g. For both products, the full content of one sachet must be mixed with 2 litres of boiled/potable water to obtain 2.4 litres of therapeutic milk.

However, in 2004, Nutriset began including a red measuring scoop with its therapeutic milks in response to field requests for instructions for preparing smaller quantities of therapeutic milk. Specific volumes of water were then recommended for one scoop of F-75 or F-100 powder.

These recommendations were refined in 2008, taking into account some adjustments in the density of F75 and F100 milks. Instructions in the leaflet included in cardboard boxes of F-75 or F-100 sachets were modified accordingly. These updated instructions replace the ones that appear in the 2004 ENN news article "New Measuring Scoops for F75 Therapeutic Milk"[1]. The 2004 instructions should no longer be used.

**The correct dosage for smaller quantities of therapeutic milk using Nutriset's red scoops* is now:**

**F-100: 1 level Nutriset red scoop with 14 ml of water**

**F-75: 1 level Nutriset red scoop with 18 ml of water**

* These instructions apply only to the red scoops provided by Nutriset (featuring Nutriset's logo on the handle).

Note that several factors can impact the density of milk powders (variations in the way the scoop is used, storage conditions, etc). This is why the preferred and most accurate mixing instructions recommended by Nutriset are for full sachets, and remain unchanged for both F-75 and F-100: 1 sachet + 2 litres of boiled/potable water = 2.4 litres of therapeutic milk.

At the request of its humanitarian partners, to ease the preparation of smaller quantities without risks of incorrect dosage, Nutriset is currently developing smaller-size sachets.

For any further questions please contact the Nutriset Quality Director Mathilde Bridier, email: mbridier@nutriset.fr

[1] New Measuring Scoops for F75 Therapeutic Milk. Field Exchange, Issue No 22, July 2004. p16. http://fex.ennonline.net/22/measuring.aspx

# Nutrition in Emergencies: New Regional Training Courses in Africa, Asia and the Middle East

Are you interested in learning how to protect the nutrition of populations affected by humanitarian disasters? Do you want to develop the skills to deliver the wide range of interventions needed to prevent and treat malnutrition in emergencies? Are you a food security specialist who would like to be better equipped to support nutrition responses, a health manager who simply wants to understand more about emergency nutrition, or a newly qualified nutritionist who wants to develop skills in emergency nutrition programming? A new series of innovative short courses in Nutrition in Emergencies (NIE) may fit the bill for you. These are being developed in an OFDA funded project to the ENN, implemented in collaboration with UCL Centre for International Health and Development.

The courses have been designed to help practitioners develop practical expertise in emergency nutrition responses and post-emergency recovery. Each course includes modules on the causes and types of malnutrition as well as the main approaches employed to prevent and treat malnutrition. Sessions are also included on emergency preparedness, coordination, monitoring and evaluation, as well as advocacy and communication in emergencies. There is particular emphasis on practical application and how different sectors can help to support efforts to protect the nutritional status of populations affected by different types of emergencies. The course content is based on the Harmonised Training Package, which was developed on behalf of the Global Nutrition Cluster, and is the most up-to-date content for developing training on NIE.

Group exercises are combined with taught sessions to help participants strengthen technical knowledge and develop practical skills. Each course culminates with an emergency simulation where you will be required to work closely with others on the course to plan out a nutritional response to a 'real' emergency.

The first courses will run on the following dates.

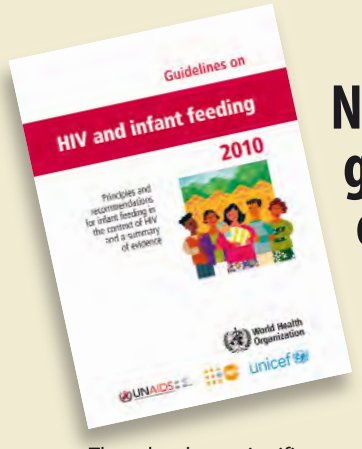
**Lebanon: 13th to the 18th September 2010 (by invite only)**

**Uganda: 17th to 29th January 2011**

**Thailand: May 2011 (dates to be confirmed)**

The courses in Thailand and Uganda will cost US$2,500 for 12 days training including all meals and accommodation.

To apply, please send a completed application form (available from www.nietraining.net) along with a copy of your CV to the NIE training coordinator (coordinator@nietraining.net). More courses will run in Lebanon in 2011, contact the coordinator for details.




# New WHO guidelines on HIV and infant feeding

There has been significant programmatic experience and research on HIV and infant feeding since the World Health Organisation's (WHO) recommendations on infant feeding in the context of HIV were last revised in 2006. In particular, evidence has been reported that antiretroviral (ARV) interventions to either the HIV-infected mother or HIV-exposed infant can significantly reduce the risk of postnatal transmission of HIV through breastfeeding. This evidence has major implications for how women living with HIV might feed their infants, and how health workers should counsel these mothers. Together, breastfeeding and ARV intervention have the potential to significantly improve infants' chances of surviving while remaining HIV uninfected. This evidence informs the recently released *'Guidelines on infant feeding and HIV, 2010. Principles and recommendations for infant feeding in the context of HIV and a summary of evidence.'* The guidance emphasises that HIV-free child survival – rather than HIV transmission – is the primary consideration.

While the 2010 recommendations are generally consistent with the previous guidance, they recognise the important impact of ARVs during the breastfeeding period. They recommend that national authorities in each country decide which infant feeding practice, i.e. breastfeeding with an ARV intervention to reduce transmission or avoidance of all breastfeeding, should be promoted at national and sub-national levels. This differs from the previous recommendations in which health workers were expected to individually counsel all HIV-infected mothers about the various infant feeding options.

The recommendation that replacement feeding should not be used unless it is acceptable, feasible, affordable, sustainable and safe (AFASS) remains, but the acronym is replaced by more common, everyday language and terms.

Where national authorities promote breastfeeding and ARVs, mothers known to be HIV-infected are now recommended to breastfeed their infants until at least 12 months of age. If social and environmental conditions are not in place for safe replacement feeding at this stage, breastfeeding should continue in line with recommendations for the general population.

Recognising that ARVs will not be rolled out everywhere immediately, guidance is given on what to do in their absence. When ARVs are not available, mothers should be counselled to exclusively breastfeed in the first six months of life and continue breastfeeding thereafter unless environmental and social circumstances are safe for, and supportive of, replacement feeding. In circumstances where ARVs are unlikely to be available, such as acute emergencies, breastfeeding of HIV-exposed infants is also recommended to increase survival.

Download the 2010 guidance, including supporting annexes, evidence and presentations at:
http://www.who.int/child_adolescent_health/documents/9789241599535/en/index.html

# Trends in malnutrition prevalence and mortality

The May 2010 issue of the Centre for Research on the Epidemiology of Disasters (CE-DAT) publication, CE-DAT Scene[1] includes a summary of the 2009 trends in malnutrition and mortality. These make interesting reading.

### *Prevalence of global acute malnutrition*

Out of 99 settings in Africa and Asia for which data from both 2008 and 2009 were available, 48% showed an increase in the prevalence of global acute malnutrition (GAM) and 42% show a decrease. Kenya and Sudan, in particular, were countries where the nutritional situation worsened considerably. The Mandera district in Kenya's North Eastern province had the highest reported prevalence's of GAM (31.9% and 31.3%). Compared to 2008 figures, this represented an increase in of the order of 5 to 10%. In the east of the district, at the border with Ethiopia and Somalia, the situation improved with GAM levels decreasing from between 26 and 27%, to 20%.

In Sudan, the nutritional deterioration was less substantial than in Kenya. Here, the increase in GAM prevalence was generally less than 5%. An exception was Aweil East county in North Bahr-El-Ghazal, where GAM prevalence almost doubled compared to 2007, going from 16% to 29.5%. Balliet county in Upper Nile, on the other hand, experienced a considerable decrease in prevalence from 28.8% in 2008 to 22% in 2009.

In 2009, the GAM prevalence in two refugee camps in Bangladesh were at their highest levels since 2005 and the second highest since 1998. Compared to 2008, the prevalence doubled from 8.5% and 9.2% for Kutupalong and Nayapara, respectively, to 17.9% in both camps in 2009.

More positive developments were seen in Somalia. The Somaliland regions of Awdal, Togdheer and Woqooyi Galbeed halved the prevalence of GAM from around 20% to about 10%. In general, the situation in Puntland also improved, with the exception of its capital city Garowe. Here, GAM prevalence among the internally displaced population (IDPs) increased from 21.2% in 2008 to 24% in 2009. Regions south of Mogadishu reported a slight increase in malnutrition prevalence.

Surveys conducted in the north of Cote d'Ivoire showed a decrease in GAM prevalence from around 17% to values between 6.8% and 8.5%.

### *Crude mortality rate*

Of the 48 locations for which crude mortality rates (CMR) from both 2008 and 2009 were available, 44% had higher rates in 2009 than in 2008 while 40% had lower rates. Seventeen percent remained unchanged.

Similarly to malnutrition prevalence patterns, the North Eastern province of Kenya had the greatest deterioration in CMR. Overall, rates in 2009 were about twice as high as the rates of 2008. Although all rates were below the emergency threshold of 1 death/10,000/year, the trend is alarming.

Sudan also showed some alarming CMR patterns, especially in the Kurmuk area, Blue Nile State. The CMR in 2009 was 1.3/10,000/day, compared to 0.9/10,000/day in 2008. The situation has been alarming for several years and is mainly due to the high number of diarrhoea-related deaths, indicating a need for more water, sanitation and hygiene assistance projects.

Surveys from North Bahr-El-Ghazal also reported increasing CMRs from 0.2/10,000/day in 2008 to 0.7/10,000/day in 2009, the highest rates since 2003. Finally, Twic area in Warab state had a 2009 CMR of 0.9/10,000/day, 0.3 higher than in 2008 and just below the emergency threshold.

Positive trends were reported in Somalia. Most of the locations had lower CMRs in 2009 compared to 2008. Noteworthy are the improvements in the Awdal region (0.5 v 1.1), Bossaso city (0.4 v 1) and Togdheer (0.6 v 1.1). The Shabelle and Juba regions around Mogadishu, however, remain of concern with mortality rates often increasing and almost all above the emergency threshold.

### *Under five mortality rate*

Fifty one percent of the locations (25/55) reporting under five mortality rates (U5MR) in 2008 and 2009 had lower U5MRs in 2009 compared to 2008. For three locations, 2009 rates were equal to those of 2008, and the remaining locations had higher figures in 2009.

Unlike CMR, Kenya did not show a particularly alarming trend. Areas where U5MR was elevated in 2008 had lower rates in 2009 and those areas where U5MR increased in 2009 remained within an acceptable range. The highest reported value was 1.5/10,000/day in the northern part of Mandera district, North Eastern province.

In Sudan, U5MR patterns followed the CMR trends. Main areas of concern are Kurmuk area, Blue Nile state (2.8) and Twick area, Warab state (2.3), as well as Aweil north and Aweil West in North Bahr-El-Ghazal, where U5MR increased from 0.3/10,000/day in 2008 to 1.2/10,000/day in 2009.

The biggest improvement is again in Somalia where, except for Gedo, Jubaland and Lower Shabelle, all locations had U5MRs below the emergency threshold. Gedo had the highest U5MR with 2.7/10,000/day, a doubling compared to 2008. Finally, a survey conducted among displaced people in Garowe city in Nugaal region reported an important increase from 0.3 in 2008 to 1.3/10,000/day in 2009.

[1] CE DAT SCENE (2010). Newsletter 13 – May 2010

# All in Diary – a practical resource for those working in emergencies

The All In Diary is a web-based resource – with country-specific print versions – for field-based humanitarian workers, particularly those working in disaster situations. It is produced by the UK registered charity of the same name. The idea originated in 2006 in Sri Lanka, and it has been piloted in many countries since, most recently a country-specific version in Zimbabwe.

The All in Diary comprises three interrelated tools:

**Website:** Over 50 up-to-date information pages on key humanitarian topics related to Principles of Humanitarian Practice, Disaster Preparedness, Managing People and Projects and Working with Communities, plus over 200 recommended resources. These are regularly updated, and available in 7 languages.

**Diary:** An A5, spiral bound paper-based diary which integrates the information pages available here, with diary and notes pages: *printed and distributed in-country in response to a specific emergency and a generic version available to download.*

**CD:** Includes the information pages, plus the full-range of recommended resources: *available and distributed in conjunction with the print edition diary.*

In September 2009, an 'All In Diary Zimbabwe' was produced, in collaboration with RedR and funded by ECHO. Reasons for its development included the significant limitation in access to information about humanitarian principles and practice among local organisations, government and affected communities in Zimbabwe and the limitations in access to web-based information. Two thousand print diaries (key information pages and diary/note space) were distributed to 145 humanitarian organisations and 41 government departments or district offices together with 50 CDs. Both included Zimbabwe specific content.

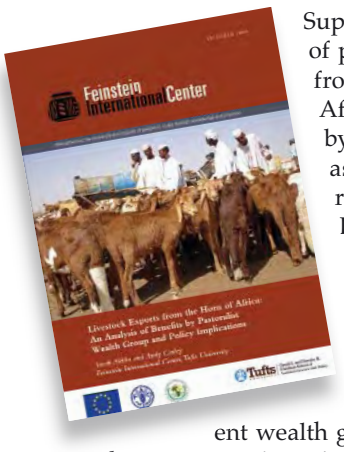
Feedback from an external evaluation of a cross-section of users in March 2010 endorsed the value, relevance and utility of the Zimbabwe All In Diary in supporting their work. For example, it has been instrumental in enhancing personal management through improved planning, record keeping and reporting. It was noted as especially useful for sector specialists, in understanding more about other aspects of humanitarian action about which they often have little or no knowledge. Recommendations for future in-country versions include consideration of: how to improve targeting and distribution (including how to target less well resourced organisations and involve relevant government ministries more efficiently), materials design, content (contextualised and the importance of updates), and resource CD role.

Visit the All in Diary at www.allindiary.org

The full Zimbabwe evaluation report is available on request from info@allindiary.org

# Analysis of benefits of livestock exports from the Horn of Africa

The Feinstein Famine Centre has recently produced a new publication, *Livestock Exports from the Horn of Africa: An Analysis of Benefits by Pastoralist Wealth Group and Policy Implications.*




Support to the export of pastoralist livestock from the Horn of Africa is often viewed by aid organizations as a key poverty reduction strategy. Drawing on existing literature and field research in Ethiopia, Kenya and Sudan, this report examines if and how different wealth groups benefit from the export trade. It looks in detail at the household-level economic strategies of different pastoralist wealth groups and their marketing behaviours. It concludes that in terms of poverty reduction, poorer herders benefit least from livestock exports.

The report also explores the apparent contradiction between increasing levels of pastoralist destitution in the Horn, and increasing exports of livestock and livestock products. The reports suggest that this trend is due to a long-term process of commercialisation in 'high export' pastoralist areas. The trend is associated with a gradual redistribution of livestock from poorer to richer households. As richer households sell more animals, they supply the export markets while poorer households fall out the pastoralist system. If correct, these findings have major implications for poverty reduction strategies in pastoralist areas.

The publication is available to download from: http://fic.tufts.edu/

# En-net update

**By Tamsin Walters, en-net moderator**

Seventeen questions were posted on en-net between May and July, eliciting 48 replies. Seven were posted in the Assessment area, four in Prevention and Treatment of Severe Acute Malnutrition and three in Prevention and Treatment of Moderate Acute Malnutrition. These three areas continue to be the most active, though en-net now has six other forum areas where questions and debates are welcomed: Micronutrients, Infant and Young Child Feeding Interventions, General Food Distribution, Livelihoods Interventions, Humanitarian systems and Cross-cutting issues. The latter is a recently added area for debates traversing the humanitarian spectrum, pertinent to nutritionists.

Recent discussions on en-net have included: the complexities in the interpretation of high chronic malnutrition rates in situations where acute malnutrition rates are low; challenges related to Mid Upper Arm Circumference (MUAC) programming, including considerations of entry and exit criteria; analysis and interpretation of SMART survey data using the latest software packages; and the range of livelihood interventions that have shown improvements in Community Management of Acute Malnutrition (CMAM) and micronutrient supplementation programmes.

An interesting discussion was initiated on alternative and, in particular, local production of Ready to Use Therapeutic Food (RUTF). Ongoing research projects and studies are active in several African countries, which range from those investigating ways to link food security and local level production with the development of supplementary and therapeutic food supplements, to those focused on tailoring a product to particular local conditions to meet disease-specific nutrient requirements. Contributions to the discussion were provided from projects in Burundi, Ethiopia, Malawi, Rwanda and Sudan and people working in those different contexts are keen to collaborate with each other and any others working on similar initiatives to share experiences.

The discussion highlighted the many challenges involved in the development of a local RUTF, which include nutritional and technical considerations, such as anti-nutrient and dietary fibre content of some local ingredients, the availability of local foods and the difficulty of increasing production or sourcing sufficient quantities of local ingredients to meet requirements. In addition, socio-economic issues such as affordability of products and accessibility by extremely poor end-users come to the fore, as well as cultural issues related to the introduction of new crops or food products. Once these substantial hurdles are surmounted, quality control becomes pertinent and efficacy studies are necessary to demonstrate that the final product actually delivers results and has a clear benefit. This is an interesting area of experimentation and research which is yet to deliver viable local products to treat severe and moderate malnutrition. Go to http://www.en-net.org.uk/question/225.aspx for more detail or to join the discussion.

Thirty-two new users registered with en-net between May and July bringing the total number of subscribers to approximately 400. Over this three month period, the site received a total of 2037 visitors (although a bounce rate of 57% suggests that 876 were 'genuine' visitors), averaging 3:30 minutes browsing time per person and notching up 8,141 page views.

To join a discussion or post a question, visit www.en-net.org.uk

A mother feeding her child in the highlands

Iñigo Lasa, ACF, Peru, 2009

# Causes of chronic malnutrition: The cultural dimension

## Views

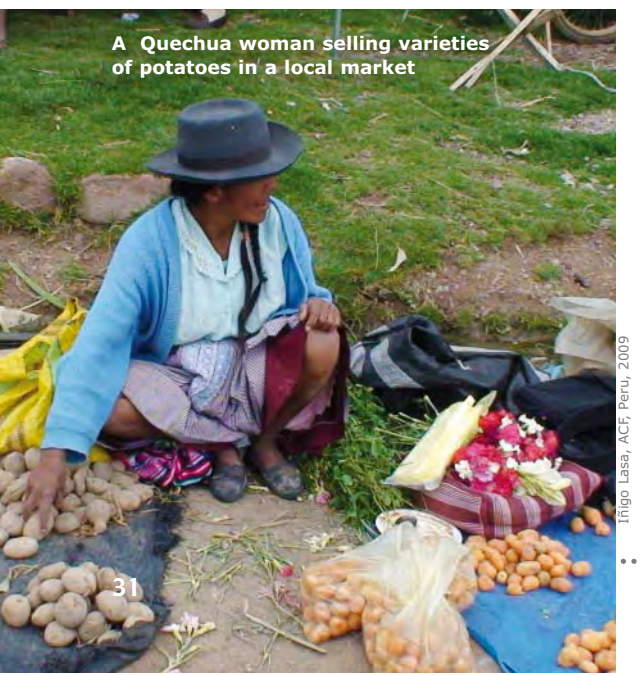
**By Bronwen Gillespie**

Bronwen has a degree in Anthropology/International Development and a MA in Global Political Economy. She has worked in the area of food security and income generation in rural settings ranging from Armenia to Nicaragua. She is currently concerned with questions of food sovereignty in increasingly globalised world.

Many thanks to Iñigo Lasa, Head of Mission of Action Against Hunger in Peru who contributed all the country situation information, and to Elisa Dominguez, Acción Contra el Hambre – Spain, for coordinating the production of the article.

The fight against chronic malnutrition is now Acción Contra el Hambre (ACH's) focus in Peru, in part because malnutrition rates remain surprisingly high despite the country's economic growth. ACH is also concerned about malnutrition's significant hidden cost to society. One third (33.3%) of children in rural Peru suffer from chronic malnutrition and in Apurimac, the Highlands province where ACH has begun to work, rates rise to 44.3%. Anaemia is estimated to affect a shocking 64.2% of children between 6 and 36 months of age[1]. What does this mean? Malnourished children under three years of age experience irreversible stunting and reduced cognitive, social and emotional development, often starting school later or reaching educational goals more slowly than their peers[2]. Malnutrition has an impact on work productivity, the success of the education system, and is a burden on healthcare resources. Every person with malnutrition suffers from an average 10% reduction in their potential earnings during the course of their lives[3]. Poverty, therefore, is an enduring consequence of malnutrition. It is inaccurate, however, to assume that malnutrition is caused primarily by poverty: "Two of every 3 extremely poor children in Peru are not malnourished. Even without managing to eradicate poverty, there is much that can be done to avoid child malnutrition"[4]. Income growth alone is not enough to reduce levels of child malnutrition, it is necessary to examine the complex issues underlying high rates of malnutrition.

Malnutrition is caused by insufficient dietary intake as well as disease. In Central America, for example, lack of food is not usually the primary cause of child malnutrition but has more to do with dietary and hygienic practices and access to health care[5]. In rural areas of the San Jeronimo district in the Peruvian Andes, 73.9% of women do not finish any formal education, which is considered the most important underlying cause of malnutrition in the area[6].



A Quechua woman selling varieties of potatoes in a local market

Iñigo Lasa, ACF, Peru, 2009

Malnutrition is also about culture, identity and the vulnerability of traditional practices in the face of increased participation in a global economy. This statement is not trying to apportion blame for the prevalence of malnutrition on cultural peculiarities; this would move the debate into 'dangerous waters'. However, there are lessons and parallels to be drawn with the industrialised world, where anti-obesity campaigns cannot simply rely on public messages about what to eat. Such a strategy would fail from a lack of attention to the "complex nature of food culture and habits"[7]. The same can be said for interventions that aim to reduce malnutrition. Programmes that do not address beliefs and habits around food consumption will almost certainly have limited impact.

Studies have pointed to the important distinction in Andean cultures between 'cold' foods and 'hot' foods. This has little to do with their actual temperature but refers instead to their intrinsic qualities. Vitamin-rich food is not fed to children if it is deemed to be unsuitably cold or hot[8]. Concepts such as this have to be taken into account when making recommendations about how to improve toddlers' diets. We have also seen that canned tuna doled out by a government food programme is saved for prestigious visitors, rather than fed to children for whom it was donated. The whole social aspect of food sharing makes it unrealistic to expect food donations to be used exactly how they were intended. Often the extra food is provided to the father or main income earner rather than to the children, as he is logically seen to play a more key role in the family's survival strategy.

Researchers have found that membership in certain cultural groups can imply greater malnutrition rates compared to neighbours with other ethnic backgrounds. A study in Guatemala found that "controlling for income and other household and community characteristics, ethnicity remains an important determinant of child nutritional status"[9]. An investigation in the Bolivian Andes concluded that although the level of education of the mother was an important factor, the fact that the mother was Quechua rather than Aimara was also significant for explaining malnutrition, after having taken education levels into account[10]. Perhaps the internal equilibrium or logic of food and production systems in these societies has been undermined by external influences, or knowledge is not being shared as successfully over generations.

As traditional lifestyles come into closer interaction with the dominant industrial or modern system, and as indigenous peoples suffer social prejudice, it should not be surprising that consumption behaviour mimics that of dominant classes. In Peru it can be seen that nutrient rich, locally grown traditional foods fall out of favour, compared to more recently available (and easier to prepare) processed foods. For example, quinoa, originating in the Andes and now promoted world-wide as a health food, has only recently regained ground as a crop due to great interest from importing countries such as the United States. Meanwhile, Andean farmers continue to add greater quantities of pasta to their diets and to celebrate with carbonated soft drinks. In part, providing the family with store-bought food is a status issue in the rush to appear modern.

Changes in diet are also explained by changes in land use. Traditional subsistence systems have been gravely altered by participation in modern systems, as there is a move towards export-oriented production, a reduction in diversity of products grown, and less local control over food distribution. Income gained from crops sold elsewhere is used to buy less nutritious processed food, as less land is available for producing for family consumption. This offers a partial explanation for a general reduction in the caloric intake and diversity of diet[11]. Export oriented production has been seen to contribute to a decline in family nutrition in Guatemala as men control spending from increased export earnings, rather than their wives who are more likely to use income for immediate family needs. At the same time, women end up having to help in production for export rather than growing staples or carrying out small scale independent economic activities[12]. In rural Peru, it is common that families opt to sell rather than consume food necessary for good health. In the Santa María de Chicmo region of Apurimac in Peru, only 10% of families with pregnant women and/or children under 3 years of age eat animal protein once a week[13]. The few animals owned by the family are in many cases their only source of income and families do not have the 'luxury' of consuming animal protein themselves.

Shifts in food culture and lifestyle due to globalisation have lead to a challenging health problem. Obesity and malnutrition are more and more frequently seen in the same communities,

1 CIAS (2009). Informe de Avances Objetivos Desarrollo del Milenio, Comité Interministerial de Asuntos Sociales
2 -World Bank (2009). Promoción del crecimiento para prevenir la desnutrición crónica. p21
3 See footnote 2.
4 -Francke, Pedro (2004). Propuestas de reforma de programas nutricionales infantiles en el Perú
5 World Bank (2009). Promoción del crecimiento para prevenir la desnutrición crónica. p22
6 Kusi Warma (2009). Propuesta en nutrición, salud, seguridad alimentaria y saneamiento básico en los distritos de San Jerónimo y Santa María de Chicmo.
7 Gracia Arnaiz, Mabel (2007). 'Comer Bien, comer mal: la medicalizacion del comportamiento alimentario' in Salud Publico de Mexico, Vol. 49, no. 3, p240.
8 Kuhnlein, H and Pelto, G (1997). Culture, Environment and Food to Prevent Vitamin A Deficiency, INFDC.
9 Marini, Alessandra and Gragnolati, Michele, (2003). Malnutrition and poverty in Guatemala at http://ideas.repec.org/p/wbk/wbrwps/2967.html
10 Morales, Aguilar and Calzadilla (2004). 'Geography and culture matter for malnutrition in Bolivia' in Economics and Human Biology 2 (2004) 373–389. p383

even within the same families, as growing rates of stunted children having overweight mothers. This has been observed in Latin America, with the highest obesity rate of 16% occurring in Guatemala[14]. This 'nutrition transition', in which a diet based on low calorie plant foods and high activity is being replaced by higher calorie processed foods and a less active lifestyle, is part of a larger change in the economic relations of global production and distribution systems.

Due attention to the cultural dimensions of food systems is required if our aim is not only to aid malnourished children, but to allow communities to live without the burden of malnutrition as the next generation is born. ACH proposes to help populations in extreme poverty in the Peruvian highlands overcome the burden of malnutrition with an approach that recognises the overarching importance of the social and cultural environment.The work to be carried out in natural resource management, sanitary and hygienic conditions, infant care, improved healthcare services, and attention to nutrition should be informed by an understanding of the particular local vision and practices. ACH aims to create a model or a set of research-based guidelines, tested through experience, for working with cultural awareness in nutrition and aimed at assuring coherence with local traditions related to food systems.

The emphasis on understanding food systems from a cultural point of view is backed up by the conclusions of a CARE programme dedicated to reducing malnutrition with a collaborative community based approach, working in the Ayacucho area of the Peruvian Sierra. As a result of that experience, CARE states that efforts to curtail malnutrition should start with a detailed study regarding food and nutrition culture, as well as paradigms related to knowledge, beliefs, customs, attitudes, behaviour, feelings and experiences that shape eating habits and practices, given that these have a direct impact on family and community decision making[15].

A second aspect of ACH's intervention is aimed at encouraging sustainable change and facilitating local acceptance. This involves a community based methodology in which the actions are locally directed and organised, supported by close contact with professionals inside the existing health system. Personalised aid, negotiation, and dialogue between mothers and trained local volunteers (who are also mothers, ideally) will be focused towards taking action, step by step, rather than relying on more formal information-transfer education models. It will be essential to work towards the creation of an atmosphere of confidence and to include close follow-up, with regular monthly checks on progress and debates about obstacles. The merits of this model have been discussed by World Bank and CARE.

As part of the aim to make a long term impact on rates of malnutrition, the programme will work with community members interested in re-valuing local and traditional food ways. This will help to ensure that healthy and unique consumption patterns are not lost in the face of external influence, while at the same time facilitating resource use that favours environmentally suitable and traditionally diverse agricultural production for local consumption.

The World Health Organisation now recognises that nutrition policy must refer to and address issues around food and not just nutrients[16]. While the 'medicalisation' of eating has thankfully allowed dietary deficiencies to be characterised and diagnosed, this does not mean that 'treatment' can simply be prescribed without addressing cultural issues around food.

If you have any comments regarding this article, please contact: hom-pe@acf-e.org

[11] Pelto, Gretel and Pelto, Pertti, (1990). 'Dieta y Deslocalizacion: Cambios Dieticos Desde 1750' in Rotberg, R, El Hambre en la Historia. p340-362
[12] Thrupp, Lori Ann, (1995). Bittersweet Harvests for Global Supermarkets: Challenges in Latin America's Agricultural Export Boom, World Resources Institute. p83
[13] UNICEF (2003). Crecimiento y Desarrollo Temprano World Bank (2009). Promoción del crecimiento para prevenir la desnutrición crónica. p18
[14] CARE Peru, (2006). Consejeria comunitaria para incorporar hábitos saludables de nutrición en los hogares, Experiencia en Tambillo – Ayacucho
[15] Contreras Hernandez, and Gracia Arnaiz, (2004) Alimentación y Cultura. p464



Participatory training in food groups conducted by the Concern intern Binita Sadaula in Bardiya district

Deepika Rana, Nepal, 2009

# Integration of CMAM into routine health services in Nepal

**By Regine Kopplow**

Regine is a former CMAM Advisor with Concern Nepal. She is a nutritionist with a background in rural development. She has worked in the field of nutrition with Concern in Afghanistan, Malawi, and Nepal and with UNICEF in Somalia.

The author would like to thank all the health workers and FCHVs of Bardiya district and the Concern Nepal team, for their contributions to the work reflected in this article. The author draws upon content of two reports authored by Saul Guerrero[1] and Lily Schofield[2].

*This article describes a pilot project by Concern Worldwide in Bardiya district, Nepal to integrate CMAM into routine health services directly, without the more typical transition from an NGO led programme.*

According to the Nepal Demographic Health Survey (NDHS), under-five mortality has nearly halved between 1996 and 2006, suggesting a good chance of meeting the Millenium Development Goal (MDG) 4 target of 34 deaths per 1000 live births in 2015 (Figure 1)[3]. However, acute malnutrition remains high – 12.6% global acute malnutrition (GAM), 2.6% severe acute malnutrition (SAM) (NDHS, 2006)[4]. Without addressing SAM in particular, under-five mortality in Nepal might remain above the MDG 4 target regardless of the remarkable achievements on mortality to date.

In 2007, UNICEF carried out a feasibility study to explore the potential of the community based management of acute malnutrition (CMAM) approach to address SAM in Nepal. The study concluded that CMAM could be a useful tool but only if integrated into the routine health services provided through the Ministry of Health and Population (MOHP) and preferably linked to the integrated management of childhood illnesses (IMCI) approach which has already been introduced in Nepal. In order to reflect geographical and cultural differences of Nepal,

[1] Final Evaluation of Concern Worldwide/MoHP Community-based Management of Acute Malnutrition (CMAM) Pilot Programme, Bardiya District, February 2nd – 19th, 2010, Nepal, Saul Guerrero.
[2] SLEAC Coverage assessment of CMAM pilot in Bardiya District, Mid-Western Region, Nepal, November, 2009, Report prepared by Lilly Schofield
[3] 2010 report on Nepal's MDG progress prepared by the National Planning Commission (NPC).
[4] GAM: WHZ<-2SD and SAM: WHZ<-3SD. WHZ (NCHS) 2006 figures for same population are 12% GAM and 1% SAM.

**Table 1: CMAM components linking with MOHP structures**

| CMAM Component | MOHP Structure | Number of health facilities in Bardiya district | Commencement of CMAM services in Bardiya district |
|---|---|---|---|
| Stabilisation Centre (SC) | District hospital | 1 | 1 SC August 09 |
| Outpatient Therapeutic Programme (OTP) | Primary Health Care Centre (PHC) | 3 | 3 PHC May 09 |
| | Health Post (HP) | 8 | 8 HP May 09 |
| MUAC screening | Sub Health Post (SHP) | 22 | 22 SHP June/July 09 |
| | Female Community Health Volunteers (FCHV)[5] | 841 volunteers | 841 FCHV June/July 09 |

**Figure 1: Under five mortality and acute malnutrition trends in Nepal, NDHS 1996, 2001, 2006**

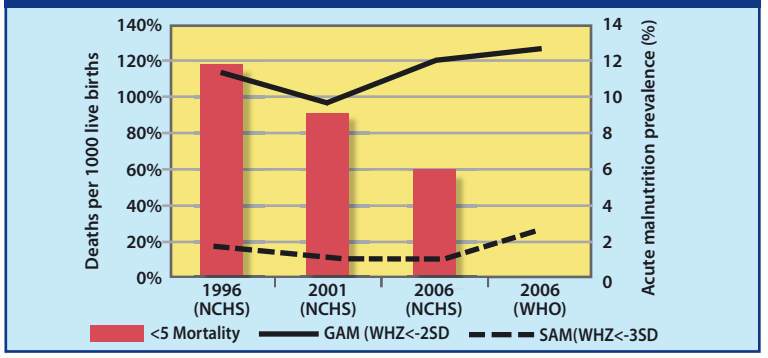



**Table 2: Training strategy, by S. Guerrero**

| Level | Approach | Participants | Trainers |
|---|---|---|---|
| **Central** | Master Training of Trainers (MToT) | MoHP selected individuals | UNICEF<br>ACF<br>Concern Worldwide |
| **District** | Training of Trainers (ToT) | Nutrition Focal Person<br>HP/PHC In-Charges<br>District Health Supervisors | Concern Worldwide<br>1 Central MToT Participant |
| **Health Facility** | Training | All remaining HP/PHC staff<br>SHP In-Charges | Concern Worldwide<br>HP/PHC In-Charge<br>District Health Supervisors |
| **Community** | Training | All FCHVs<br>All remaining SHP staff | SHP In-Charges<br>HP/PHC In-Charge<br>District Health Supervisors<br>Concern Worldwide |

**Table 3: Admission and discharge criteria**

| CMAM treatment | Admission | Discharge/referral |
|---|---|---|
| **SC** | MUAC <115mm and/or oedema +,++,+++ and/or WHZ/WHO* <-3SD with poor/no appetite or medically complicated<br>Moderate malnutrition with medical complications SAM<6 months (WHO protocol) | Appetite regained (75% of daily ration of RUTF consumed) and no medical complications requiring inpatient treatment |
| **OTP** | MUAC <115mm and/or oedema +,++ and/or WHZ/WHO <-3SD and appetite and clinically well<br>Refused SC admissions | 15% weight gain and MUAC>=115mm and no oedema and WHZ/WHO>=-3SD, no minimum length of stay in programme, no Supplementary Feeding Programme (SFP) available |
| **MUAC screening by SHP and FCHV** | Referral to nearest OTP if MUAC is red (<115mm) and/or edema[7] | |

*Weight for height z score, WHO Growth Standards, 2006.
MUAC: Mid upper arm circumference

piloting in the three agro-ecological zones (lowlands/terai, hills, mountains) was recommended. Furthermore local Ready to Use Therapeutic Food (RUTF) production should be explored to reduce costs, enhancing sustainability in the long run.

In 2008, Concern Worldwide signed an agreement with UNICEF for the CMAM pilot in Bardiya district located in the terai of the mid-west development region of Nepal bordering India. Two more pilot districts were identified located in the hills (Accham) and mountains (Mugu) in mid and far-west Nepal, covered by UNICEF with technical support from Action Contre la Faim (ACF) and later Concern (Accham only).

## Pilot objectives

The primary objective of the CMAM pilot programme was to evaluate the feasibility of the CMAM approach in different districts and different agro-ecological zones in Nepal and to provide recommendations to MOHP in regard to treatment of malnutrition and the potential scale-up of the CMAM approach to most of the districts in the country. A secondary objective was to build capacity of local health structures, female community health volunteers (FCHV) and local partner non-governmental organisations (NGOs) to manage severe acute malnutrition (SAM) and to evaluate the effectiveness in increasing coverage of identification and effective treatment of SAM cases. While introducing CMAM to the health system, other interventions specific aspects were to be studied, such as cost-effective ways to recognise and target most affected communities, health system capacity, women's/health worker's time allocation and the logistic/supply arrangements and management.

## Pilot Strategy

MOHP, UNICEF, ACF and Concern developed a joint pilot strategy. A memorandum of understanding (MOU) outlined pilot details (objectives, strategy, roles and responsib- ilities):

1. All MOHP health facilities, health workers and female community health volunteers (FCHV) are to be involved in the CMAM activities reaching out to the entire population of the district (see Table 1).
2. The provision of CMAM services to be part of the daily routine of MOHP health workers and FCHV (without additional financial incentives) with technical support through the supporting international NGO.
3. For CMAM trainings, MOHP national and district trainers to be trained using a cascading down approach to train all MOHP health workers and FCHV of the district (see Table 2).
4. MOHP supply and reporting structures to be used and strengthened where needed.
5. Independent monitoring provided through field monitors of a local NGO, responsibility later to be incorporated into MOHP structures.
6. The pilot will not include a Supplementary Feeding Programme (SFP). This component will only be added in the case of severe food insecurity since the main causes for acute malnutrition in Nepal are currently related to inadequate child feeding and care practices, hygiene and sanitation, and health care utilisation.

National CMAM pilot protocols were developed jointly (Table 2) and training materials prepared for each level of training (manual for national and district level training of trainers, SC, OTP, FCHV trainer, and a pictorial flip chart for the mostly illiterate FCHV)[6].

## Implementation

In May 2009, the first SAM cases were treated by MOHP health workers in Bardiya district using CMAM treatment protocols. Children seen during routine health check ups are nutritionally screened (Mid upper arm circumference (MUAC)/oedema/WHZ) and admitted to the OTP or referred to the SC if they present with admission criteria (Table 3). Children return for their bi-weekly

Concern CMAM team, Nepal, 2009

**Street drama about malnutrition and CMAM performed by the local partner NGO, Suryoday Sanskriti Pratisthan, in Bardiya district**

[5] The FCHV structure has been introduced by MOHP throughout Nepal with one FCHV per ward functioning as a first consultation and referral point for basic maternal and child health care.

[6] Training manuals developed are based on: Training guide for community-based management of acute malnutrition (CMAM), November 2008, FANTA Project

[7] Referral and admission criteria are the same to avoid negative feedback through referred but later rejected cases.

OTP follow up visits on the day of the week most convenient for the mother. In this way, acute malnutrition is treated in the same way as any other childhood illness – it is diagnosed through normal consultation and treated through regular CMAM services at the health post until resolved.

During the set up phase, field monitors of the local partner NGO, Community Development Organisation (CDO), provided technical support to MOHP health workers at CMAM outpatient service providing facilities (two days per week), and SHP and FCHV (on the remaining days of the week). Supervision is used technically to support and monitor CMAM providers. Weak areas are jointly identified and solutions developed. A supervision checklist guides both through the supervision visit and allows documentation of the observed performance. Checklists are analysed promptly and form the basis for a quarterly award system to acknowledge the best performing PHC/HP (OTP), best SHP and best FCHV. This creates healthy competition among CMAM service providers in order to motivate for better performance. Exchange visits between stronger and weaker health facilities support learning from peers rather than relying on external support.

With this support system in place, health workers and FCHVs felt confident and took full responsibility for CMAM services from the beginning. At no time during the project did Concern staff screen, refer or treat CMAM children. No additional MOHP staff were recruited or financial incentives provided for screening and treatment activities.

Table 4 summarises key activities carried out during the pilot project. The majority of tasks were implemented according to plan except the set up of the SC (planned for January 2009) and the implementation of community mobilisation activities (planned for the first quarter 2009). The MOU signed was not specific enough in regard to the roles and responsibilities of setting up CMAM inpatient treatment capacity (SC) for complicated SAM cases. No Concern CMAM officer was specifically assigned for planning and carrying out community mobilisation, thereby delaying activities significantly.

## Admissions and impact of WHO Growth Standards

Prior to the start of the project, the expected case load was calculated using data from the Bardiya nutrition baseline survey (May 2008). At this planning stage, referral and admission criteria had not been finalised. Table 5 shows case load calculations[8] using different SAM identification criteria. In line with the WHO/UNICEF joint statement[9] the expected caseload in Bardiya district increases approximately threefold when moving to the new WHO growth standards from NCHS (Weight for height z score (WHZ)). A MUAC cut off point of 115mm leads to a similar increase. Figure 2 shows the actual OTP admissions in Bardiya. Within the first eight months, 1,213 SAM cases were admitted, 90% of the annual target.

In Bardiya district, FCHVs are the main contact for nutritional screening and referral of SAM children using MUAC <115mm and oedema assessment during home visits, mother group meetings and community events. At PHC/HP, the screening and admission protocol is by MUAC, oedema and WHZ but due to high work loads and difficulties integrating weight and height measurements into the work flow, MUAC and oedema checks are the main criteria used. Project data (see Figure 3) shows that 78.2% of SAM children are meeting OTP admission criteria by MUAC<115mm (35.4% MUAC only, 42.8% meet MUAC and WHZ criteria). WHZ accounts for 21.8% of admitted children only. Analysing the project data with NCHS reference and MUAC of <110mm, only 37.9% of the children would have been identified by MUAC. Using WHZ (NCHS) and MUAC >110mm, 54% (n=331) of children admitted in the Bardiya OTPs would have been classified as not severely acutely malnourished.

The increase of admissions by using a MUAC cut off point of 115mm has not resulted in the expected proportional increase of younger children[10] being admitted in the OTP in Bardiya district (see Table 6).

There were early challenges, such as MUAC tapes with 110mm cut off point already in circulation by other

**Table 4: Timeline for key CMAM pilot activities**

| Activity | 2007 | 2008 | 2009 Q1 | 2009 Q2 | 2009 Q3 | 2009 Q4 | 2010 Q1 | 2010 Q2 | 2010 Q3 |
|---|---|---|---|---|---|---|---|---|---|
| UNICEF CMAM Feasibility Study | | | | | | | | | |
| Concern's Assessment of Concern's Role in the CMAM Pilot | | | | | | | | | |
| Child Health Sub-Committee meeting on Protocol/ Implementation Framework | | | | | | | | | |
| Baseline Survey & Health System Assessment Bardiya | | | | | | | | | |
| Approval of Emergency Nutrition Policy including CMAM Piloting | | | | | | | | | |
| National Advocacy Meeting & National and District MOU | | | | | | | | | |
| Master TOT Material Finalised and Master TOT conducted | | | | | | | | | |
| District TOT Material Finalised and Training Conducted | | | | | | | | | |
| Health Centre Training Material Finalised, Training conducted (OTP) | | | | | | | | | |
| Health Facility Based Screening and OTP Admission | | | | | | | | | → |
| Volunteer/SHP Training Material Finalised and Training conducted | | | | | | | | | |
| MUAC Screening at SHP and by FCHV | | | | | | | | | → |
| Local Partner NGO for Monitoring selected, Trained , Checklists Developed, Start of Supportive Supervision | | | | | | | | | |
| SC Training Material Finalised, Training Conducted, SC Admissions | | | | | | | | | → |
| Community Mobilisation (Street Drama, Radio Programme, School Days, Public Cooking Demonstrations) | | | | | | | | | |
| Simplified LQAS* Evaluation of Access and Coverage (SLEAC) Survey | | | | | | | | | |
| Orientation of Private Practitioners | | | | | | | | | |
| District Health Office Takes over Monthly CMAM Reporting and Includes RUTF in Quarterly Drug Request | | | | | | | | | → |
| Final Evaluation (Nepal Government/ Concern) | | | | | | | | | |
| Concern due to leave Nepal | | | | | | | | | |

*Lot Quality Assurance Sampling

**Table 5: Case load calculation based on different SAM identification criteria, Bardiya**

| | WHZ (WHO) <-3SD) | WHZ (NCHS) <-3SD | MUAC <115mm | MUAC <110mm |
|---|---|---|---|---|
| SAM (expected cases/ prevalence) | 1,338 (2.8%) | 478 (1.0%) | 478 (1.0%) | 286 (0.6%) |

**Table 6: Age distribution of OTP admitted children by MUAC cut off point**

| Age in months | MUAC <110mm (n=105) | MUAC <115mm (n=477) |
|---|---|---|
| 6-11 | 43,8% | 39,2% |
| 12-23 | 44,8% | 45,7% |
| 24-35 | 10,5% | 12,2% |
| 36-47 | 1,0% | 1,7% |
| 48-59 | 0,0% | 1,3% |
| total | 100% | 100% |

**Figure 2: CMAM Programme Admissions, May-December 2009 (by month), Bardiya, S. Guerrero**

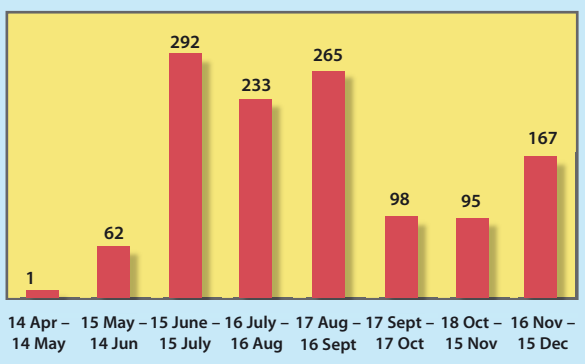
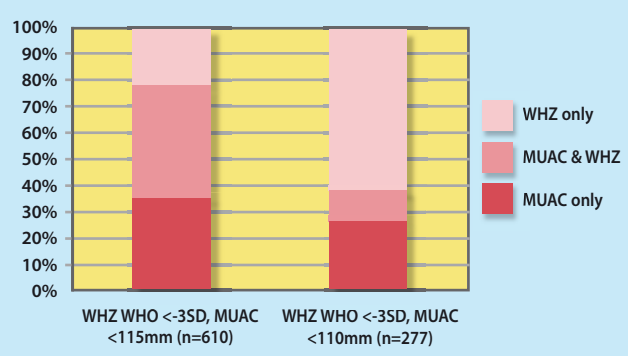



**Figure 3: SAM identification using WHO growth standards vs. NCHS reference**




[8] Total under five population Bardiya district (47,789) x SAM prevalence (2.8%) x assumed coverage (50%) x expected incidence (factor 2)

[9] WHO child growth standards and the identification of severe acute malnutrition in infants and children. A Joint Statement by the World Health Organization and the United Nations Children's Fund, 2009

[10] Joint Statement WHO/UNICEF 2009: "Using weight-for-height based on the WHO standards or MUAC less than 115 mm as admission criteria will select younger and less severely wasted beneficiaries compared to using the NCHS reference for weight-for-height or MUAC less than 110 mm."

**Figure 4: CMAM Admissions May-December 2009 (by gender & entry criteria), S. Guerrero**

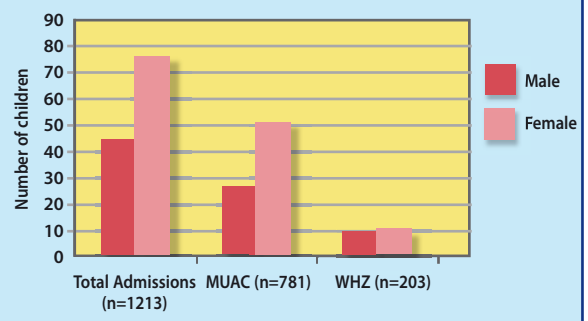



**Figure 5: 15% weight gain with corresponding WHZ (WHO) on discharge (n=365)**

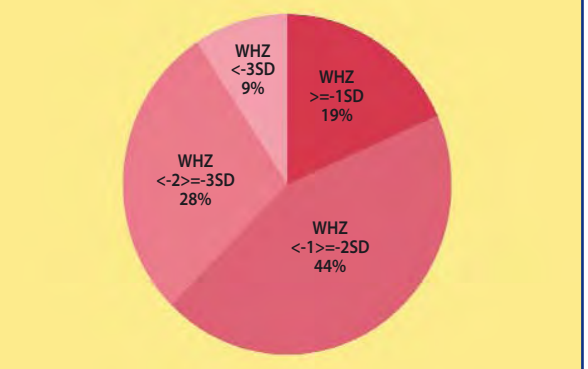



**Figure 6: Reason for not having their child in the CMAM programme given by caregivers of uncovered SAM cases, L. Schofield**

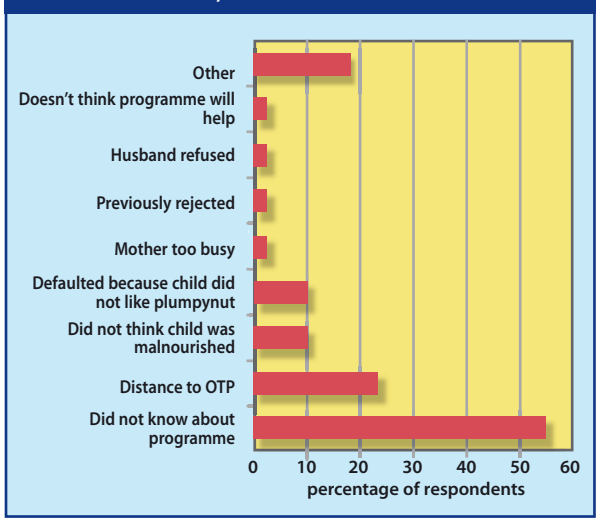



**Figure 7: RUTF provision for CMAM pilot in Bardiya**

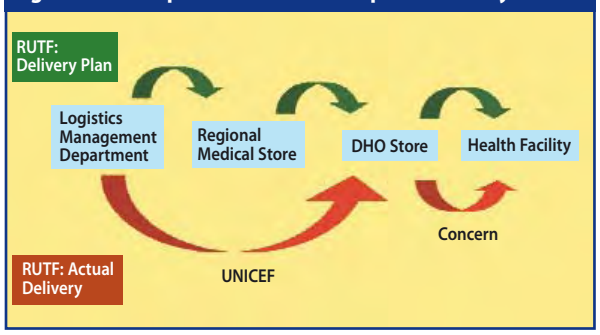



**Table 7: Bardiya CMAM Programme Performance vs. Sphere Standards, S. Guerrero**

| Approach | Cases (n) | Recovered | Death | Default | Transfer | Not cured |
|---|---|---|---|---|---|---|
| SPHERE Standards | – | >75% | <10% | <15% | – | – |
| Bardiya CMAM Pilot | 878 | 68.22% | 0.34% | 28.47% | 2.62% | 0.34% |

programmes and unavailability of the new MUAC tapes until April 2009 making local procurement necessary. However, the introduction of the new SAM classification has simplified identification of SAM cases by FCHVs and health workers in Bardiya and has helped in more timely identification of cases.

## Gender difference in admissions

It was observed that MUAC admissions into Bardiya OTPs for girls was much higher than for boys (boy: girl ratio 0.524) even though the nutrition survey had indicated equal SAM prevalence for both sexes using WHZ (WHO). In line with survey findings, WHZ admissions showed no difference between male and female admissions. It is assumed that severely malnourished girls have a higher risk of mortality than boys, resulting in a lower MUAC manifesting already in the very young. A first explanation for this gender disparity could be that admitted girls were found to be suffering more from general illnesses than boys (60.9% vs. 37.1%). Further research is required to confirm anecdotal explanations that gender biased child feeding and care practices were also a cause of these differences.

## Performance indicators

Between May and December 2009, 878 children were discharged from the programme with an average length of stay (LOS) of 47 days[11] and an average weight gain (AWG) of 6.1g/kg body weight/day. This is in line with comparable CMAM programmes[12].

For the Bardiya pilot project, Sphere standards developed for resource-intensive, NGO-led emergency programming have to be used as a reference as standards for integrated, MOHP-led CMAM programmes are not yet available. Compared to Sphere standards, the CMAM pilot in Bardiya shows a low recovery rate due to many children defaulting with the majority of the defaulters (59%) missing their first follow up visit. The main reasons for defaulting were miscommunication between the caregiver and health worker, the mother's perceived recovery of the child and distance to the nearest OTP-providing health facility.

A detailed analysis shows that 23% of defaulters had poor or no appetite when admitted to OTP. They would normally warrant inpatient care however, health workers admitted that caregivers often refuse a referral to the SC, leading to inappropriate outpatient treatment with unsatisfactory weight gain and caregivers misinterpreting lack of appetite as the child disliking RUTF.

With MUAC being the main CMAM entry point, the discharge criteria is adjusted to 15% weight gain and no other SAM criteria met (MUAC>=115mm, no oedema, WHZ>=-3SD). According to the pilot protocols, no minimum LOS is required. Figure 5 shows the corresponding WHZ (WHO) of 365 analysed cases when discharged as cured. For 62.5% of children discharged as cured, the 15% weight gain resulted in a WHZ >=-2SD. Also, 9.3% of children discharged as cured were found still to be severely malnourished (i.e. had a


R Kopplow, Nepal, 2009

Basudev Gautam, Nutrition Focal Person of Bardiya DHO, supervises practical exercise for FCHV checking nutritional oedema

WHZ<-3SD. This was mainly due to lack of adherence to treatment protocols. Overall, health workers perceived a trigger point for discharge of 15% weight gain as a helpful tool to reduce the need for time consuming height measurements during OTP follow up visits. A minimum LOS could have prevented children from being discharged too early. However, a further increase in defaulters could result if the minimum LOS is not closely enough linked to the perceived nutrition status.

## Coverage

A SLEAC (Simplified LQAS[13] Evaluation of Access and Coverage) survey was carried out in November 2009. The coverage found across the district was classified as below the 50% target. Out of the 35 children who were missed out, 34% were eligible for OTP using WHZ only (MUAC<=115mm). This presented a challenge to the screening strategy which mainly relies on community based MUAC screening through FCHVs. Figure 6 summarizes the barriers to accessing OTP services.

The delay in community mobilisation activities is the main reason why more than 50% of caregivers of those children missed out and identified in the SLEAC survey were unaware of the programme. Due to a staffing oversight, activities to raise awareness about malnutrition and availability of CMAM services commenced only during the last quarter of 2009. A number of mobilization activities were subsequently implemented - street dramas, public cooking demonstrations, nutrition school days, orienting private practitioners/traditional healers and traditional birth attendances, conducting house-to-house screening in selected wards and broadcasting an educational radio programme and a nutrition song. Following this, admission numbers increased.

## Integration

Concern's technical support was mainly focused at district level working towards integration of CMAM services into the existing MOHP health structure. The district level MOU, Concern's office within the district hospital compound and a joint

[11] Analysis of LOS and AWG for 401 children discharged cured representing approximately one third of admissions in 2009

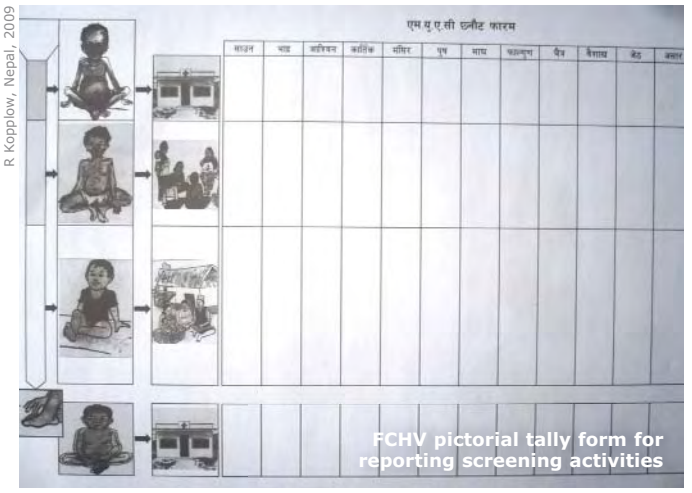
[12] Ethiopia (Wollo), project period 02/03 – 12/03, 590 cured cases, LOS 80 days, AWG 4-4.5g/kg/d; Malawi (Dowa), project period 01/05-12/05, 1,696 cured cases, LOS 45 days, AWG 5.8g/kg/d

[13] Lot Quality assurance Sampling

R Kopplow, Nepal, 2009

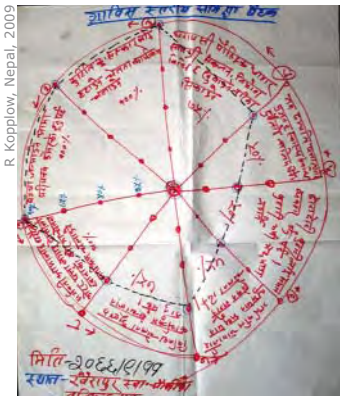
Gulariya HP in charge with CMAM field monitor from CDO jointly analysing OTP patient cards

R Kopplow, Nepal, 2009



FCHV pictorial tally form for reporting screening activities

R Kopplow, Nepal, 2009



Spider web prepared during a village development committee meeting in Bardiya district to collect feedback from CMAM users

CMAM bank account formed the basis for the collaboration with the district health office (DHO). The monthly meetings conducted by the DHO with all PHC/HP (district updates, Health Management Information System (HMIS) reporting) were/are used for identifying CMAM issues (monthly reporting, quarterly supply requests, general feedback). Although the implementation strategy was aimed at strengthening existing structures in order to secure the RUTF, Concern and UNICEF stepped in from the beginning to ensure RUTF availability at all times but without really testing the MOHP supply chain (Figure 7). Systematic drugs were supplied through MOHP without experiencing any shortfall.

With support of the field monitors, PHC/HP in charge prepared their monthly CMAM reports and submitted them along with their HMIS reports to the district health office. The compilation of monthly CMAM statistics for the district was gradually handed over by Concern and since early 2010 has been done by the DHO statistician. In January 2010, Concern reduced its presence in the district to one staff member only focusing on technical support to the DHO for the overall management of district nutrition interventions including CMAM. By the end of June 2010 Concern will have withdrawn from the district leaving CMAM in the hands of the DHO and his team.

The successful integration of CMAM into the daily routine of health workers and FCHV required a series of tiny adjustments. Contact points between FCHV and caregivers and their children suit CMAM screening and referral. Pictorial tally sheets to document screening and home visit activities were developed in a familiar design and incorporated into their already existing reporting booklet. At the health facility, children are registered in the IMCI registration book and medically checked following IMCI procedures. For the nutritional screening, a special form is designed linking IMCI with CMAM procedures and guiding health workers to making the right CMAM admission/referral decision. All systematic drugs prescribed at OTP and SC are on the MOHP drug list and provided free of charge. CMAM reports are compiled following the Nepali calendar and training manuals, reporting forms and patient cards are available in Nepali.

Space and time was permitted for health workers implementing CMAM according to their individual resources and needs. Due to the short project period, integration successes are very much limited to areas where existing structures suit CMAM best (screening, referral, admission and treatment of SAM cases). CMAM components relying on weaker DHO structures (community mobilisation, monitoring) were subcontracted to local partner NGOs. Due to the limited time, the prevention of SAM through interventions aiming for behaviour change was not part of the CMAM pilot in Bardiya. However observations made indicate that government health services might have inadequate resources to provide individual nutrition counselling as part of IMCI, growth monitoring or CMAM.

Concern CMAM team, Nepal, 2009

CMAM field monitor, Rang Bahadur Nepali, from CDO informing a community in Daudakala, Bardiya district about CMAM

## Conclusions

The external evaluation comes to the conclusion that the screening, referral, admission and treatment of SAM children, performed exclusively by staff of the district health office (DHO), is done in line with pilot protocols and procedures even though no introductory or transition phase in which Concern or local partner staff carried out these activities was provided. However, the high defaulter rate and low coverage suggest that community mobilisation activities were not adequately prioritised. Greater integration at community and facility level requires further simplification of the CMAM protocols. It was the right decision to introduce the MUAC cut off point of 115mm and discharge based on 15% weight gain. However a well defined minimum LOS in programme is advised.

Finally, the delivery of RUTF through the MOHP supply chain is crucial with UNICEF/Concern reducing their involvement in this to technical guidance only. Delivery/logistics costs for RUTF have now been incorporated into the DHO budget for the coming financial year, pending approval by central government. Management of supply logistics through government remains a key challenge, more so than cost of supplies.

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CMAM Nepal Logo. Translation: Regularly screen the nutrition status of your child – receive nutrition counselling and timely treatment

# Interpreting results of field surveys using probability calculators



**By Oleg O Bilukha and Curtis Blanton**

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Curtis Blanton is a Statistician with the International Emergency and Refugee Health Branch, Centers for Disease Control and Prevention (CDC). He has over 15 years experience analyzing and designing domestic and international surveys.

Field practitioners in humanitarian settings often face challenges analysing and interpreting the results of nutrition surveys. Most key variables of interest in field surveys are categorical, i.e. expressed as discrete categories such as yes/no, or normal/moderate/ severe. Examples of categorical variables commonly measured in emergency surveys include prevalence of Global Acute Malnutrition (GAM), stunting, underweight, anaemia, coverage of measles immunisation and vitamin A distribution programmes, and several others.

Some of these variables are 'inherently' categorical – for example, measles immunisation and Vitamin A distribution are measured as yes/no. Other variables, for example anthropometric indicators and anaemia, are originally measured as continuous variables (e.g. haemoglobin concentration for anaemia or Z scores for anthropometric indicators), and are converted into categorical variables at the analysis stage using internationally established case definition cut-offs. For example, children 6-59 months of age are classified as stunted if their height for age Z score is <-2, and as non-stunted if Z score is >-2; the prevalence of stunting is presented as proportion of children classified as stunted among all children in a given sample or population. This article discusses analysis of key categorical variables measured in field surveys, irrespective of whether they are 'inherently' categorical, or have been converted into categorical form from continuous data. The theoretical and practical discourse presented below equally applies to any categorical variable measured as a percentage or proportion of the total.

## Interpreting survey results vis-à-vis thresholds

The most common way to analyse categorical data in the field is to calculate the prevalence estimate and the 95% confidence interval (95% CI) around such estimate. In most cases (unless data analysts have the capacity to perform more advanced statistical analyses), programme managers and decision-makers have to rely on these three numbers – prevalence estimate, lower confidence limit, and upper confidence limit – to interpret the results and make programmatic decisions.

The key underlying idea in using the estimated prevalence from a representative sample survey is that a (often relatively small) fraction or sample of the population can provide a reliable estimate of the *true population prevalence*. For example, the prevalence of GAM measured from a survey of 500 children (*sample prevalence estimate*) would be sufficiently close to the prevalence of GAM in all 100,000 children in the surveyed population (*true population prevalence*). Note that we cannot measure all 100,000 children, and therefore we will never know for sure what the *true population prevalence* is, but instead rely on a *sample prevalence estimate* and the 95% CI limits to provide a range where the true population prevalence is most likely to lie. In the surveys where collected data are valid and representative, there is a 95% probability that the true population prevalence lies between the lower and the upper limits of the 95% CI (note that there is still a 5% probability that the true population prevalence lies outside of the 95% CI limits). For example, in the survey where GAM prevalence estimate is 12% and the 95% CI limits are 8% and 16%, there is 95% chance that the true population prevalence of GAM lies somewhere between 8% and 16%.

The key goal when analysing and interpreting categorical survey data is often to infer not only how high or low the *true population prevalence* is likely to be, but also how likely is it to exceed the pre-determined action thresholds (e.g., 5%, 10%, 15% for GAM;[1] 20% and 40% for anaemia;[2] etc.) The chance of the true population prevalence falling within a given range is described by the area under the probability distribution curve. For example, Figure 1 presents a binomial probability distribution curve for the prevalence estimate of GAM from the survey example above. As can be seen, 95% of the area under the distribution curve falls between lower and upper 95% CI limits, whereas 2.5% of the area under the curve falls below the lower 95% CI limits, and 2.5% of the area falls above the upper 95% CI limit. Therefore there is a 2.5% chance that the true population value is below the lower 95% CI limit, and 2.5% chance that the true population value would be higher than the upper 95% CI limit. Similarly, from Figure 2, since 50% of the area under the distribution curve lies below the survey prevalence estimate, and 50% lies above, we can conclude that there is an equal chance that the true population prevalence would be below or above the survey prevalence estimate (in this example, the true population prevalence of GAM is equally likely to be below or above 12%).

When we look at the practices presently used in the field, the most common way of classifying GAM (or other indicators) relative to the thresholds is based solely on the magnitude of the survey prevalence estimate (e.g., if the GAM prevalence observed in the survey exceeds the threshold, then the area is declared above the threshold, and vice-versa). From a statistical perspective, this means that GAM is declared above the threshold when statistical probability of the true population value of GAM exceeding the threshold is above 50%. One drawback of this approach is that the width of the confidence interval becomes virtually irrelevant; it may be, in fact, often ignored in summarising the data for decision-making. Another question is whether 50% constitutes sufficient 'risk' or 'confidence' to make programmatic decisions.

[1] World health Organisation: Management of Nutrition in Major Emergencies. Geneva: WHO, 2000
[2] World Health Organisation: Iron Deficiency Anaemia. Assessment, Prevention and Control. Geneva: WHO, 2001

**Figure 1: Probabilities associated with 95% Confidence Interval**

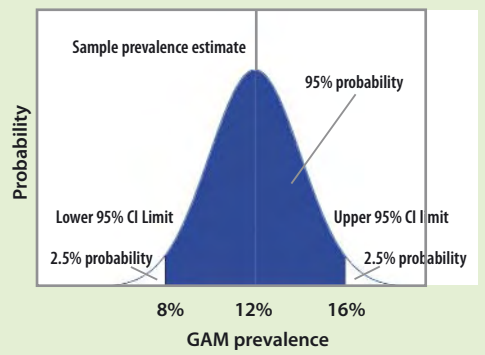



**Figure 2: Probabilities associated with sample prevalence estimate**

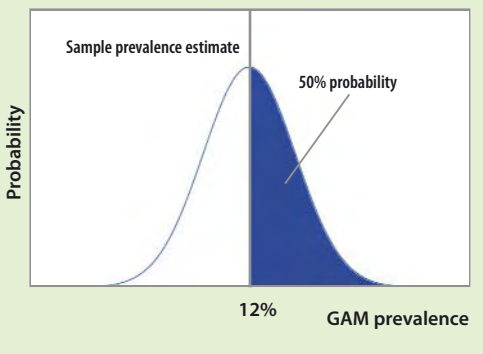
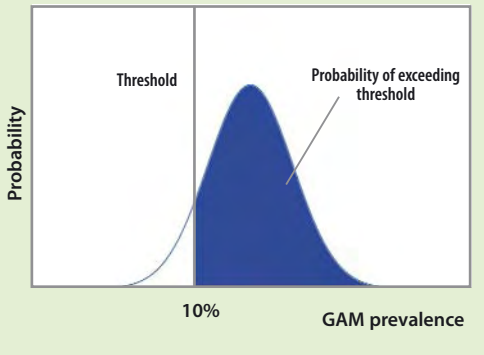



**Figure 3: Probability of exceeding the threshold**




When comparing survey results to pre-determined thresholds, the primary interest is to estimate the probability, or 'risk', that the true population prevalence exceeds the threshold. The higher the 'risk,' the more seriously decision-makers would need to consider implementing appropriate interventions. The probability of the true population prevalence exceeding the threshold is described by the area under the distribution curve that falls above the threshold, as depicted in Figure 3. Using our previous survey example, the area under the curve represents the probability of the true population prevalence to exceed the 10% threshold.

## 'Threshold' probability calculator

To provide additional information for decision-making, we developed a 'threshold' probability calculator that provides the estimated probability of the true population prevalence exceeding the threshold. We used a one-sided t-test for proportions, where the alternative hypothesis tested is that the true population prevalence is lower than the threshold. P-value for this test provides an estimated probability (or 'risk') that the true population prevalence exceeds the threshold.[3,4]

The calculator is in a spreadsheet format, where the user needs to enter some summary survey statistics to obtain the probabilities of exceeding the thresholds. There are three versions of the calculator (included as separate spreadsheets on the Excel file):

1. To use for cluster survey designs, when the design effect (DEFF) for the indicator is known. In this case, the user needs to enter total survey sample size, the number of clusters, survey prevalence estimate, and the DEFF.
2. To use for cluster survey designs, when DEFF for the indicator is not known. In this case, the user needs to enter total survey sample size, the number of clusters, survey prevalence estimate, and the upper and lower 95% CI limits for this estimate.
3. To use in simple or systematic sample surveys. In this case, the user needs only to enter total survey sample size and survey prevalence estimate.

Figure 4 provides the screenshot of the calculator. The information mentioned above is entered in the green cells. The thresholds for which the probabilities are provided are in the yellow column. These thresholds can be defined / changed by the user. The probabilities of the true population value exceeding the threshold are calculated automatically and displayed in the orange column. Figure 4 provides an example of the survey that we used in discussions above (GAM prevalence estimate of 12% and the 95% CI limits 8% to 16%), assuming that this was a cluster survey with 30 clusters and a total sample size of 360 children.

From the values in the orange column on Figure 4 we can see that in this survey area, the probability of the true population value of GAM to exceed 5% threshold is close to 100%, and probabilities of exceeding 10%, 15% and 20% thresholds are 86%, 9% and 0.1%, respectively. This provides much richer information on population 'risk' for decision makers, compared with information based solely on the prevalence and confidence interval limits described above. For example, it tells the user that it is quite likely (86% probability) that the true value of GAM exceeds the 10% threshold, and quite unlikely (9% probability) that the true value of GAM exceeds the 15% threshold. We believe that this information directly quantifying the 'risk' of the true population prevalence exceeding the threshold, combined with other contextual information on risk and protective factors should prove useful for decision-making.

Note that we do not intend to discuss what level of 'risk' (25%, 50%, 95% or other) is high enough to be taken 'seriously' and trigger action. We believe that these decisions should be context-specific, and action should be considered taking into account both the statistical 'risk' estimated from survey data, as well as other existing and potential risk factors.[5] Note also that we do not necessarily endorse the appropriateness of currently used action thresholds for various indicators, or the concept of making programmatic decisions based on comparing the observed prevalence to pre-existing thresholds. We only provide a convenient statistical tool for those field practitioners who feel compelled to conduct these types of analyses.

The calculator presented on Figure 4 can be used for any categorical variable for which results are expressed as a proportion (or percentage) of the total – for example, for prevalence of anaemia, immunization coverage, stunting, wasting, etc. As mentioned, the thresholds can be changed as necessary for a given indicator. For example, it is possible to test what is the probability that measles immunization coverage exceeds a minimum acceptable level, or whether anaemia prevalence exceeds programmatic action threshold that calls for blanket iron supplementation, etc.

## 'Two-survey' calculator

Another challenge for field practitioners is presented when the situation requires assessing significance of the difference between two survey results. For example, consider testing the difference between the surveys conducted in the same area in two different seasons or in two different years, or testing the differences between the results obtained from the surveys in two neighbouring districts or livelihood zones. In these cases, field practitioners often

**Figure 4: 'Threshold' calculator**

| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| 1 | **Confidence Interval Known, but Design Effect Unknown** | | | | | | |
| 2 | **Enter the sample size, the prevalence, lower confidence, upper confidence limit and the number of clusters** | | | | | | |
| 3 | | | | | | | |
| 4 | Total Sample Size | Prevalence | 95% Confidence Interval | | Number of Clusters | Estimate of Design Effect | |
| 5 | | | | | | | |
| 6 | n | Prevalence | Lower | upper | C | Deff | |
| 7 | 360 | 12.00% | 8.00% | 16.00% | 30 | 1.30 | |
| 8 | | | | | | | |
| 9 | Threshold | t-value | Probability of exceeding the threshold | | | | |
| 10 | 2.5% | 10.11 | 100.0% | | | | |
| 11 | 5.0% | 5.34 | 100.0% | | | | |
| 12 | 7.5% | 2.84 | 99.6% | | | | |
| 13 | 10.0% | 1.11 | 86.1% | | | | |
| 14 | 12.5% | 0.25 | 40.2% | | | | |
| 15 | 15.0% | 1.40 | 8.7% | | | | |
| 16 | 17.5% | 2.41 | 1.1% | | | | |
| 17 | 20.0% | 3.32 | 0.1% | | | | |
| 18 | 22.5% | 4.18 | 0.0% | | | | |
| 19 | 25.0% | 4.99 | 0.0% | | | | |
| 20 | 27.5% | 5.77 | 0.0% | | | | |
| 21 | 30.0% | 6.53 | 0.0% | | | | |
| 22 | 32.5% | 2.27 | 0.0% | | | | |

**Figure 5: 'Two-survey' calculator**

| | B | C | D | E | F | G | H | I | J |
|---|---|---|---|---|---|---|---|---|---|
| 2 | | | | | | | | | |
| 3 | | | | | | | | | |
| 4 | **Confidence Interval Known, but Design Effect Unknown** | | | | | | | | |
| 5 | **Enter the sample size, the prevalence, lower confidence, upper confidence limit and the number of clusters** | | | | | | | | |
| 6 | **Survey 1** | | | | | | | | |
| 7 | Total Sample Size | Prevalence | 95% Confidence Interval | | Number of Clusters | Estimate of Design Effect | | | |
| 8 | | | | | | | | | |
| 9 | n | p | Lower | upper | C | Deff | std err | | |
| 10 | 360 | 12.00% | 8.00% | 16.00% | 30 | 1.30 | 1.96% | | |
| 11 | | | | | | | | | |
| 12 | **Survey 2** | | | | | | | | |
| 13 | Total Sample Size | Prevalence | 95% Confidence Interval | | Number of Clusters | Estimate of Design Effect | | | |
| 14 | | | | | | | | | |
| 15 | n | p | Lower | upper | C | Deff | std err | | |
| 16 | 450 | 19.00% | 15.00% | 23.00% | 32 | 1.12 | 1.96% | | |
| 17 | | | | | | | | | |
| 18 | p1-p2 | Pooled Std Error | t | p | DF | 2 sided | 1 sided | | |
| 19 | -7.00% | 2.77% | -2.53 | 0.014 | 60 | 98.6% | 99.3% | | |
| 20 | | | | | | | | | |

[3] Campbell MK, Mollison J, Steen N, Grimshaw JM, Eccles M. Analysis of cluster randomised trials in primary care: a practical approach. Fam Pract 2000, 17:192-6

[4] Fleiss JL, Levin B, Paik MC. Statistical Methods for Rates and Proportions, 3rd ed. New York: John Wiley & Sons; 2003

[5] Bilukha OO, Blanton C. Interpreting results of cluster surveys in emergency settings:is the LQAS test the best option? Emerg Themes Epidemiol 2008, 5:25. http://www.ete-online.com/content/5/1/25

use the 'overlapping confidence intervals test' – i.e. if the 95% CI limits around the estimates from two surveys do overlap, the results are declared not statistically different, and if confidence limits do not overlap, the results are considered statistically different. The problem is that in many instances when confidence intervals do overlap slightly, results may still be significant at 95% confidence level. This is especially true if a one-sided test can be used as discussed below.

To assist field practitioners in these situations, we developed a 'two-survey' calculator for testing the statistical significance of the difference between the estimates from two surveys (or from two strata of the same survey). The statistics in this calculator are based on a t-test for the difference between two proportions, testing an alternative hypothesis that the true population values in the two surveys are different from each other.[6,7]. The two-tailed probability that the true population values are different from each other is calculated as 1-p, where p is a p-value of the above t-test for two proportions. The calculator provides both 1-tailed and 2-tailed probabilities.

Similarly to the 'threshold' calculator, the 'two-survey' calculator is also available in Excel format and has three spreadsheets:

1. For cluster survey designs where prevalence estimates and DEFF in both surveys are known.
2. For cluster survey designs where prevalence estimates are known but DEFF are unknown.
3. For simple or systematic random surveys.

The information that users need to enter for each of the surveys is the same as in the 'threshold' calculator.

Figure 5 presents a screenshot of the 'two-survey; calculator. Users enter information in the green cells, the p-value is presented in the turquoise coloured cell, the 2-tailed probability is in the yellow cell, and the 1-tailed probability is in the blue cell.

Consider comparing GAM prevalence from the two surveys conducted in neighbouring districts A and B (Figure 8). District A results are the ones we used as an example in a 'threshold' calculator, and district B results are as follows: GAM prevalence of 19%, 95% CI from 15% to 23%, sample size 450, 32 clusters. Note that the 95% CI for the two surveys overlap (8%-16% in survey A and 15%-23% in survey B), so by the 'overlapping confidence intervals test' the difference between two surveys would be declared non-significant. From the output in Figure 5, however, we see that the p-value for the 2-tailed test (p=0.014) is significant at 0.05 level, and the 2-tailed probability is 98.6%, meaning that there is about 98.6% statistical probability that the true prevalence of GAM in districts A and B are different from each other.

So, when should we use 1-tailed versus 2-tailed test? For most comparisons between two surveys, a 2-tailed test would be an appropriate test to use. It is more conservative of the two, and does not depend on the a priori hypotheses. The 1-tailed test is more powerful (it always returns a higher probability that two surveys differ from each other), but must be used cautiously and only in specific situations. Generally, we can use a 1-tailed test if we have an *a priori* hypothesis that one population's prevalence is higher than the other, and can clearly justify our thinking. For example, we could use a 1-tailed test in our example above if *before* doing surveys in districts A and B we could *publicly* declare that we expect GAM to be higher in District B, and could explain why we expect that (e.g. because blanket supplementary feeding and general food distribution are implemented in District A and not B, or because District B and not District A experienced drought and had poor harvest, etc.) Note that if our *a priori* guess turns out to be incorrect (e.g. we expected GAM to be higher in District A, and the surveys showed a higher GAM in District B), we cannot use a 1-tailed test.

As was the case with the 'threshold' calculator, the 'two-survey' calculator can also be used for any categorical variable for which results are expressed as a proportion (or percentage) of the total – for example, for prevalence of anaemia, immunization coverage, stunting, wasting, etc.

## Conclusions

In conclusion, we wanted to emphasise that analyses performed by these calculators can also be performed using any common statistical software, like SPSS, SAS or STATA. We propose them solely for their convenience, realising that field practitioners often do not have advanced skills in data management and analysis, or do not have access to statistical software that require expensive licensing rights.

The calculators described in this paper are available from the website of the International Emergency and Refugee Health Branch, CDC: http://www.cdc.gov/nceh/ierh/

The authors look forward to a feedback from field practitioners on the use of these tools. Please send your questions, comments or suggestions to Dr. Oleg Bilukha: obilukha1@cdc.gov

### *From the editors:*

*In the next issues of Field Exchange we are planning to publish additional reports on this topic, describing a variety of experiences of using these tools in the field to interpret results of nutrition surveys and make programmatic decisions. In the interim, if you are interested to learn more about these field experiences or share your thoughts, please contact Peter Hailey (email: phailey@unicef.org), David Doledec (email: ddoledec@unicef.org), and Grainne Moloney (email: grainne.moloney@fsnau.org).*

[6] Murray DM: Design and Analysis of Group Randomized Trials. New York: Oxford University Press;1998.

[7] Donner A, Klar N. Design and Analysis of Cluster Randomization Trials in Health Research. New York: Hodder Arnold; 2000.

# Impact of cash transfers on child nutrition in Niger

**Summary of evaluation[1]**

A recent Save the Children survey conducted in southern Niger found that half of the population could not afford a balanced diet in a typical year. So in 2008, Save the Children in partnership with the CR-CSR/PGCA[2] of Tessaoua district decided to implement a pilot cash transfer project targeting the poorest households. This was evaluated in 2009 and the key findings are represented below.

Beneficiaries were very poor households identified through Household Economy Approach (HEA) analysis and wealth ranking, and households with widows and people with disabilities. A total of 1500 beneficiaries were targeted. Priority was given to mothers and caregivers of children under five years. Cash transfers were only distributed in areas declared by the government as severely food insecure. Coverage was approximately one-third of the population. A total of 60,000 CFA francs, split into three distributions during the hunger gap, was delivered to each household. The cash was distributed to women. Households benefiting from the project were required to take part in awareness sessions on malnutrition and other public health activities. Monitoring of 100 households was conducted using HEA at three key points: before the project started, a month after the first cash distribution at the peak of the hunger gap, and a month after the third distribution. Monitoring also included anthropometric follow-up of children under five years, before the project and after each distribution.

The evaluation found that the cash transfer equated with an annual increase in household income of about one third. However, after receiving the cash transfer, beneficiary households gave up or reduced their reliance on certain sources of income that they used as coping mechanisms, e.g. credit, migration, working in other people's fields, or sale of animals. The fact that households chose to spend more time in their own fields, combined with good rainfall, resulted in a significant increase in their agricultural production, i.e. 50% more millet.

The cash transfer led to a significant change in expenditure patterns, which evolved according to seasonal needs. Generally, the cash was spent on buying food such as millet, cow's milk, meat, groundnut oil, cowpeas and pancakes. During the hunger gap there was a slight increase in purchase

Rachel Palmer/Save the Children, Niger, 2010

**Baraka buying millet at Ourafane market with the monthly cash payment from Save the Children**

of staple food items compared to before the distribution, but the difference was even greater for non-staple foods. During the harvest period, the cash tended to be spent on non-food items like clothing, festivities and ceremonies. Spending on health care almost tripled compared with baseline. There was also a notable increase (69%) in spending on water as more people purchased from boreholes rather than open wells that are free of charge but possibly contaminated.

The month before the first distribution, households could only cover 84% of their minimum energy needs. A third of these households could not even cover 80% of needs. The month after the distribution, households were able to cover 99% of their minimum energy needs. A food aid intervention with millet would have cost an extra 6,340 CFA per beneficiary ($12.50) to cover the logistics for all three distributions.

The additional spending on food led to a substantial increase in intake of fats, proteins and micronutrients (calcium, folic acid and vitamin C). However, households still lacked micronutrients, particularly those found in animal products which remained too expensive for most households to purchase other than in small quantities.

Weight-for-height z-scores (WHZ) were calculated for each monitoring session using the 2006 WHO Growth Standards. Nutritional status of children under five as measured by mean weight-for-height z-score in targeted households improved after the first distribution. However this was not sustained as it declined between the second and third monitoring session. This decline coincided with the rapid escalation in child illness which is common during the lean period. In the same way, although the prevalence of global acute malnutrition (GAM) fell between the first and third distributions, it was not a statistically significant drop (see Table 1). The fact that GAM remained lower during the subsequent monitoring sessions may well reflect that children who were identified as acutely malnourished during the baseline monitoring were treated. Hence, although the overall nutritional status of children deteriorated, it does appear that the treatment programme was helping to protect the most severely malnourished.

Consequently, a key finding of the evaluation was that in this setting, cash transfers need to be complemented by interventions such as disease prevention and micronutrient supplements, so as to better protect children's nutritional status.

The evaluation showed that the cash transfers considerably decreased (and even removed) the need for households to resort to damaging distress strategies. For instance, 10% of households had to mortgage their land and 7% had to sell their land in the three months prior to the project. Only 1% of households mortgaged their land, and none had to sell land, during the timeframe of the project. Also, the cash transfer enabled no less than 21% of beneficiary households to restart income-generating activities such as small-scale trade, selling cooked meals, butchery, and making and selling oil. The money invested in the local economy had a positive effect on all local trade, particularly in milk and oil. Another outcome was that recipients were less desperate to earn money, and so could work in their own fields. The drop in competition for paid work pushed up the local wage rate. As a result, the very poorest in the community, who did not receive cash transfers through the project, benefited from higher rates of pay.

Targeting was a challenge during the programme. It was difficult for community leaders to accept that only households meeting certain criteria would be entitled to direct support. When the cash distributions took place, it was difficult for some people to accept that they would not receive anything, while their neighbours did. During implementation of the project, several checks were necessary to ensure that beneficiary lists were accurately targeting the poorest households. This caused tensions in some villages and required strong negotiation skills to reduce envy and in some cases, to protect leaders' status. A key learning point is that traditional community leaders cannot be held fully accountable for the targeting; government authorities should officially validate and be accountable for targeting. Furthermore, contrary to popular belief, the social cases (households headed by widows or people with disabilities) were not necessarily the poorest or the most vulnerable to malnutrition.

Overall, the evaluation showed that beneficiary households used the cash to cover their basic food needs, diversify their diets and protect their longer-term survival. The targeting process contributed to the project's cost-effectiveness. If the same amount of money had been transferred equitably to all households, each would have received about three times less. There is still a need to further investigate and pilot different approaches to targeting that are easier to implement and more readily acceptable to communities.

Although cash transfers appear to be an efficient way to tackle food insecurity among the poorest households in Niger in the short term, a key question is whether their cost would allow implementation on a larger scale. To provide 20% of the poorest rural Nigerien population, i.e. 2 million people, with the same amount of cash transfer, it would cost 21 billion CFA (US$41 million). This is almost equivalent to the amount spent by the European Union (EU) and the US Agency for International Development (USAID) on humanitarian assistance in Niger during the 2005 food crisis. Large-scale cash transfers would only be feasible for the Nigerien government if donors substantially increased their financial support.

Finally, while the project also demonstrates contribution to a certain economic dynamism, favouring reflation and strengthening petty trade and other livelihood activities, all these gains are likely to be reversed when the next food crisis occurs. In order for the poorest populations to build a solid resilience to face shocks, and to lift themselves out of the poverty trap, regular and predicable support is required. At the same time, it is important that complementary measures (such as appropriate agricultural and rural development policies) are in place, and appropriately funded.

**Table 1: Monitoring results of cash transfers impact**

| | Monitoring 1<br>Baseline before the distribution (beginning of the lean season) | Monitoring 2<br>After distribution 1 (middle of the lean season) | Monitoring 3<br>After distribution 2 (end of the lean season) | Monitoring 4<br>After distribution 3 (harvest season) |
|---|---|---|---|---|
| N<br>Mean WHZ z-score<br>Confidence interval | 127<br>-0.828<br>-1.128 to -0.528 | 148<br>-0.586<br>-0.821 to -0.350 | 150<br>-0.705<br>-0.927 to -0.484 | 154<br>-0.805<br>-0.998 to -0.613 |
| GAM prevalence<br>Confidence interval | 21.3%<br>(14.2-28.4%) | 14.9%<br>(9.2-20.6%) | 16.0%<br>(10.1%-21.9%) | 13.6%<br>(8.2-19.0%) |
| SAM prevalence<br>Confidence interval | 9.4%<br>(4.4 -14.5%) | 3.4%<br>(0.5-6.3%) | 4.7%<br>(1.3-8.0%) | 2.6%<br>(0.1-5.1%) |

WHZ: weight for height z score; GAM: global acute malnutrition; SAM: severe acute malnutrition

[1] Save the Children UK (2009). How cash transfers can improve the nutrition of the poorest children. Evaluation of a pilot safety net programme in southern Niger. Save the Children 2009. Full report at: http://www.savethechildren.org.uk/en/54_7871.htm

[2] Regional and Sub-Regional committees for the Prevention and Management of Food Crisis

Rachel Palmer/Save the Children, Niger, 2010

**Children drinking 'la boule' a watery porridge made from millet that is generally drunk at breakfast**

UNICEF, 2008

# Suggested New Design Framework for CMAM Programming

**By Peter Hailey and Daniel Tewoldeberha**

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The authors would like to acknowledge the numerous people and their ideas, experiences and opinions shared with us over the years that have contributed to this paper. The authors would also like to acknowledge Orla O'Neill, Dr Mesfin Teklu, Amal Bennaim, David Doledec, Nicky Dent and Sylvie Chamois and the others we have forgotten (with apologies) who have kindly commented on the draft of this paper.

The findings, interpretations, and conclusions in this article are those of the author. They do not necessarily represent the views of UNICEF, its Executive Directors, or the countries that they represent and should not be attributed to them.

The last fifteen years have seen unprecedented progress in the field of management of severe acute malnutrition (MSAM). Advances made in the understanding of the pathophysiology of severe acute malnutrition (SAM), the development of appropriate feeding and treatment protocols and the wide scale use of home-based (out-patient) treatment strategies have all contributed to reducing case fatality and increasing coverage.[1,2,3] These achievements in the MSAM have also opened up an opportunity to integrate services into routine health care delivery in many countries. An increasing number of public health facilities and outreach services are now managing cases of SAM with none or minimal external support. This has enabled the unprecedented scale up of MSAM. In some countries this means hundreds or thousands of health centres offering Community-based Management of Acute Malnutrition (CMAM) at national or significant sub-national scale.

The MSAM has been traditionally seen as an emergency intervention with external inputs almost exclusively provided by donors, United Nations (UN) agencies and international non-governmental organisations (INGOs). This has resulted in the waxing and waning of external support based on the reported or perceived level of nutrition emergency, despite the constant presence of severely malnourished children throughout the year and over many years. This traditional model has not been adapted to the new reality of large scale, community based, continuous and Government led programmes. The conventional view is that programmes open based on emergency nutrition prevalence thresholds and close as the situation improves, often only to reopen in the next hunger season. This view is now changing with increasing commitment from decision makers and increased ownership and leadership by Ministries of Health (MOH) towards continued support to CMAM at scale.

There is a need for a fresh look at the opportunities, challenges and implications of CMAM programming as it is now in many countries. This paper examines the suitability of the conventional assumptions regarding CMAM planning and implementation, in particular in areas of chronically vulnerable livelihoods and suggests a new approach to design for CMAM programmes.

The discussion below will lead the reader through the logic used to propose a more up to date framework for MSAM. The ideas are particularly appropriate in situations where

[1] Golden M. The Development of Concepts of Malnutrition. Journal of Nutrition. 2002 (Supplement) (http://jn.nutrition.org/cgi/reprint/132/7/2117S)

[2] Collins et al, Key Issues in the Success of Community Based Management of Severe Malnutrition, Food and Nutrition Bulletin, vol. 27, no. 3 (supplement) © 2006, The United Nations University

[3] Ashworth A., Chopra M., Sanders D et al. WHO guidelines for management of severe acute malnutrition in rural South African hospitals: Effect on case fatality and the influence of operational factors. Lancet 363. 1110-15. 2004

nutrition related 'emergencies' are regularly declared and where, in reality, populations live in a chronic state of nutrition emergency. The prevalence of SAM (<-3 WHZ scores) is taken as reference point in two of the models, with a prevalence of 3% SAM suggested as a threshold for defining an emergency ('response trigger'). This is done to facilitate visualisation while recognising that the threshold for SAM may differ from country to country.

## A conventional conceptual model to initiate emergency response to severe acute malnutrition: the Start–Stop Model

Agencies are able to win the attention of decision makers by providing information /evidence that the situation has exceeded the emergency threshold or will soon do so because of a number of aggravating factors (see Figure 1). This rightly implies that there is a risk of excess mortality associated with higher SAM rates beyond the 'emergency' threshold that requires immediate action. When budgeting for an intervention, implementing partners target all severely malnourished children in the affected area (Figure 2). Targeting only the excess cases above the threshold would be unethical and impossible.

**Note: Usually thresholds of prevalence of Global Acute Malnutrition (GAM) are used as the principal indicator for emergency action. The ratio of SAM to GAM is extremely variable but often a decision to declare a nutrition emergency and to start channelling resources to CMAM is based on the GAM prevalence rather than that of SAM.**

## How the start–stop model is being adapted in the field: The Reality Model

In the process of implementing the conventional model, the reality of operating in difficult circumstances forces changes, resulting in contradictions and distortions between what is said and what is done. Some of the events involved and are described here:

**Assessment-intervention lag time:** The lag time between nutrition survey findings and management of malnourished children on the ground is mainly due to the time it takes to agree on declaring an emergency and then to mobilise resources. In this initial period whilst partners receive funding and mobilise staff, supplies and other needed resources, increased numbers of severely malnourished children remain in a critical situation and part of the crisis period has already passed.

**Stop Signal Lag Time:** As with the start signal above, once a survey or assessment has shown the SAM or GAM rates have moved below emergency thresholds or the assessment indicates improvements it takes some time for an organisation to stop their input of resources or to hand over.

**Start-Stop Cycle Overlap:** Some agencies work using the start-stop model and stop quickly. Others stay longer and try to make the best use of remaining resources to continue support after the end of the nutrition emergency, until the programme is closed or a new emergency is declared.

Thus whilst both donors and implementing partners attempt to synchronise funding and interventions with the rise and fall of acute malnutrition rates, it is inevitable that there is a lag time between the signal for starting or stopping and actual starting or stopping of interventions. This situation becomes particularly accentuated in areas of chronic nutrition emergency where Start –Stop cycles regularly overlap with one another. The model in Figure 3 attempts to show this reality.

The initial design of the intervention being based on a Start-Stop model means that although in reality resources are used for 'non-excess' cases, these resources are used inefficiently. There are few incentives to use the emergency resources for capacity building/ strengthening during the declared emergency and in the phase out period.

***Thresholds and government capacity analysis***

The use of fixed prevalence thresholds was developed and has become entrenched as part of the Start-Stop model. The present approach to using thresholds also needs to change to reflect the reality and the changed implementation model. Momentum to change the conventional approach to using thresholds is also building because of the reported lack of evidence for the thresholds used at present[4]. Yet thresholds are required to make decisions.

A threshold serves two purposes; the first to demonstrate that the situation has passed a critical point and secondly, to allow decisions to be made on what actions should be taken. In the case of SAM, the types of action taken should depend on the number of children estimated to be acutely malnourished and the capacity of the health system to cope with these children. Therefore, we suggest that an analysis of the capacity of the existing health system to cope with the estimated caseload is used as the principal basis for the decision on the level and type of external support that is required. This will have the advantage of adding incentive to interventions to address capacity of the health system as well as saving lives.

**Figure 1: Start-Stop model for decision making on the initiation and duration of 'emergency' MSAM-Conventional Perspective**

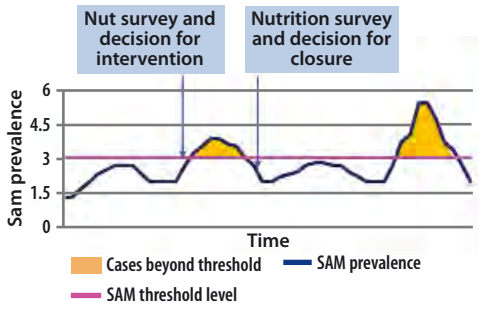



**Figure 2: Start-Stop model for decision on MSAM – Actual Situation**

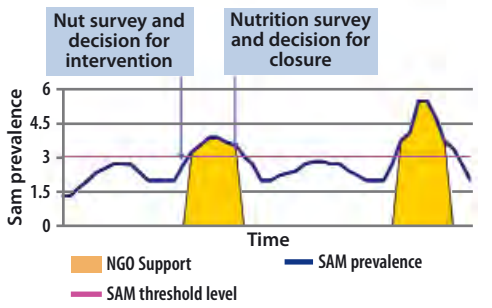
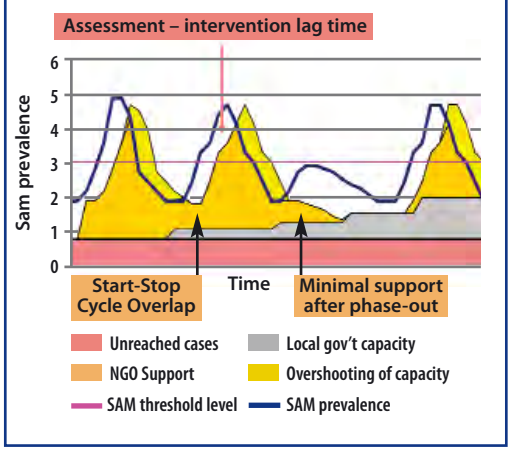



**Figure 3: Reality Model for decision on MSAM**




UNICEF, 2008

[4] H Young and S Jaspers, 2009. thresholds.

To date, there has been little analysis of how capacity-based response triggers could be used to define required external support packages that can build on the existing MOH structure and services, and reinforce the long term development aims of the country. A simple example of a system involving four thresholds and four corresponding degrees of resource inputs is shown in Figure 4. The resource inputs suggested in the pyramid move from simple support through increasing levels of support and substitution of Government services until an almost complete substitution of Government capacity – the 'therapeutic feeding in a tent' phase.

A combination of estimation of prevalence and analysis of Government capacity would be required to define each threshold coupled with an agreement on what type and level of support would be required at each level.

Using a prevalence based threshold without consideration of existing capacity also means that the programme design is often heavier than it needs to be. Implementing agencies tend to design and receive funding for CMAM programmes that assume because it is an emergency, a one size fits all approach requires additional resources that are further up the capacity pyramid e.g. resource substitution and agency led. These types of intervention are more intensive, restricting partners to supporting smaller numbers of centres and smaller geographic areas. This is a cost inefficient approach and limits the full potential of CMAM to increase coverage dramatically.

Thus the use of the conventional Start-Stop model and fixed prevalence thresholds is purely theoretical, outdated and does not fit the reality on the ground. The continued use of such a model is resulting in distortions in the design and implementation of the intervention that are damaging its efficiency, efficacy and sustainability and wasting resources.

**Figure 4: Levels of support on MSAM based on analysis of capacity gap in the public sector**

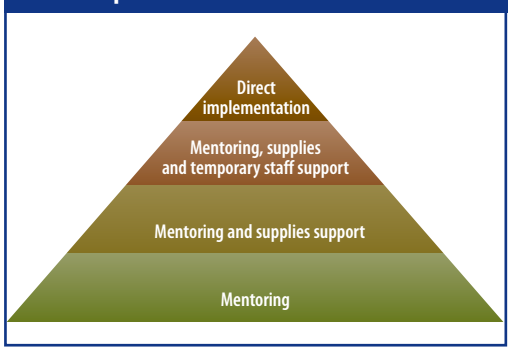
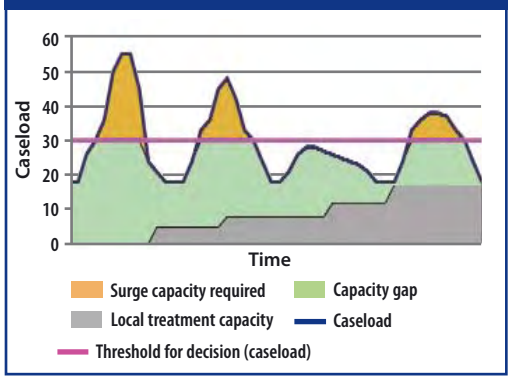



**Figure 5: New Framework for Design of MSAM**




Note: To allow comparison with the earlier models, it is assumed that a 3% SAM level translates to a caseload of 30 in a health facility


UNICEF, 2008

## Bridging Emergency and Development: Disaster Risk Reduction

The intermittent nature of support for the MSAM is in part due to the separation of emergency and development activities in different departments and funding arrangements in bilateral and multilateral agencies. This separate conceptualisation and implementation of emergency and development approaches, and the view that an emergency and associated funding is short term, means that the opportunity to use the emergency intervention and resources to build risk reduction approaches and address longer term aims is not capitalised upon. Ideally such opportunities would also be incorporated into existing or new development programmes so that both approaches are getting more value for money. However this assumes a degree of flexibility and responsiveness that is not normally found in development planning and budgeting.[5]

The gaps arising from the intermittent nature of emergency support are not limited to the MSAM. Recognised for some time, this has led to the concept of disaster risk reduction (DRR). DRR is a broad framework designed to avoid (prevent) or limit (mitigation and preparedness) the adverse effects of hazards like droughts, earthquakes or floods.[6] The UN International Strategy for Disaster Reduction (UN/ISDR) defines DRR as: "The concept and practice of reducing disaster risks through systematic efforts to analyze and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment and improved preparedness for adverse events." Four relevant actions for the MSAM can be found in the definition of DRR: analysis, decreasing vulnerability, decreasing exposure to hazards and improved preparedness for adverse events. **Analysis** involves the use of early warning surveillance systems. An example of **decreasing vulnerability** could be better caring practices including breastfeeding, and improvement in public health environment, such as access to safe water and adequate sanitation for women and children, to improve baseline health and nutritional status. Food insecurity and disease could be regarded as **hazards** to be minimised.

The fourth point that is directly related to MSAM is **improved preparedness for adverse events.** The capacity of a health system to cope with increased needs for curative care for any disease or condition is a key part of preparedness and disaster risk reduction, especially in an area where nutrition emergencies are regular.

## The need for a design framework and alternative thresholds for action: the New Framework for CMAM Design

The new framework outlined in Figure 5 proposes a different way of looking at the MSAM so that there is better readiness and timely response in times of disaster, and continued capacity building/strengthening and integrated service delivery thereafter. It is an attempt to conceptualise what is already evolving in the field of MSAM and to reach a common understanding so that donors, UN agencies, NGOs and government can use an intervention model that is more appropriate to the new realities of CMAM programming.

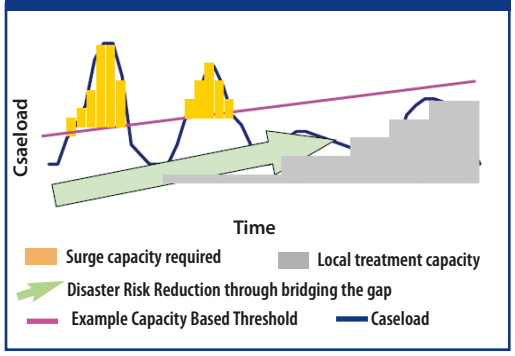
The new framework focuses on the estimated caseload and capacity of the public sector instead of using emergency thresholds based on SAM or GAM prevalence to advocate for an outdated conventional response. The topmost golden part of the new conceptual model indicates the case load when the nutrition situation goes beyond one of the capacity based emergency thresholds. The lowest grey part shows the progressively increasing capacity within the public sector to manage severely malnourished children. In most countries, this increasing national capacity has been and still is being built using emergency funds and interventions. The middle green part represents the gap between the existing local capacity and the actual caseload below the threshold. Note that the threshold for level of resource input decision reflects a hypothetical caseload paralleling the emergency SAM or GAM threshold level.

As argued above, it is easier to mobilise and utilise resources for the topmost part as an

[5] DFID. Disaster Risk Reduction: a development concern; a scoping study on the links between disaster risk reduction, poverty and development. 2004

[6] UN/ISDR. Living With Risk: a global review of disaster reduction initiatives, 2004

**Figure 6: DRR Framework for MSAM**




'emergency intervention'. However, during the declared emergency phase, the interventions are already addressing the (green) national capacity gap, largely by substituting resources but increasingly by building and strengthening capacity even during the emergency. Yet because of the use of outdated conceptual models and the divide between emergency and development, the de facto funding of the green area is not reaching its potential in simultaneously reducing mortality due to SAM and at the same time building/strengthening capacity of the health system. This double objective can be envisaged as a DRR approach to the MSAM, especially in areas of chronic nutrition emergencies.

The model in Figure 6 is based on the Figure 5 framework and attempts to describe the contribution of the new conceptual model and use of alternative thresholds to DRR. The pink line represents one of the suggested capacity based thresholds, above which an external input of resources is required e.g. increased temporary staff represented by the golden vertical bars. The horizontal grey bars reflect the local capacity that is progressively growing over time. The diagonal green arrow represents the use of resources to build/strengthen local capacity. This continuous and adapted engagement is anticipated progressively to increase national capacity to handle the caseload, shifting all the proposed capacity thresholds upwards. The 'capacity based threshold' in this simple example steadily increases as Government capacity increases. Thus a response to increased prevalence of SAM due to a disaster and adapted to existing capacity can save lives and strengthen capacity during and after the disaster, thereby reducing risk, increasing preparedness and developing the health system.

As with any Health System strengthening approach, strengthening CMAM requires an increased attention to using data and systems for oversight, monitoring and audit. It is not just about developing guidelines, training, and when deemed necessary, increased external resources and substitution of government capacity. As scale is achieved and integration into health systems becomes more complete, an emphasis on service quality becomes the priority.

Therefore, agencies involved in CMAM need to re-examine their design frameworks and methods of implementation to bring together the concepts of DRR, capacity building/strengthening, service quality, Government lead, and scale. Gone are the days of supporting a few centres in one or two districts designated to that NGO in the 3Ws (Who, What, Where) framework of the nutrition cluster or sector.

The new conceptual model has a number of advantages:

- In many countries, SAM is a daily challenge to the population. With updated design frameworks, SAM programming and specialist agencies, including donors, can better address this reality.
- Many of the areas that face repeated nutrition emergencies are known for chronic livelihood vulnerability and regular emergencies. A longer term view of support for the intervention, even during the emergency, would result in a more appropriate and cost efficient approach to addressing chronic nutrition emergencies.
- With a more nuanced approach to types of external support required, coupled with longer term objectives, the roles of CMAM partners can be redefined. Partners could broaden the geographical coverage of support interventions, play less of a 'hands on' role and focus on support/facilitation for MOH to manage services for high coverage and quality with emphasis on strengthening capacity for oversight, monitoring and audit.

## Conclusions and Recommendations

For those of us involved in MSAM, the suggested new intervention framework stands in stark contrast to the old framework of intensive, externally resourced, tightly targeted and low coverage interventions. Despite the changes in MSAM over the last 15 years, the conceptual model used by donors and agencies specialised in CMAM has not really changed.

## An unrealistic current model

According to the classic conceptual model (Start-Stop Model), MSAM is treated as a temporary phenomenon that starts and stops, in a similar fashion to polio, cholera or measles outbreak response and/or as if the 'non-emergency' SAM caseload during and after the emergency was being covered by regular development programmes (despite the fact that there was often no local capacity to hand over to). Indeed even the classic conceptual model is not the same as the actual implementation model when many non 'excess' cases of SAM are being treated during and between the emergency periods.

The unrealistic conceptual model coupled with the use of prevalence thresholds for action with a tendency to 'one size fits all' interventions has resulted in contradictions and distortions between what is said and what is done. Agencies have failed to take into account that while their own intervention might have a stop date, the need for CMAM is continuous. In fact in many cases despite the short term nature of individual donations, agencies have been implementing the same programme with short term goals almost continuously for many years, in the name of an emergency response.

## A new framework and alternative thresholds for action

The new conceptual model suggests that emergency resources for MSAM can have two objectives. The first objective is to reduce excess mortality due to raised levels of SAM and the second objective (also a DRR objective) is to strengthen and build capacity.

Instead of using a single prevalence-based threshold to decide on when to start and stop an intervention, a series of existing capacity based thresholds should be used (combined with prevalence estimates or not). This series of thresholds would be area specific and would be set according to the area health systems capacity to cope with increasing caseloads of SAM. The series of thresholds would then be used to decide on what type and intensity of external resource would be required as each level is passed. In addition to being a more realistic and practical use of thresholds, this would put the focus of interventions firmly on capacity building/strengthening.

## A controversial approach?

It is understood that we are working in a time when the emergency and development departments of almost all partners find it hard to define common ground and linkages. This common ground is defined by, as yet, fuzzy concepts such as Early Recovery or DRR and there is limited ownership of these concepts in either department. Furthermore, the often linear conceptualisation of the emergency-to-development continuum, and the supposition that there is limited or no Government involvement in emergencies, is coupled with the assumption that capacity building/strengthening is not possible during emergencies. However this ignores the reality on the ground. In almost all cases, emergency and development interventions are implemented in parallel in the same areas and through the same local government staff and communities. This is particularly true in slow onset, chronic and complex emergencies. Governments at many levels – community, health centre, district and central – are almost always involved throughout the emergency response that is often ongoing for many years and sometimes for many decades. In fact the state has "the primary role in the initiation, organisation, coordination, and implementation of humanitarian (emergency) assistance within its territory"[7]. We suggest that it is possible and necessary to use emergency resources to address the objective of capacity building/strengthening and thus effectively to link emergency and development through DRR – a diagonal approach to programming in difficult circumstances.

In the coming years, the priority for CMAM programming evolution remains one of integration of the approach into Government Health Systems as part of the community based fight to reduce mortality, as well as achieving significant scale and attaining a reasonable quality of care through health system strengthening. The arrival of an 'emergency' intervention onto the development stage presents a challenging transition for all involved. Whilst the transition is happening, emergency resources from donors, UN and NGO's are being used inefficiently. It is suggested that the diagonal approach to managing this transition is a more efficient approach than that currently used in the field.

## Watch this space.....

A further paper in a future issue of field Exchange will share some practical approaches being used in the Horn of Africa to use capacity based thresholds to make decisions on resource requirements for CMAM and to ensure capacity building/strengthening is an equal objective to that of saving lives during an emergency.

For more information, contact Peter Hailey, email: phailey@unicef.org and Tewoldeberha Daniel, email: tewoldeb2002@yahoo.com

[7] UN Resolution 46/182, 1991.

| | |
|---|---|
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| **No of staff worldwide:** | **70** |


**Sachet machine in operation in Malawi**

Valid Nutrition, Malawi

**By Jeremy Shoham, ENN**

The ENN recently interviewed Steve Collins and Paul Murphy from Valid Nutrition (VN) at a Central London Hotel. VN was set up in 2005 in the UK and then transferred to Ireland where it is now a registered charity with special dispensation to trade. Steve chairs a board of trustees, which include a number of individuals with long term interest and commitment to humanitarianism. VN's executive is drawn from the commercial sector. Paul Murphy is currently the VN chief operating officer having had a long and distinguished career at chief executive level in various Unilever subsidiaries.

Paul explained how VN is run as a business in that it aims to earn revenue and profit although these profits are re-invested in the business in pursuit of its social mission. The principal aim of VN is to ensure that Ready to Use Therapeutic Foods (RUTFs) and other specialised foods that are used in the prevention and treatment of malnutrition, are made much more available and affordable. He also explained that while VN is currently dependent upon donor support, its vision is that within two to three years it will become a self-financing business. Before this can happen, however, there is the small matter of paying off start up costs. A key donor is Irish Aid, although VN has also received loan capital and some small private donations. Valid International, which effectively spawned VN, put £200,000 of its own money into starting up VN.

Steve and Paul both outlined how VN effectively uses a social business model combining the effectiveness of business with the goals of a humanitarian agency. As investors will not be able to get their money out, evolution of VN will inevitably be slow without enlightened support. "Getting the working capital for establishing and scaling up production capacity for specialised foods is going to be a challenge as customers won't pay for produce in a hurry but suppliers will want their money up front". Although the market for RUTF is very promising, VN is still having to "fight like hell" to get production up and running. The good news is that purchase orders are already in the system.

VN's modus operandi is to manufacture RUTF and other specialised foods in Africa (and possibly other continents as global demand increases). While in many respects it would be easier to manufacture foods in Europe, this does not fit with the VN vision of local production using local ingredients which positively impacts on local farmers and food security. Prices of RUTF made using local produce will also be lower as transport costs are reduced. In Malawi, for example, VN are beginning to buy groundnuts for RUTF from the national association of smallholder farmers.

A significant challenge for VN is that other producers of RUTF who are not based in Africa may get subsidies from non-African governments. These subsidies can operate in different ways and confer an unfair advantage. Even so, VN are aspiring to produce foods at as low a cost as possible so that their competitors are forced to lower prices too, thereby making RUTF even more affordable.

Steve confirmed that VN has to pay Nutriset a small licence fee to be able to manufacture peanut-based RUTF (Nutriset produced the first RUTF – Plumpy'nut and have a patent on it). The fee is a set percentage of production. The first production plant established by VN was in Malawi. This factory, which has been certified by UNICEF, is owned by VN and currently has a production capacity of 2000 MT per year. The validation process for produce from this factory has not been easy and the Malawi factory has still not been validated for international sales in the region – which will be critical for its long term viability. There appears to be little incentive for UNICEF to grant this international certificate as they are not concerned about increasing production capacity of RUTF in Malawi (they currently have suppliers in South Africa and Mozambique).

The second factory established by VN is in Kenya, set up in collaboration with a local company called INSTA. This factory began production in February 2010 and had international as well as national validation from both UNICEF and Medecins sans Frontieres (MSF). INSTA produces RUTF under licence from VN and pays a straightforward royalty for doing so. INSTA are required by agreement to be transparent with VN as regard cost structures. There are also limitations on profit margins. The royalties provide VN with a revenue stream so that they can be proactive in extending availability of Ready to Use Foods (RUFs) and develop new products as well as conduct research. The Kenya model has worked well as it allows VN to quickly establish production capacity in a country. The company takes on the responsibility for the working capital so it is far more cost-effective for VN. VN control the brand but INSTA are responsible for the marketing.

VN's third factory is in Ethiopia – 'Valsek'. This plant is awaiting validation, hopefully in September 2010 and with the arrival of a packaging machine, it is hoped that RUTF production will then begin. The Ethiopia plant should be allowed to sell in the region, i.e. have international certification. It took a long time to find an appropriate factory in Ethiopia with initial efforts focusing on producers that were too small.

Steve and Paul reflected that in many respects this is just the start for VN. They are certainly 'thinking big'. The VN culture is to be open about everything. If a major private sector entity want to invest in this project and providing they play by a set of ethical rules, then VN see no problem in working with them. VN have the luxury of being efficient when it comes to pricing because there are no shareholders and dividends to pay out. They can offer a market alternative with competitors having to beat them on price and quality. Globally, there may be as many as 20 million children at any one time with severe acute malnutrition (SAM). At 10 kg RUTF a treatment, this translates into a need for 200,000 MT of RUTF or 0.8 billion dollars for the therapeutic feed market. If you start to add in products for treatment of moderate acute malnutrition (MAM) and the infant feeding market, then you can begin to see the scale of production that may be necessary and the potential for another model of production and marketing with ethical engagement at its centre. VN are already looking at West Africa (Nigeria) as another potential production location.

VN are also looking at less expensive RUTF formulations. Randomised controlled trials of new formulations without peanuts and/or milk powder are in progress in Lusaka. Other new product development includes complementary foods for young child feeding with trials taking place in the Democratic Republic of the Congo (DRC). There is also VN interest in developing foods for supplementary feeding and for feeding of HIV infected children although there are currently very little data on impact and efficacy of these foods.

VN are also interested in new and imaginative business models and delivery systems. Globally, almost 300 million, one third of the

developing world's children, suffer from chronic malnutrition. The sheer scale means that this problem is far too great to be left to non-governmental organisations (NGOs) or the public sector alone.

Given the scale of need, VN believe that we need to be considering mass retail distribution mechanisms in a way not conceived of before. Steve and Paul argue that up until now, private companies have had too short-term a vision and have therefore ignored the lower end of the market pyramid, i.e. the poor. They believe that VN could help catalyse development of these markets but cannot do it on their own. They therefore need to engage with the private sector. VN can provide the knowledge and also provide a social brand. It would be a kind of 'enlightened humanitarianism' which takes the private sector beyond CSR (corporate social responsibility). Paul argues that CSR funding is significant but, more often than not, a kind of dead-end money with no real strategic underpinning. Too frequently, it is used as a way of buying off the consciences of the private sector and all who work within it. CSR has no vision of long-term sustainability. What VN are proposing is more of a strategic partnership where money can be made, at the same time as having a sustainable humanitarian impact. Paul commented that the INCAP study in Guatemala, involving a 30-year follow-up of the impact of improved early childhood nutrition, has demonstrated major economic and health benefits from the provision of nutritional supplements to children aged 6 to 24 months, including a 42% increase in adult male earning power. This significant 'return on investment' and the vast potential markets across the developing world have convinced the VN team that it is imperative and economically viable, for both governments and industry to invest in early child nutrition. Steve added that "although there will be lower profit margins, there will be massive long-term benefits. This will make community therapeutic care (CTC)look tiny. Businesses will be able to use their excess capacity without diluting profit margins on major brands. This should be very attractive to the private sector. If VN can lead by example and show how this might work it could so easily take off. We are convinced that the potential reward, albeit long term, is massive at all levels: humanitarian, socio-economic and commercial. There needs to be an evidence base, i.e. examples of how well it could work. Corporations need to invest in the long-term markets but this needs people with vision and passion". For their part, the humanitarian community need to proactively come together to develop and agree a framework setting out the terms on which they would support this ethical engagement with industry.

As Steve says, although the idea of making profit out of the poor is repellent to some people in the humanitarian sector, unless we start to consider this as an option then it is just going to be business as usual. Steve and Paul posed the question, "why can't we have a system where we use the abundant experience and resources of the private sector to fulfil and deliver to a market that is usually left out of the equation and only catered for by the public sector in a way which is ultimately completely disempowering?" As I took the last sip of my slightly over-priced coffee, I had to admit that this was an incredibly powerful and seductive vision.



Samaritan's Purse, Cambodia, 2010

Community based screening for acute malnutrition in the communities of Phnom Penh

# CMAM in Cambodia – indicators of acute malnutrition for screening

By Jennifer Carter and Joel Conkle

Jennifer Carter is a second year MPH student at the Tulane University School of Public Health and Tropical Medicine in the Department of International Health and Development. She lived and worked in Cambodia for three years before returning to the country in May 2010 as a food security and nutrition intern for UNICEF Cambodia.

Joel Conkle is the Nutrition Specialist at UNICEF Cambodia. He has lived and worked in Camodia for three years and previously worked in Southern Africa as a nutrition data consultant for UNICEF.

The authors acknowledge the contribution of Magna Children at Risk and Samaritan's Purse and their staff for their continued dedication in everyday field work and for sharing the data and experiences reflected in this article. Particular thanks to Denisa Augustinova and Paul McKnight.

*This article from Cambodia shares observed differences in acute malnutrition prevalence between WH and MUAC in national survey and some programming data that run counter to the pattern observed in other regions. The authors go on to discuss programming implications for the interim CMAM guidelines in Cambodia.*

According to the WHO/UNICEF Joint Statement on WHO child growth standards and the identification of severe malnutrition in infants and children (2009), "the prevalence of severe acute malnutrition…based on weight-for-height below -3 SD of the WHO standards and those based on a mid upper arm circumference (MUAC) cut-off of 115 mm are very similar[1]." Recent analysis of programme and survey data has shown that this is not the case in Cambodia. This issue has been noted in several studies in sub-Saharan Africa, particularly among pastoralist populations. There has, however, been little research on the discrepancy between weight-for-height (WH) and MUAC derived prevalences of acute malnutrition in Asia, where undernutrition and malnutrition follow very different patterns to other regions of the world.

In Cambodia, UNICEF has supported in-patient treatment of severe acute malnutrition for a number of years. In 2010, along with development partners, UNICEF is supporting the government to develop national guidelines for the management of acute malnutrition and to begin implementation of community screening and health centre based outpatient treatment with Ready to Use Therapeutic Food (RUTF).

[1] WHO child growth standards and the identification of severe acute malnutrition in infants and children. A joint statement by the World Health Organisation and the United Nations Children's Fund. May. 2009

## Cambodia programme data

Data from screening by the non-governmental organisations (NGOs), Samaritan's Purse[2] and Magna Children at Risk[3] indicates that far more children are identified as both moderately and severely acutely malnourished by WH z-scores than by MUAC criteria. Magna screening data (both WH and MUAC were used) was collected at a referral hospital in Kandal province, where the NGO operates a large, comprehensive programme for treatment of moderate and severe acute malnutrition in Cambodia. While the facility is a 24-hour paediatric ward where any sick child will be treated, many people in the surrounding community are aware of Magna's inpatient and outpatient programme for the treatment of malnutrition. Thus the children who comprise the self-selected population, who were screened prior to admission to the facility, are far more likely to present with acute malnutrition than children in a community setting. Recent analysis of data from screening at the Magna health facility shows that the estimated prevalence of moderate and severe wasting among patients (6 to 59 months of age) according to WH (< -2 SD) is 83.1% compared with 65.8% according to MUAC (<125 mm). Differences were also found to be greatest among older children (> 24 months), whereas prevalence estimates derived from WH and MUAC were found to be similar among younger children.

Further new anthropometry data from both Samaritan's Purse (collected in slum communities in Phnom Penh where the NGO is operating) and Magna are being collated and analysed and will be presented in a future issue of Field Exchange. This article focuses on the findings of a reanalysis of the Cambodia Anthropometric Survey (CAS) 2008[4] prompted by the discrepancy noted between WH and MUAC derived prevalences of wasting in both community and facility-based programmes.

## Re-analysis of CAS 2008

The CAS 2008 is a nationally representative sample of 7,495 households with children ages 0 to 59 months, making it the largest national sample of child measurements ever collected in Cambodia. The survey was conducted in order to ascertain the effects of the 2008 food price crisis on the health and nutrition of Cambodians. MUAC was included as an anthropometric measure due to the current debate over the use of WH versus MUAC as measures of acute malnutrition.

A highly significant finding from the survey was that between 2005 and 2008, all improvements in the prevalence of acute malnutrition had effectively halted. According to analysis of the Cambodia Demographic and Health Surveys (CDHS), using the 2006 WHO growth standards for all, between the years 2000 and 2005 Cambodia experienced a 1.7% yearly average decrease in wasting, with the prevalence falling from 16.8% in 2000 to 8.4% in 2005[5,6]. The CAS 2008 determined the prevalence of wasting to be 8.9% and not statistically significantly different from the 2005 estimate[7].

While prevalences of moderate and severe acute malnutrition derived from WH z-scores (< -2 SD) and MUAC-for-age (MUAC/A < -2 SD) were found to be similar in the Cambodia Anthropometric Survey (CAS) 2008, at 8.9% and 8.7% respectively, MUAC (< 125 mm) unadjusted for age produced a wasting prevalence of only 3.8% (UNICEF analysis, see Figure 1). This confirms that in Cambodia, differences in prevalences derived from MUAC and WH occur at the national level, as well as in community and facility-based nutrition programmes.

With regard to severe wasting, the prevalence among children aged 6 to 59 months according to MUAC was only one third of the prevalence according to WH (See Figure 2). The greatest correspondence between both indicators is for the prevalence of moderate wasting, where MUAC prevalence is around three quarters that of WH (see Figure 3).

### *Reasons for WH v MUAC differences in prevalence*

Part of the discrepancy between MUAC and W/H can be attributed to measurement error. The height of the youngest children is more likely to be over estimated, which leads to

[2] http://www.samaritanspurse.org/
[3] www.magnachildrenatrisk.org
[4] National Institute of Statistics (NIS), Ministry of Planning. 2008. *English supplement to the Cambodia Anthropometric Survey 2008*. Phnom Penh, Cambodia: National Institute of Statistics, Ministry of Planning prepared by UNICEF.
[5] National Institute of Statistics (NIS), Directorate General for Health [Cambodia], and ORC Macro. 2001. *Cambodia Demographic and Health Survey 2000*. Phnom Penh, Cambodia, and Calverton, Maryland USA: National Institute of Statistics, Directorate General for Health, and ORC Macro.
[6] National Institute of Statistics (NIS), Directorate General for Health [Cambodia], and ORC Macro. 2006. *Cambodia Demographic and Health Survey 2005*. Phnom Penh, Cambodia, and Calverton, Maryland USA: National Institute of Statistics, Directorate General for Health, and ORC Macro.
[7] See footnote 4.

**Figure 1: Wasting prevalence according to MUAC & WH, CAS 2008**

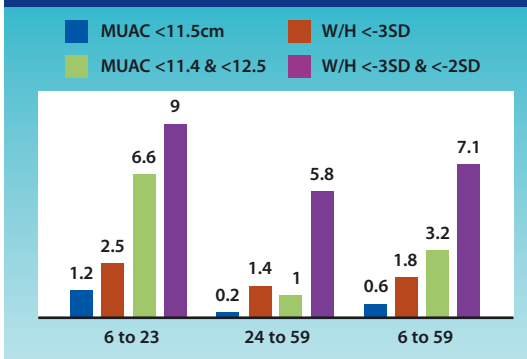



**Figure 2: Severe wasting prevalence, MUAC versus WH, CAS 2008 data**

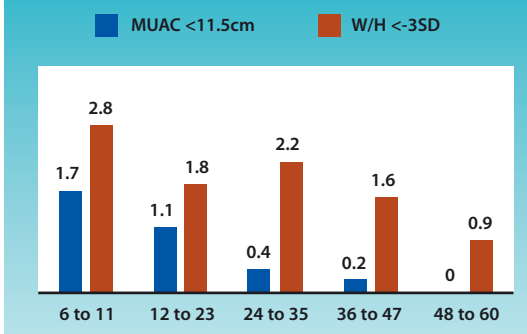



**Figure 3: Moderate wasting MUAC versus WH, CAS 2008 data**

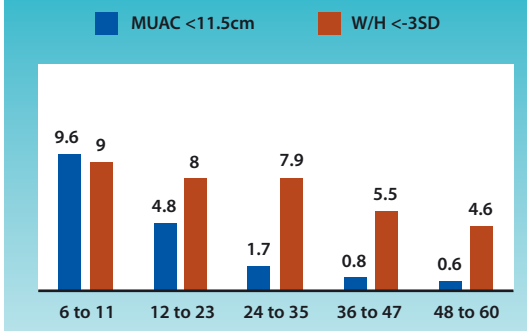



**Figure 4: Percent of children (6 to 59 m) classified as wasted according to MUAC alone, WH alone or both**

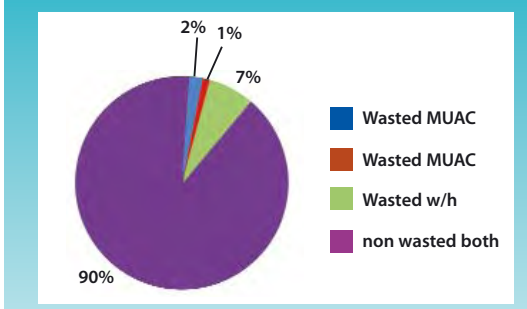
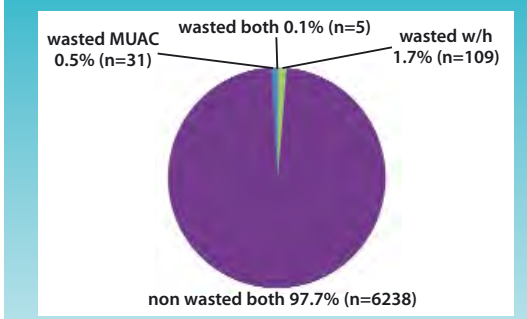



**Figure 5: Percent of children (6 to 59m) classified as severely wasted according to MUAC alone, W/H alone, or both.**




Samaritan's Purse, Cambodia, 2010

Community based screening for acute malnutrition in the communities of Phnom Penh

low levels of stunting and high levels of wasting. However, over estimation occurs mostly in the 6-11 month age group and seems to disappear by 23 months of age. However, as reflected in Figures 1-3, the majority of the difference in wasting prevalence observed by MUAC and WH in CAS 2008 analysis was in older children (> 24 months) and attributable to MUAC not selecting older children. WH remains consistent across age groups in its identification of children as wasted, while MUAC preferentially selects younger children as wasted.

An additional issue when considering MUAC and WH is that the two indicators select different children. Of the 9% of children identified as wasted by either measure, only 2% were selected by both MUAC and WH (see Figure 4) . For severely wasted children, only 5 out of 145 children were selected by both (see Figure 5). While previous studies have shown a similar mortality rate in children selected with either indicator among hospitalised children, there is still some uncertainty about which indicator is more appropriate for community based screening of children for therapeutic feeding.

## Programming implications

Findings from the CAS 2008, along with growing international support for the development of programmes targeting acute malnutrition in non-emergency settings, has led to the development of interim community based management of acute malnutrition (CMAM) guidelines for Cambodia. The guidelines will remain in draft form until sufficient evidence is gathered from the implementation of pilot programmes,

Recommending appropriate indicators of acute malnutrition is integral to ensuring that CMAM guidelines will allow for children at increased risk of mortality due to acute malnutrition to be identified as such in community and health facilities. As the Cambodia CMAM guidelines are being developed, it is important that data is used to inform choices of anthropometric measures. In this respect, it is significant that the difference in MUAC-derived and WH-derived prevalences of wasting increases with age. The indicators produce more similar estimates of acute malnutrition for children under the age of two years than for older children. This is important given the fact that the predictive powers of MUAC and WH increase with age. It makes logical sense that the mortality prediction power of MUAC is strongest among older children (> 23 months)[8]. Having a small arm circumference relative to a set cut-off point at a young age is less likely to be indicative of increased risk of mortality than at an older age. While arm circumference increases slowly between birth and 4 years of age, it does indeed increase among healthy children. Similarly, severe deficits in WH produce an only moderately increased risk of mortality among young children (< 23 months) but a marked increase in risk after 2 years of age[9]. So during the years when there is the most discrepancy between MUAC and WH, both of these indices are likely to be at their highest mortality predictive power.

The fact that discrepancy between MUAC and WH increases with age has significant implications with regard to food security. Wasting among young children is usually indicative of recent disease often coupled with improper feeding practices, while wasting among older children is more indicative of food insecurity. In a 2009 report for the Integrated Food Security Phase Classification (IPC) Global Partners[10], WH is recommended as a better indicator for monitoring changes in food security because it does not preferentially identify younger children as malnourished as MUAC has been shown to do. During periods of food insecurity, as the prevalence of wasting increases, older children are likely to experience a relatively greater increase in acute malnutrition than younger children. Thus it is possible that using MUAC alone will mask problems among older children and thus provide an inaccurate picture of food insecurity in a country or region[11].

## Recommendations

MUAC and WH identifying different children as malnourished means that using only one indicator is likely to leave out a group of children with a similar risk of mortality. For this reason, the interim CMAM guidelines for Cambodia state that either a low MUAC score or a low WH score is grounds for inpatient or outpatient treatment of acute malnutrition, depending on the severity of the deficit and the presence of other clinical signs. This is distinct from the two-stage screening process and thus avoids the problem of 'rejected referrals,' where children referred to the health facility due to low MUAC are turned away from treatment because they do not meet the WH criterion. In a non-emergency setting such as Cambodia, the use of both MUAC and WH for community screening seems a fair compromise until additional evidence from CMAM pilot programmes in rural and urban settings can be obtained.

Findings from Samaritan's Purse, Magna, and the CAS 2008 regarding discrepancies between MUAC and WH warrant further investigation as to which is the better indicator of acute malnutrition. In particular, a facility-based study is needed in order to determine whether MUAC or WH is more associated with clinical signs of malnutrition and mortality in Cambodia. Given the complex relationship that anthropometric measures have with age, there is evidence of the need to disaggregate estimates of risk (for mortality and morbidity) by age in order to better assess the indicators. There may be justification for using different indicators among different age groups, although this would add complexity and thus require sufficient evidence of differences within a population.

Samaritan's Purse, Cambodia, 2010

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Samaritan's Purse, Cambodia, 2010

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A separate but related issue in Cambodia is the need to revise the Integrated Management of Childhood Illness (IMCI) to be in line with the WHO/UNICEF *Joint Statement on WHO child growth standards and the identification of severe malnutrition in infants and children*. At present, IMCI is used at the health centre to diagnose and guide treatment of illness among children. The IMCI algorithm includes weight-for-age (WA) z-scores as the only measure of malnutrition among young children. Research has shown that this may be acceptable for children less than 2 years of age, when low weight is more likely due to wasting than stunting, but not for older children. Low WA in older children is more likely to be caused by stunting rather than wasting (a problem that will not respond to therapeutic feeding). Now that there is evidence that the prevalence given by MUAC and WH is not similar in Cambodia, more research is needed to properly inform the revision of IMCI protocol with respect to anthropometric indicators.

For more information, contact: Jennifer Carter, email: jenncart@gmail.com and Joel Conkle, email: jconkle@unicef.org

[8] Pelletier, D.L. (1994). The relationship between child anthropometry and mortality in developing countries: implications for policy, programs and future research. *Journal of Nutrition 124*, 2047S-2081S.

[9] See footnote 8.

[10] Young, H. & Jaspers, S. (2009). Review of nutrition and mortality indicators for the integrated food security phase classification (IPC). SCN Task Force on Assessment, Monitoring and Evaluation, and The Integrated Food Security Phase Classification (IPC) Global Partners.

[11] Bern, C. & Nathanail, L. (1995). Is mid-upper arm circumference a useful tool for screening in emergency settings? Lancet 345, 631-33.

# People in aid

*Winning team of the nutrition school competition conducted among selected secondary schools in Bardiya district, by CMAM team in Nepal (see field article this issue).*

*Staff at Meds & Food for Kids in Haiti (see field article this issue)*

*Concern Nepal CMAM team: Sher Singh Dahit, Ashok Thapa, Sarita G.C., Urmila Thapa, Sanjay Kumar Das, Regine Kopplow, by Regine Kopplow*



## Corrections

### Correction to table, Field Exchange 38

Note a correction to Table 1 in 'SQUEAC in routine monitoring of CMAM programming coverage in Ethiopia', p36. A number of symbols were inverted. The online version has been corrected as below.

**Table 1: Results from first and second round SQUEAC coverage assessments on 23 heath centres across Togray Region, Ethiopia**

| | First round - November 2008 | | | | Second round-July 2009 | | | |
|---|---|---|---|---|---|---|---|---|
| Health centre | # cases | # covered | Decision value | Coverage | # cases | # covered | Decision Value | Coverage |
| E/Bahre | 22 | 6 | 11 | <50% | 16 | 4 | 8 | <50% |
| Abi Adi | 9 | 1 | 4 | <50% | 7 | 2 | 3 | <50% |
| Wukro Mariam | 19 | 2 | 9 | <50% | 11 | 2 | 5 | <50% |
| Chila | 9 | 0 | 4 | <50% | 7 | 2 | 3 | <50% |
| Mayasmi | 20 | 1 | 10 | <50% | 18 | 2 | 9 | <50% |
| Hayelom | 9 | 0 | 4 | <50% | 19 | 1 | 9 | <50% |
| E/Homus | 28 | 6 | 14 | <50% | 2 | 1 | 1 | <50% |
| Wukro town | 4 | 0 | 2 | <70% | 3 | 1 | 1 | <70% |
| Dinglet | 13 | 2 | 6 | <50% | 0 | 0 | - | - |
| Zala | 26 | 7 | 13 | <50% | 12 | 1 | 6 | <50% |
| Sobeya | 16 | 4 | 8 | <50% | 18 | 3 | 9 | <50% |
| Fatsi | 15 | 0 | 7 | <50% | 18 | 3 | 9 | <50% |
| Zalambesa | 4 | 0 | 2 | <50% | 5 | 4 | 2 | >50% |
| Freweni | 14 | 1 | 7 | <50% | 5 | 2 | 2 | <50% |
| Abi Kebeles | 22 | 9 | 11 | <50% | NA | NA | NA | <50% |
| Dengolat | 11 | 0 | 5 | <50% | 6 | 2 | 3 | <50% |
| Mehoni | 5 | 4 | 2 | >50% | 5 | 3 | 2 | >50% |
| Kukuftu | 4 | 2 | 2 | <50% | 8 | 5 | 4 | >50% |
| Hreko | 7 | 1 | 3 | <50% | 4 | 2 | 2 | <50% |
| Korem | 8 | 3 | 5 | <70% | 0 | 0 | - | - |
| Hiwane | 7 | 1 | 3 | <50% | 7 | 0 | 3 | <50% |
| Adi Godum | 3 | 1 | 1 | <50% | 6 | 4 | 3 | >50% |
| Ado Keyeh | 4 | 1 | 2 | <50% | 5 | 0 | 2 | <50% |

NA=data collection postponed due to schedule conflict with training for community based-nutrition

## Apologies

Do you recognise this symbol?

We inadvertently misused the red cross emblem on the Field Exchange 38 cover illustration. We have since learned that the emblem is protected by various international treaties, and its use in the UK is restricted under the Geneva Conventions Act 1957. Guidance on the use and restrictions of the red cross emblem are available at:

http://www.redcross.org.uk/About-us/Who-we-are/The-international-Movement/The-emblem

For further information, please contact the International Law Department at the British Red Cross at info@redcross.org.uk

## Invite to submit material to Field Exchange

Many people underestimate the value of their individual field experiences and how sharing them can benefit others working in the field. At ENN, we are keen to broaden the scope of individuals and agencies that contribute material for publication and to continue to reflect current field activities and experiences in emergency nutrition.

Many of the articles you see in Field Exchange begin as a few lines in an email or an idea shared with us. Sometimes they exist as an internal report that hasn't been shared outside an agency. The editorial team at Field Exchange can support you in write-up and help shape your article for publication.

To get started, just drop us a line. Ideally, send us (in less than 500 words) your ideas for an article for Field Exchange, and any supporting material, e.g. an agency report. Tell us why you think your field article would be of particular interest to Field Exchange readers. If you know of others who you think should contribute, pass this on – especially to government staff and local NGOs who are underrepresented in our coverage.

Send this and your contact details to:
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email: marie@ennonline.net
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Visit www.ennonline.net to update your mailing details, to make sure you get your copy of Field Exchange.

If you are not the named recipient of this Field Exchange copy, keep it or pass it on to someone who you think will use it. We'd appreciate if you could let us know of the failed delivery by email: office@ennonline.net or by phone/post at the address above.


Field Exchange

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### Cover
Quechua women with their children. Iñigo Lasa, ACF, Peru, 2010

*The opinions reflected in Field Exchange articles are those of the authors and do not necessarily reflect those of their agency (where applicable).*


Field Exchange supported by:

### The Emergency Nutrition Network (ENN)

grew out of a series of interagency meetings focusing on food and nutritional aspects of emergencies. The meetings were hosted by UNHCR and attended by a number of UN agencies, NGOs, donors and academics. The Network is the result of a shared commitment to improve knowledge, stimulate learning and provide vital support and encouragement to food and nutrition workers involved in emergencies. The ENN officially began operations in November 1996 and has widespread support from UN agencies, NGOs, and donor governments. The network aims to improve emergency food and nutrition programme effectiveness by:

- providing a forum for the exchange of field level experiences
- strengthening humanitarian agency institutional memory
- keeping field staff up to date with current research and evaluation findings
- helping to identify subjects in the emergency food and nutrition sector which need more research.

The main output of the ENN is a tri-annual publication, Field Exchange, which is devoted primarily to publishing field level articles and current research and evaluation findings relevant to the emergency food and nutrition sector.

The main target audience of the publication are food and nutrition workers involved in emergencies and those researching this area. The reporting and exchange of field level experiences is central to ENN activities.

### The Team



Jeremy Shoham (Editor), Marie McGrath (Sub-editor) and Carmel Dolan are ENN Technical Directors.

The ENN team would like to mark the departure of Diane from the office support team based in Oxford. Diane joined the ENN over 2 years ago and has played a valuable role in running the office and supporting an increasing project load, often times wearing – and juggling – many different 'hats' of all shades and sizes. With hearty thanks, we wish her the very best.

Thom Banks joins the ENN as a fulltime Desk Operations Officer. Previously managing overseas gap year placements for a UK based charity, Thom brings valuable project management, organisational and communications skills to the ENN team.

Chloe Angood is a nutritionist working part-time with ENN on a number of projects and supporting Human Resources.

Katherine Kaye is the part-time administration assistant at the ENN.

Matt Todd is the ENN financial manager, overseeing the ENN accounting systems, budgeting and financial reporting.

Phil Wilks (www.fruitysolutions.com) manages ENN's website.

Orna O' Reilly designs and produces all of ENN's publications.




The Emergency Nutrition Network (ENN) is a registered charity in the UK (charity registration no: 1115156) and a company limited by guarantee and not having a share capital in the UK (company registration no: 4889844). Registered address: 32, Leopold Street, Oxford, OX4 1TW, UK. ENN Directors/Trustees: Marie McGrath, Jeremy Shoham, Bruce Laurence, Nigel Milway, Victoria Lack, Arabella Duffield

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