

Field Exchange

Emergency Nutrition Network



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- **Surveying nomads in Mali**
- **Integrated surveillance in Malawi**
- **Piloting LQAS in Somaliland**
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This issue of Field Exchange is published in the 'after-glow' of the high profile and long-awaited Lancet series on 'Maternal and Child Undernutrition.' The series of five papers are summarised in this issue with various comments posted in the letters section. In essence, the Lancet series sets out the scale of nutrition problems globally, their human and economic impact, evidence for interventions that have (or have not) made some inroads into the problem, culminating in an analysis of what needs to change if the global burden of undernutrition is to be addressed. Nutrition in emergencies gets very little attention in the series (mainly in paper 5). This may well be appropriate given the scale of endemic undernutrition in non-emergency contexts. However, the limited discussion and analysis of nutrition in humanitarian crises is piece-meal, poorly developed or substantiated and contributes little to current debate and thinking. A major opportunity has been missed.

Emergency issues raised in the series include politicisation of food aid, remittances, role of private sector funding, early warning and needs assessment, assessment of programme coverage and the lack of evidence base for what does and does not work. Many critically important and challenging areas do not get a mention. To name a few, the cash versus food debate, effective means for addressing moderate malnutrition at population level, scaling up livelihoods interventions, the institutional 'blind spot' around internally displaced populations (IDPs), collaborative efforts on infant and young child feeding in emergencies, the need for operationally feasible methodologies for determining programme impact and lack of accountability of donors. It may well be that the authors of paper 5 had to prioritise topics given an extremely limited word count with which to work – if so, it would have been useful to alert the reader to this constraint. Notwithstanding this piecemeal approach to topic coverage, the content of the sections dealing with emergencies also lacks historical perspective, coherence and most importantly, creative thinking around solutions. In effect, the series tends to regurgitate what is already out there in the published literature rather than substantially move the subject forward.

In a comprehensive nutrition series such as this, some form of historical analysis is critical. This is partly because institutional memory is very weak in our sector (reflecting factors like the lack of career development structures and poor coordination between a multiplicity of stakeholders) and also because the past has the ability to bring into sharp relief what is absolutely critical to progress in our sector. It can show us what has worked and changed for the better and why, as well as where we have become stuck or even gone backwards and the explanation for this.

Perhaps the most unforgivable weakness in the series is the failure to advance thinking. Paper 5 (to its credit) discusses the lack of evidence base and information on costs for emergency interventions. As emergency nutrition interventions are very much the 'bread and butter' of this publication, we welcome this focus. Indeed this is something that the ENN have been arguing for years and have repeatedly (perhaps too often) flagged in editorials. The Lancet series has also highlighted the absence of an agency or body with responsibility for taking an overview of the effectiveness and cost-effectiveness of different types of intervention as a reason why the status quo prevails. Again, the ENN has argued this very same point over a number of years. Unfortunately, these ideas are not developed or elaborated in the series. How useful it would have been if the authors had discussed potential institutional locations and processes for such a body. The case for this could have been

strengthened by showing historically what might have been achieved had such an institutional arrangement existed previously. Given the profile and considerable public relations on this series, we feel that an important advocacy opportunity for change has been missed.

The same criticisms cannot, however, be levelled at the interventions and pilot studies described in field articles in this issue of Field Exchange. All, without exception, entail new or modified approaches to programming introduced to address specific problems.

An article by Hanna Mattinen working for Action Contre la Faim describes how blanket distribution of BP5 biscuits to children under five succeeded in bringing down global acute malnutrition rates dramatically in internally displaced persons (IDP) camps in Darfur, following reduction of amounts of Corn Soya Blend in the general ration. Although costly, the approach was seen as a temporary measure to address a short-term problem. Tom Oguta, Grainne Moloney and Louise Masese from FAO's Food Security Analysis Unit write about a pilot study comparing Lot Quality Assurance Sampling (LQAS) with 30 by 30 cluster nutrition surveys in IDP camps in Hargeisa, Somaliland. Although similar results were found for prevalence of malnutrition, morbidity and health programme coverage, there were significant discrepancies for household level data such as dietary diversity, access to water, etc. Furthermore, confidence intervals with LQAS were far wider. The authors conclude that although LQAS is up to 60% cheaper and takes many less person days than a traditional nutritional survey, its most appropriate role is probably where monitoring of hot spots is needed or when there is limited access to an area.

An article by Elena Rivero, Núria Salse and Eric Zapatero of Action Against Hunger describes how an integrated food and nutrition system has been established in Malawi and used effectively for decision making. The authors highlight the advantages of a longitudinal surveillance system over a system of regular cross-sectional surveys and also demonstrate how nutrition and food security information, which is specific to the Malawi context, can be integrated into one information system. Finally, an article by a regular contributor to Field Exchange, Mark Myatt, describes the development and application (in Ethiopia) of a new method to assess nutrition programme coverage. The method, which has the easily remembered acronym SQUEAC (semi-quantitative evaluation of access and coverage), has been developed by Valid International in collaboration with Concern Worldwide, World Vision, and UNICEF. It is less resource intensive than CSAS (see Field Exchange issue 27¹) and makes use of routine data collection as part of programming and small scale surveys.

All these field articles demonstrate a degree of adaptive programming and pragmatism on the part of implementing agencies. The approaches used are not 'one-size fits all' approaches but more 'why not try this in such and such a context'. It is always encouraging and inspiring to see such innovation on the 'front line'.

We hope you enjoy this issue of Field Exchange and find something in here that helps you in your work.

Jeremy Shoham
Editor

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

¹ Field Exchange 27 (March 2006). The challenge of applying CSAS in DRC. Jason Stobbs, AAH- USA. P28-30. Postscript by Mark Myatt.

SQUEAC: Low resource method to evaluate access and coverage of programmes



Group discussion led by local staff

M Myatt, Ethiopia, 2007

Figure 1: Pattern of admissions over time over an entire programme cycle for an emergency-response CTC programme

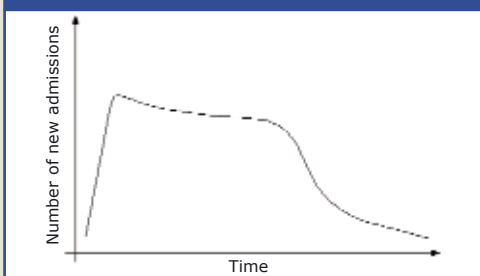


Figure 2: Admissions over time in a CTC programme with initially poor community mobilisation

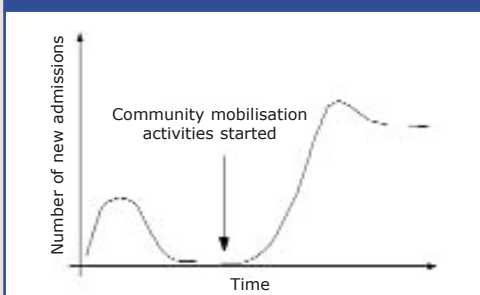
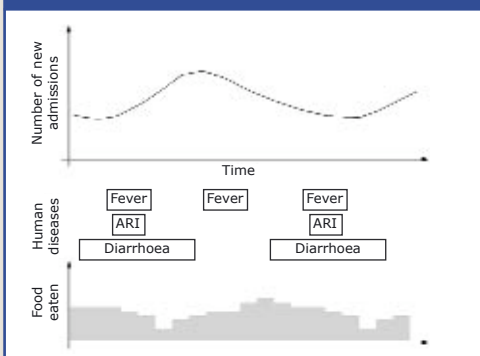


Figure 3: Pattern of CTC admissions over time with seasonal calendars of human diseases associated with acute undernutrition in children and household food availability



By Mark Myatt



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The author would like to acknowledge the contributions of VALID International Ltd, Concern Worldwide, World Vision, and UNICEF to this work.



Centric Systematic Area Sampling (CSAS) was developed to estimate coverage of selective feeding programmes. It provides an overall estimate and a spatial distribution map of programme coverage, and a ranked list of programme-specific barriers to service access and uptake. As CSAS is resource intensive, it tends to be used in programme evaluation rather than in planning. This means CSAS findings arrive too late in the programme cycle to institute effective remedial action. In addition, the community-managed model of service delivery is now being adopted in developmental and post-emergency settings, which tend to suffer from considerable resource-scarcity, compared to emergency response programmes implemented by non-governmental organisations (NGOs). There exists, therefore, a need for a low-resource method capable of evaluating programme coverage and identifying barriers to service access and uptake. This article describes some aspects of such a method¹ currently being developed by VALID International, in collaboration with Concern Worldwide, World Vision, and UNICEF.

Outline of the proposed method for evaluating access and coverage

The method is called SQUEAC (Semi-Quantitative Evaluation of Access and Coverage) and uses a *two-stage screening test model*:

STAGE 1: Identify areas of probable low and high coverage, and reasons for coverage failure using routine programme data, already available data, quantitative data that may be collected with little additional work, and anecdotal data.

STAGE 2: Confirm the location of areas of high and low coverage and the reasons for coverage failure identified in Stage 1 using small-area surveys.

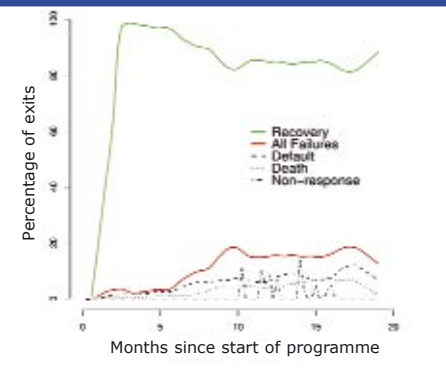
Data sources and their methods of analysis (STAGE 1)

Routine programme data

Experiences with Community Therapeutic Care (CTC) programmes in a variety of emergency settings show that programmes with reasonable coverage show a distinctive pattern in the plot of admissions over time. As can be seen in Figure 1, the number of admissions increases rapidly. These may then fall away slightly before stabilising and finally dropping away, as the emergency abates and the programme is scaled down and approaches closure. Major deviations from this pattern in the absence of evidence of (e.g.) mass migration or significant improvements in the health, nutrition, and food-security situation of the programme's target population indicates a potential problem with a programme's recruitment procedures. For example, Figure 2 shows

¹ A more detailed report on the SQUEAC method can be found at <http://www.brixtonhealth.com/squeac/q.html>

Figure 4: Standard CTC/TFC programme indicator graph



Data courtesy of Concern Worldwide

Figure 5: Home locations of OTP beneficiaries

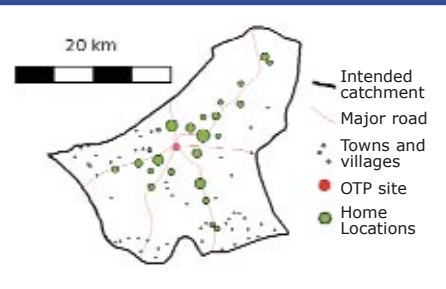


Figure 6: Home locations of OTP beneficiaries who defaulted in the previous two months

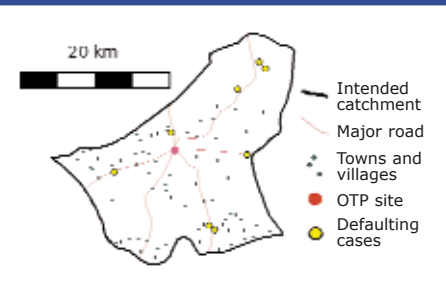
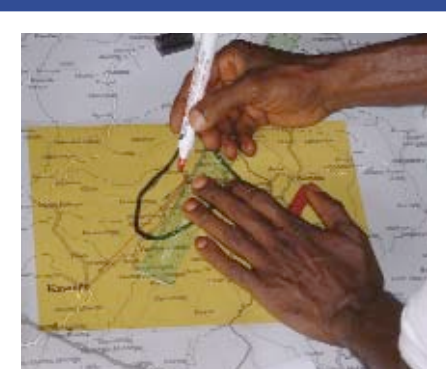


Figure 7: A coverage assessment worker mapping the home locations of OTP beneficiaries



Photograph courtesy of Concern Worldwide

Figure 8: Area of probable low coverage identified by mapping of home locations (shown), analysis of outreach activities, defaulter follow-up, and anecdotal data



Photograph courtesy of Concern Worldwide

a plot of admissions over time in an emergency-response CTC programme that had neglected to undertake effective community mobilisation and outreach activities. Admissions initially increased rapidly and then fell away rapidly. Such a pattern is indicative of a programme with limited spatial coverage, relying on self-referrals.

The pattern of admissions in a developmental setting is likely to be more complicated and, once the programme has been established, should vary with the prevalence of acute undernutrition. Making sense of the plot of admissions over time in such settings requires information about the *probable prevalence* of acute undernutrition. This can be determined using seasonal calendars of human diseases associated with acute undernutrition in children (e.g. diarrhoea, fever, and acute respiratory infection (ARI)) and food availability. Figure 3 shows a plot of admissions over time with seasonal calendars of human diseases and food availability. Deviation from the expected pattern indicates a potential problem with a programme's recruitment procedures.

Using *admissions over time* ignores the problem of defaulters. Defaulters should be in a programme and are, by definition, coverage failures. Figure 4 shows a standard programme indicator graph from a CTC programme. This graph shows an increasing defaulting rate. This was due to the programme having too few Outpatient Therapeutic (OTP) sites. More cases were found and admitted as the programme's outreach activities were expanded. However, more of these cases defaulted after the initial visit because beneficiaries and carers had to walk too far to access services.

The home location of the beneficiary is usually recorded on the beneficiary record card. Mapping the home locations of beneficiaries attending each OTP site is a simple way of defining the *actual* (rather than the *intended*) catchment area of each OTP site. Figure 5, for example, shows the home location of each beneficiary, attending an OTP site, that was admitted to the programme in the previous two months. This plot suggests that the programme has limited spatial coverage with coverage restricted to areas close to OTP sites or along the major roads leading to OTP sites.

Mapping is also a useful way of assessing outreach activities. It is also useful to map the home locations of defaulting cases. Figure 6, for example, shows the home locations of beneficiaries who defaulted in the previous two months. Most defaulting cases come from villages far from the OTP site suggesting that lack of proximity to services (either to the OTP site or to outreach and support services) is a leading cause of defaulting. It may also be useful to record and map DNA (did not attend) referrals (i.e. probable current cases that did not attend the programme despite having been referred to the programme) that you find by referral monitoring (see below). Following-up of defaulting and DNA cases (i.e. with home visits) should also be undertaken in order to identify reasons for defaulting and non-attendance.

All of the mapping work outlined in this article can be performed with a paper map of useful scale, clear acetate sheets, adhesive masking tape, Post-it™ notes, and marker pens. Figure 7, for example, shows a coverage assessment worker mapping the home locations of beneficiaries attending an OTP site.

DNA referrals are more likely than defaulters to be current cases. This means that high DNA rates are associated with low programme coverage. DNA rates can be calculated by monitoring referrals. Mapping of DNA cases can provide information about problems of proximity to services and other barriers to service access and uptake that may also be spatially distributed (e.g. ethnic or religious groups). Defaulting and DNA rates may also be analysed (classified) using the Lot Quality Assurance Sampling (LQAS) technique presented later in this article. The SPHERE minimum standard for defaulting rates is 15% (maximum). This standard may also be used for DNA rates.

Anecdotal data

Three methods of collecting anecdotal data from a variety of sources are used in SQUEAC assessments. These are:

1. **Informal group discussions with:**
 - Carers of children attending OTP sites.
 - Relatively homogenous groups of key-informants (e.g. community leaders and religious leaders) and lay-informants (e.g. mothers and fathers).
 - Programme staff.
2. **Semi-structured interviews** with key-informants such as:
 - Programme staff.
 - Clinic staff.
 - Community-based informants such as schoolteachers, traditional healers, and traditional birth attendants.
 - Carers of defaulting and DNA cases.
3. **Simple structured interviews**, undertaken as part of routine programme monitoring and during small-area surveys, with:
 - Carers of defaulting and DNA cases.
 - Carers of non-covered cases found by small-area surveys.

Other methods of collecting anecdotal data (e.g. formal focus groups and more structured and in-depth interviews) may also prove useful in some contexts. The collection of anecdotal data should concentrate on discovering reasons for both non-attendance and defaulting.

Validating and analysing anecdotal data

It is important that the collected anecdotal data is *validated*. In practice, this means that data is collected from as many different sources as possible. Data sources are then cross-checked against each other. This process is known as *triangulation*. The data collected from routine programme data and anecdotal data, when combined, provide information that can be considered as a set of *hypotheses* that can be *tested*. The SQUEAC method uses small-area surveys to confirm or deny these hypotheses. Hypotheses about coverage should be stated **before** undertaking small-area surveys. Hypotheses about coverage will usually take the form of identifying areas where the combined data suggest that coverage is likely to be satisfactory and areas where the combined data suggest that coverage is likely to be unsatisfactory.

Figure 8, for example, shows an area of probable low coverage identified by mapping home locations, analysis of outreach activities, defaulter follow-up, and anecdotal data. The hypothesis about coverage in this area was that coverage was below the SPHERE minimum standard for coverage of therapeutic feeding programmes in rural settings of 50% due to:

- A mismatch between the programme's definition of malnutrition (i.e. anthropometric criteria and problems of food security) and the community's definition of malnutrition (i.e. as a consequence of illness, particularly diarrhoea with fever).
- Patchy coverage of outreach services particularly with regard to the ongoing follow-up of children with marginal anthropometric status.
- Distance to OTP sites and other opportunity costs.

A small-area survey was undertaken in this area to confirm this hypothesis. The findings of the small-area survey confirmed, in general terms, the hypothesis under test. It also identified a problem with the application of case-definitions leading to some cases being admitted to the wrong programme.

Small-area surveys (STAGE 2)

SQUEAC small-area surveys use the same in-community sampling and data-collection methods as CSAS surveys. Cases are found using an active and adaptive case-finding method (see Box 1). When a case is found, the carer is asked whether the child is already in the programme. A short questionnaire is administered if the malnourished child is not already in the programme.

Severe acute undernutrition is a relatively rare phenomenon. This means that the sample size (i.e. the number of cases found) in small-area surveys will usually be too small to estimate coverage with reasonable precision (i.e. as a percentage with a narrow 95% confidence interval). It is possible, however, to classify coverage (i.e. as being above or below a threshold value) with small sample sizes using a technique known as *Lot Quality Assurance Sampling* (LQAS).

Analysis of data using the LQAS technique involves examining the number of cases found (*n*) and the number of covered cases found. If the number of covered cases found exceeds a threshold value (*d*) then coverage is classified as being satisfactory. If the number of covered cases found does not exceed this threshold value (*d*) then coverage is classified as being unsatisfactory. The value of *d* depends on the number of cases found (*n*) and the standard against which coverage is being evaluated.

Box 1: Active and adaptive case-finding

The within-community case-finding method used in both SQUEAC small-area surveys and CSAS surveys is *active* and *adaptive*:

ACTIVE: The method actively searches for cases rather than just expecting cases to be found in a sample.

ADAPTIVE: The method uses information found during case-finding to inform and improve the search for cases.

Active and adaptive case-finding is sometimes called *snowball sampling*.

Experience with CSAS surveys indicates that the following method provides a useful starting point: Ask community health workers, traditional birth attendants, traditional healers or other key informants to take you to see "children who are sick, thin, or have swollen legs or feet" and then ask mothers and neighbours of confirmed cases to help you find more cases.

The basic case-finding question (i.e. "children who are sick, thin, or have swollen legs or feet") should be adapted to reflect community definitions of malnutrition.

It is important that the case-finding method that you use finds all, or nearly all, cases in the sampled communities.

The SPHERE minimum standard for coverage of therapeutic feeding programmes in rural settings is 50%. The following *rule-of-thumb* formula may be used to calculate a value of *d* appropriate for classifying coverage as being above or below a standard of 50% for any sample size (*n*):

$$d = \left\lfloor \frac{n}{2} \right\rfloor$$

The [and] symbols mean that you should round down the number between the [and] symbols to the nearest whole number. For example:

$$\lfloor 6.5 \rfloor = 6$$

With a sample size (*n*) of 11, for example, an appropriate value for *d* would be:

$$d = \left\lfloor \frac{11}{2} \right\rfloor = \left\lfloor 5.5 \right\rfloor = 5$$

For standards other than 50%, the following *rule-of-thumb* formula may be used to calculate a suitable value for *d* for any coverage proportion (*p*) and any sample size (*n*):

$$d = \left\lfloor \frac{n}{1 + \frac{p}{100}} \right\rfloor$$

For example, with a sample size (*n*) of 11 and a coverage proportion (*p*) of 70% (i.e. the SPHERE minimum standard for coverage of therapeutic feeding programmes in urban settings) an appropriate value for *d* would be:

$$d = \left\lfloor \frac{11}{1 + \frac{70}{100}} \right\rfloor = \left\lfloor \frac{11}{1.7} \right\rfloor = \left\lfloor 6.47 \right\rfloor = 6$$

An alternative to using the simple *rule-of-thumb* formulae presented here is to use LQAS sampling plan calculation software. Consideration of the classification errors associated with candidate LQAS sampling plans should be informed by the *two-stage screening test* model used by SQUEAC².

Figure 9 shows the data collected in the small-area survey of the area shown in Figure 8. The survey found 12 cases and 3 of these cases were in the programme. The appropriate value of *d* for a sample size (*n*) of 12 and a coverage standard of 50% is:

$$d = \left\lfloor \frac{12}{2} \right\rfloor = \left\lfloor 6 \right\rfloor = 6$$

Since 3 is **not greater** than 6, the coverage in the surveyed area is classified as being **below 50%**.

The LQAS technique may also be used to classify defaulting and DNA rates. For example, using the data presented in Figure 10 and a standard for DNA rates of 15% (maximum):

$$d = \left\lfloor \frac{15}{1 + \frac{15}{100}} \right\rfloor = \left\lfloor \frac{15}{1.15} \right\rfloor = \left\lfloor 13.04 \right\rfloor = 13$$

In this example there are 7 DNA cases from 15 referrals. Since 7 is greater than 13, the DNA rate for referrals from this particular community based volunteer (CBV) is classified as being unsatisfactory (i.e. above 15%).

² For more information on this, visit: <http://www.brixtonhealth.com/squeaclq.html>

Figure 9: Data from the small-area survey of the area shown in Figure 8

OTP Site : Mwene Ndeke		
Locality	Cases	Covered
Pene Mukenda	1	-
Kasangati	1	-
Mubanga	1	-
Kamanga	1	-
Muzes	1	-
Bwanaali	1	-
Mupuluzi	1	-

Data courtesy of Concern Worldwide

Figure 10: Example analysis of referrals from a Community Based Volunteer (CBV)

AC2V YR4R		
Referral number	True case	Date of admission
1	Yes	4/6/07
2	Yes	11/6/07
3		
4		
5		
6	Yes	23/7/07
7		
8		
9	No	14/8/07
10		
11	Yes	17/8/07
12	Yes	17/8/07
13	Yes	17/8/07
14		
15	Yes	1/10/07

Red: DNA cases
Orange: Inappropriate referral
Green: Attending cases

Figure 11: Villages selected using the quadrat method

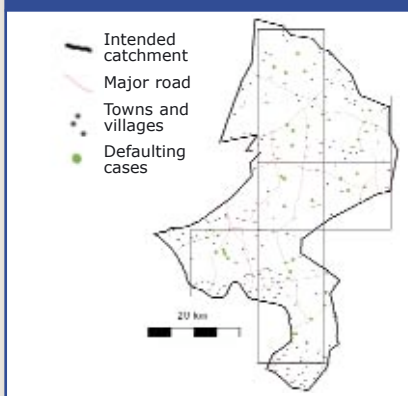


Figure 12: Villages selected using stratified random sampling

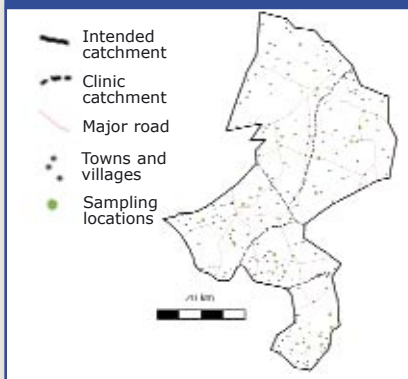


Figure 13: An LQAS sampling plan calculator

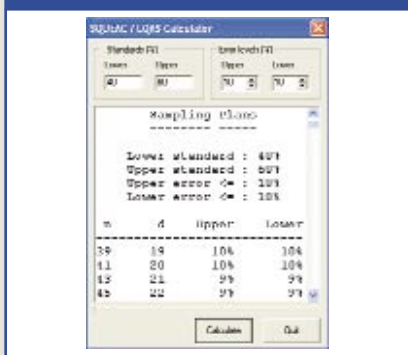


Table 1: Results from six small-area surveys from the first SQUEAC use-study

OTP Site	True Coverage	Cases Found (n)	Covered Cases (c)	Is c > d?	Classified Coverage	
Bezena Benara	> 50%	15	9	7	Yes	> 50%
Jore	> 50%	5	3	2	Yes	> 50%
Yebu	< 50%	16	6	8	No	< 50%
Funto	< 50%	21	7	10	No	< 50%
Demboya	> 50%	5	3	2	Yes	> 50%
Adilo	< 50%	9	2	4	No	< 50%

Data courtesy of World Vision

SQUEAC use-studies

The first SQUEAC use-study examined the ability of the LQAS method to classify coverage correctly and was undertaken by VALID International and World Vision in Ethiopia in March 2007.

Six small-area surveys were undertaken:

- Six OTP sites were selected at random.
- Three villages (kebeles) were selected at random from each OTP site’s catchment area.
- Five localities (gotts) were then selected at random from each of the selected villages.
- Each locality was sampled using active and adaptive case-finding.

The *true coverage* for each OTP site was estimated using data from a CSAS survey undertaken at the same time as the small-area surveys. The results from these small-area surveys are shown in Table 1. The LQAS method correctly classified coverage in each of the six OTP catchment areas.

The second SQUEAC use-study was undertaken in a Concern Worldwide CTC programme in the Democratic Republic of Congo in November 2007. This concentrated on the use and availability of routine programme data and anecdotal data to identify areas with either low attendance rates or high defaulting and DNA rates. It also looked at the ability of local programme staff to collect and analyse data from these sources and to plan, undertake, and analyse data from small-area surveys. Local staff proved capable of using routine programme data to identify probable areas of low coverage and reasons for non-attendance and defaulting when these data were available and presented using simple graphs, tables, and maps. They had no difficulties mapping routine programme data. Local staff also had no difficulty undertaking small-area surveys and analysing survey data using the LQAS technique. However, the collection and analysis of

routine programme data needed to be improved and standardised. Furthermore, collection and analysis of anecdotal data by local programme staff proved problematic, particularly with informal group discussions. This situation may improve with careful selection and training of local staff. Further use-studies will concentrate on resolving this issue.

The SQUEAC method is suited to being used within a *clinical audit* framework³. For more information, visit: <http://www.brixtonhealth.com/squeaclq.html>

Estimating and classifying ‘headline’ or overall programme coverage

Using LQAS techniques to derive a ‘headline’ coverage classification requires:

A first stage sampling method: This is the sampling method that is used to select the villages to be sampled. CSAS assessments use the centric systematic area sampling or quadrat method to select villages to be sampled. If only a ‘headline’ coverage classification is required, then a similar method could be used to select villages to be sampled. The number of quadrats drawn on the map can be smaller than would be used for a CSAS assessment (this is the same as using larger quadrats). The villages to be sampled would then be selected by their proximity to the centre of each quadrat as is done in a standard CSAS survey (Figure 11). Such an approach would be appropriate for classifying coverage over a wide area, such as a health district. In developmental settings it may be desirable to classify coverage over a wide area and also for individual clinic catchment areas. In such situations, a stratified (i.e. by clinic catchment area) sample could be taken with villages selected at random from a complete list of villages within each catchment area (Figure 12).

A within-community sampling method: This will usually be an active and adaptive case-finding method (see Box 1) or a house-to-house census sampling method.

A LQAS sampling plan: This provides a target sample size (n) which, together with prevalence and population estimates, is used to decide the number of villages to sample (see below). The target sample size (n) will usually be larger than is required for the small-area surveys used in the SQUEAC method. Suitable sampling plans can be selected using an LQAS sampling plan calculator. Figure 13 shows an LQAS sampling plan calculator being used to select a sampling plan. This LQAS sampling plan calculator is available, free of charge, from: <http://www.validinternational.org/pages/sub.cfm?id=1780>

A sample size calculation: This is the target sample size (n) from the LQAS sampling plan which, together with estimates of the prevalence of severe acute undernutrition in the survey area and population data, is used to

calculate the number of villages that will need to be sampled:

$$n_{\text{villages}} = \frac{n}{\text{median village population}_{\text{all ages}} \times 0.2 \times \frac{\text{prevalence}}{100}}$$

For example:

Target sample size	39
Median village population (all ages)	600
Prevalence of severe acute undernutrition	1%
Number of villages to sample	$\frac{39}{600 \times 0.2 \times \frac{1}{100}} = 33$

Once these decisions and calculations have been made, sampling locations can be identified and the survey undertaken. A standard questionnaire should be applied to carers of non-covered cases found by the survey.

It is unlikely that a survey will return the target sample size (n) exactly. So, a value for the LQAS classification threshold value (d) for the achieved sample size should be calculated using the *rule-of-thumb* formulae presented earlier in this article. For example:

Target sample size	39
Achieved sample size	43
Standard	50%
d	$\left\lceil \frac{43}{2} \right\rceil = \lceil 21.5 \rceil = 21$

LQAS sampling plan calculation software could also be used (Figure 13).

Coverage is classified using the same technique as is used for SQUEAC small-area surveys. For example:

n	43
d	21
Covered cases found	29
Coverage classification	Satisfactory (since 29 > 21)

Analysis of data collected in individual clinic catchment areas is analysed in the same way although errors may be considerable if sample sizes are very small.

Conclusions

The early work presented in this article suggests that the SQUEAC approach is likely to prove a suitable method for frequent and ongoing evaluation of programme coverage and identification of barriers to service access and uptake. The SQUEAC approach is also capable of providing a similar richness of information as is provided by the CSAS method.

The LQAS method may be used to provide classifications of ‘headline’ or overall coverage over wide areas. The low sample size requirement means that surveys using the LQAS method are likely to be less resource intensive than standard CSAS surveys. Such surveys would, however, be limited in their ability to provide a detailed map of the spatial distribution of programme coverage.

For further information, contact: Mark Myatt, at <http://www.brixtonhealth.com/squeaclq.html>

³ Clinical audit is a quality improvement and monitoring method that seeks to improve service delivery through systematic review against specific criteria and standards and the implementation of change.



M Myatt, Ethiopia, 2007

FSAU, Somalia, 2007



A breastfeeding mother from Berbera

Somali KAP Study on Infant and Young Child Feeding and Health Seeking Practices

By Waweru Joseph Mwaura and Grainne Moloney



Joseph Waweru has worked as Nutrition Project Officer with the FAO Food Security Analysis Unit (FSAU) Nutrition Surveillance Project in Somalia for the last two years. He has coordinated and supervised several nutrition assessments and trainings and reviewed/piloted technical guidelines and methodologies. Previously he worked as a Research Assistant at Kenyatta University.



Grainne Moloney is the Nutrition Project Manager of the FAO/FSAU Nutrition Surveillance Project, where she has worked for the last 18 months. Previously, Grainne worked with UNICEF in Darfur, also on nutritional surveillance, and with Oxfam and Action Against Hunger UK on nutrition and food security in many different contexts.

The authors would like to acknowledge the great effort of Professor Wambui Kogi-Makau and Ms Rose Opiyo for leading the study. The authors also express sincere thanks to the FSAU nutrition team. The contribution of UNICEF, World Vision and Gedo Health Consortium in the study is acknowledged. The study was financed by the Swedish International Development Agency.

Since the collapse of the Somali Central Government in 1991, the country has faced a series of disasters, both natural (floods and droughts) and man-made (poor governance, armed conflict, and collapse of institution/infrastructure). These have led to disruption of livelihood systems, poor provision of basic services and erosion/loss of social care network.

The Food and Agriculture Organisation's (FAO) Food Security Analysis Unit (FSAU) has been conducting nutrition assessments in Somalia for the last eight years. Together with past surveys conducted across South and Central Somalia since the 1980s, these have consistently recorded high levels of acute malnutrition and under five mortality rates, even in years with improved food production. Median rates of global acute malnutrition in 2007, based on 36 surveys, were 15.2% global acute malnutrition (GAM) and 2.7% severe acute malnutrition (SAM), illustrating the severity of the crisis. Potential contributing factors¹ include lack of safe water (only 15% of the population have access), lack of sanitation facilities (25% of the population have access), lack of a functional health system for basic services (measles coverage estimated at 35%) and chronic food insecurity.

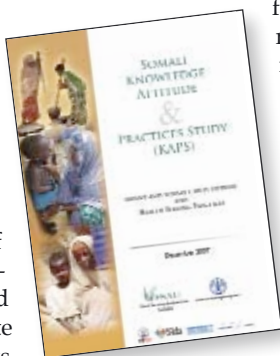
Humanitarian agencies' efforts to address these services deficiencies are hampered by recurrent insecurity. Available data on care practices of young children indicate an alarming situation with regard to breastfeeding, complementary feeding and treatment of childhood illness. Based on the hypothesis that the role of child care, feeding and health practices are a significant contributing factor to chronically high rates of acute malnutrition, the FSAU commissioned a Knowledge Attitudes and Practices (KAP) study in September 2007² to learn more and come up with recommendations to address identified problems.

The study assessed the key livelihood systems³ of Somalia in seven major regions. Data collection methods were both quantitative and qualitative including literature review, focus group discussions, rapid profiles, key informant interviews and case studies. Respondents

included elderly, pregnant women and women of child bearing age, men, traditional birth attendants, traditional healers, community health workers, health professionals, community/religious leaders, women groups and international/local NGOs.

Not surprisingly, the study found that pregnant/lactating women do not have access to formal nutrition education and mainly rely on social networks including grandmothers, traditional healers and sheikhs for advice on child feeding and health seeking behaviours. There is no special diet for pregnant women. However, food intake is reduced in the 3rd trimester to control the size of the baby and thereby ease its delivery. Some of the foods prohibited (though in negligible levels) include honey, lamb meat and ghee. The traditional post-natal care for 40-days after delivery is routinely implemented in all but the pure pastoralists' households. This encourages mothers to eat nourishing food and to focus on breastfeeding in the initial weeks after delivery, however mother often cite lack of resources to purchase the necessary foods.

Breastfeeding is mainly influenced by social environment, especially by maternal grandmothers and other elderly women in the community. Although breastfeeding is acceptable to all, infants are first introduced to sugary water after birth around the 3rd or 4th day after delivery. This is to avoid the colostrum (first milk) that is generally discarded by the mother as considered heavy, thick, coarse, dirty, toxic, and harmful to children's health. Exclusive breastfeeding is not practiced, as breastmilk alone is considered inadequate and water essential to cool the baby and quench their thirst. On a positive note, the agreed and acceptable duration of breastfeeding is 24 months, based on the Koran, Sural Al-Baqrah, Juz 2:233 and is consistent with recommended standards. However, this is rarely implemented for two main reasons – very close birth spacing, since once a women discovers she is pregnant she stops breastfeeding, and an increasing trend of mothers working outside the home, resulting in early separation from the infant.



The study also found that there is a lack of or inappropriate knowledge of proper complementary feeding practices across all livelihood groups. Early introduction of complementary foods (from birth to three months) is common, mainly as cow's/goat's milk (involving no special preparation or storage), tea and porridge. The poorer households report limited access to milk, which they replace with tea/porridge after 3 months. Lack of dietary variety is typical among the riverine and, to a lesser extent, the agropastoral community, where children are mainly fed a cereal-based diet. Tea is often given to children as a snack before meals, which reduces stomach capacity and appetite and interferes with nutrient absorption. During illness, special diets for quick recovery include avoiding animal protein-based foods, which are believed to aggravate illnesses. Knowledge on the use of Oral Rehydration Salts (ORS) for diarrhoea was good, with local adaptations using lemon or water melon juice.

Access to safe water is of major concern, with most households relying on unprotected sources. Water treatment at household level rarely happens. Unsafe water and childhood diarrhoea are the strongest associated factor with childhood malnutrition in Somalia. Sanitation/water-related diseases including diarrhoea, acute respiratory infection (ARI), intestinal parasitic infestations and skin/eye infections are the main reported illnesses. Access to formal health services is limited or unavailable, especially among the rural population. Responses to illnesses tend to follow a generalised pattern of: Prayer → Traditional home health practice → Traditional healer → Buy medicine → Get → Sheikh to pray → Health facility.

This clearly shows the lack of knowledge of, or confidence in, more modern health care practices. Many of the traditional practices are harmful, such as burning of the feet for nutritional oedema, and often result in the child becoming sicker before they are finally taken for conventional treatment.

In conclusion, the study revealed glaring evidences that child feeding and care practices are below the acceptable standards. Much of this can be attributed to poor knowledge, with poor practices exacerbated by the collapse of the basic infrastructure resulting from the war in the early 90's. The study recommends participatory dissemination of the study findings, training, advocacy and active involvement of key community change agents (religious/traditional and professionals) and caregivers in generating solutions for the challenges highlighted. Parallel campaigns and interventions are needed that focus on basic health care, hygiene, sanitation, safe water and child feeding practices. The importance of Islam in imparting positive messages relating to child care and hygiene is very evident, highlighting a clear entry point for community sensitisation and future behaviour change.

For further information or a copy of the full report, please contact Grainne Moloney, P.O. Box 1230- 00621, Nairobi, Kenya. Tel: 254-20-3745734/ 1299; Fax: 254-20-3740598; email: grainne.moloney@fsau.or.ke or Joseph.waweru@fsau.or.ke

¹ Source: FSAU nutrition surveys database (n=105) from 2000 to 2007
² Somali Knowledge Attitudes and Practices (KAP) study. Infant and Young Child Feeding and Health Seeking Practices. FAO/FSAU. December 2007. Available at: http://www.fsauosomali.org/rss_article_id_245.php
³ Agro-pastorals, Pastoral, Riverine, Urban and Coastal Communities.



Fortified maize meal improves vitamin A and iron status in refugees

Summary of published field trial¹

Nangweshi refugee camp was opened in 2000 in response to the influx of refugees fleeing the Angolan civil war. It is located in Western Province of Zambia, about 180 km from the border with Angola. The population figure for June 2003 was recorded by the United Nations High Commissioner for Refugees (UNHCR) as 26,061, with 8,404 households. The planned ration supplied by the World Food Programme (WFP) comprised maize meal, pulses, vegetable oil and salt. An initial analysis of the food aid basket was performed to assess the likely prevalence of micronutrient deficiencies. This showed that the ration was deficient in a number of micronutrients including vitamin A, iron (Fe), riboflavin and vitamin C. High-dose vitamin A capsules were distributed periodically to children in the camp and Fe/folate tablets were available for pregnant women via the antenatal care programme.

Using custom designed mobile milling and fortification equipment, maize meal fortification was field tested in the camp at the beginning of 2003. The equipment was shipped to the camp where it was installed and operated at a central location. The production staff were members of the refugee population, while programme management was undertaken by Care International. A key aspect of this intervention was that maize meal fortified in a country of origin may only have a limited shelf-life of a few weeks, due to the rapid onset of fat

rancidity in tropical temperatures and humidity. This recently published paper describes the outcome of the field trial.

The objective of the trial was to assess changes in Fe and vitamin A status of the population of Nangweshi refugee camp, associated with the introduction of maize meal fortification. Maize grain was milled and fortified in custom-designed mills installed at a central location in the camp. A daily ration of 400g per person was distributed twice monthly to households as part of the routine food aid ration. The trial was a pre- and post-intervention study using a longitudinal cohort. It was not possible to include a control group owing to the geographical layout of the camp and logistics, as well as operational and ethical considerations. Two hundred and twelve adolescents (10-19 years), 157 children (6-59 months) and 118 women (20-49 years) were selected at random by household survey in July 2003 and followed up after 12 months.

The study found that during the intervention period, mean haemoglobin (Hb) increased in children (0.87 g/dl; P <0.001) and adolescents (0.24 g/dl; P = 0.043) but did not increase in women. Anaemia decreased in children by 23.4% (P <0.001) but there was no significant change in adolescents or women. In adolescents, serum retinol increased by 0.16 µmol/l (P <0.001) and vitamin A deficiency decreased by 26.1% (P <0.001).

The authors concluded that there was a clear association between the introduction of fortified maize meal and an improvement in the Fe and vitamin A status of a food aid-dependent refugee population. Improvements in the status of adolescents and a reduction in anaemia in children are important public health gains. Furthermore, although no information was collected on other micronutrient deficiencies, it is likely that the study population was deficient in a number of other micronutrients. In particular, vitamin B deficiency is frequently found in maize consuming populations and health staff in the camp reported isolated clinical cases of pellagra during the intervention period. Niacin and other B vitamins were included in the maize meal fortificant and it is reasonable to assume that this will have led to improvements in the micronutrient status of the population.

The authors also suggest that this type of food aid fortification is an effective means of reducing childhood anaemia and improving adolescent Fe and vitamin A status in highly vulnerable, aid-dependent populations, although its impact on anaemia in women remains unclear. The data suggest that local level, centralised milling and fortification of staple foods should be promoted and their nutritional impact and cost-effectiveness investigated in other operational contexts.

¹ Seal, A et al (2007). Maize meal fortification is associated with improved vitamin A and iron status in adolescents and reduced childhood anaemia in a food aid-dependent refugee population. *Public Health and Nutrition*, pp 1-9



Moderating the impact of climate change

Summary of published research¹

Adaptations to guard against the impact on food security of climate change are reviewed in a recently published article. The authors start with the assertion that relatively inexpensive changes, such as shifting planting dates or switching to another existing crop variety, may moderate negative impacts. However, the biggest benefits will probably result from more costly measures, including the development of new crop varieties and expansion of irrigation. Such measures will require substantial investments by farmers, governments, scientists and development organisations. Prioritisation of investment needs, such as through the identification of 'climate risk hot spots', is therefore a critical issue.

The authors consider three components to be essential to any prioritisation approach: selection of a time scale over which impacts are most relevant to investment decisions, a clear definition of criteria used for prioritisation, and an ability to evaluate these criteria across a suite of crops and regions. The authors focus on food security impacts by 2030, a time period most relevant to large agricultural investments, which typically take 15-30 years to realise full returns.

Twelve major food insecure regions are identified. Each of these comprises groups of countries with broadly similar diets and agricultural systems and that contain a notable share of the world's malnourished individuals, as estimated by the Food and Agricultural Organisation (FAO). Statistical models for evaluating climate change impacts across a suite of crops and regions were then developed using data on historical crop harvests, monthly temperatures and precipitation and maps of crop locations.

Based on the various projections, the authors identified a small subset of crops that met different prioritisation criteria. Because attitude to risk differs and the impact projections for some crops are more uncertain than for others, various institutions might derive different priorities. For example, one set of institutions might wish to focus on cases where negative impacts are most likely to occur, to maximise investment benefits. By this criterion, South Asia wheat, Southeast Asia rice, and Southern Africa maize appear as the most important crops in need of adaptation investments. Other institutions may want investments to target crops and regions for which some models predict very negative outcomes. This would mean a different subset of crops with several South Asian crops, Sahel sorghum and South African maize (again) appearing as the most in need of attention.

Either of these risk attitudes can be applied with an explicit regional focus. For a sub-saharan African institution interested in investing where negative impacts are most likely to occur (where median impact projections are substantially negative, or where most climate models agree that negative impacts are likely to occur), priority investments would include Southern Africa maize, wheat and sugarcane, Western Africa yams and ground nut, and Sahel wheat.

Despite the many assumptions and uncertainties associated with the crop and climate models used, the analysis points to many cases where food security is clearly threatened by climate change in the relatively near-term. The importance of adaptation in South Asia and Southern Africa appears particularly robust. The results also highlight several regions (e.g. Central Africa) where climate-yield relationships are poorly captured by current data sets, and therefore future work is needed to inform adaptation efforts.

The authors conclude that impacts will probably vary substantially within individual regions according to differences in biophysical resources, management and other factors. Therefore, the broad-scale analysis that they present only identifies major areas of concern and that further studies at finer spatial scales are needed to resolve local hot spots within regions.

¹ Lobell, D (2008). Prioritising climate change adaptation needs for food security in 2030. *SCIENCE*, vol 319, 1st February 2008, pp 607-610 Available at <http://www.sciencemag.org>



Mortality in the DRC

Summary of published research¹

Since 2000, the International Rescue Committee (IRC) has documented the humanitarian impact of war and conflict in the Democratic Republic of the Congo (DRC) through a series of five mortality surveys. The first four studies, conducted 2000 - 2004, estimated that 3.9 million people had died since 1998, arguably making DRC the world's deadliest crisis since World War II. Less than 10% of all deaths were due to violence, with most attributed to easily preventable and treatable conditions such as malaria, diarrhoea, pneumonia and malnutrition. The fifth and latest survey covered the period from January 2006-April 2007. It used a three-stage cluster sampling technique to survey 14,000 households in 35 health zones across all 11 provinces, resulting in wider geographic coverage than any of the previous IRC surveys. The key findings and conclusions were as follows:

More than four years after the signing of a formal peace agreement, the DRC's national crude mortality rate (CMR) of 2.2 deaths per 1,000 per month is 57% higher than the average rate for sub-Saharan Africa and is unchanged since the previous IRC survey in 2004. As with previous surveys, mortality rates are significantly higher in the volatile eastern provinces than in the west of the country. In addition, mortality rates have risen significantly in the centre of the DRC. Based on the results of the five IRC studies, an estimated 5.4 million excess deaths have occurred between August 1998 and April 2007. An estimated 2.1 million of those deaths have occurred since the formal end of war in 2002.

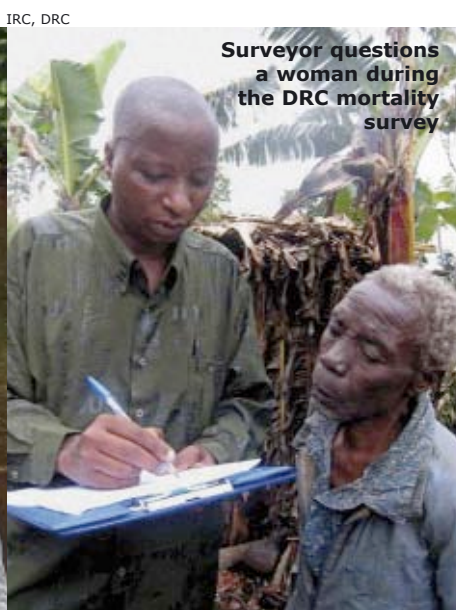
For the period covered by the survey, the only region to record a significant reduction in mortality since 2004 was that encompassing the five eastern provinces. This improvement coincided with a reduction in the risk of violent death, as well as a more robust United Nations (UN) peacekeeping effort by MONUC², the international force in the DRC. Nevertheless, the CMR in this region is still 2.6 deaths per 1,000 per month, a rate that is 85% higher than the sub-Saharan average.


Only 0.4% of all deaths across the DRC were attributed directly to violence. As with previous IRC studies in the Congo, the majority of deaths were due to infectious diseases, malnutrition and neonatal- and pregnancy-related conditions. Increased rates of disease are probably related to the social and economic disturbances caused by conflict, including disruption of health services, poor food security, deterioration of infrastructure, and population displacement. Children, who are particularly susceptible to these easily preventable and treatable conditions, accounted for 47% of deaths, even though they constituted only 19% of the total population.

The persistent elevation of mortality more than four years after the official end of the 1998-2002 war provides further evidence that recovery from conflict can take many years, especially when superimposed on decades of political and socioeconomic decline. These data are consistent with those from other conflict-impacted states. Sustained and measurable improvements in key indicators, such as mortality, will require committed national and international engagement for many years.

¹ Dr Coghlan, B et al (2007). Mortality in the DRC: an ongoing crisis. International Rescue Committee and Burnet Institute. Available from http://www.theirc.org/resources/2007/2006-7_congo-mortalitysurvey.pdf

² Mission des Nations Unies en République Démocratique du Congo.





Workers wade into the Sea to collect WFP food at the southern Somali port of Merka

Links between needs assessment and decisions in food crisis responses

Summary of published review¹

WFP/Peter Smerdon, Somalia, 2007

A recently completed study under the WFP Strengthening Emergency Needs Assessment Capacity (SENAC) project explores the links and disconnects between needs assessment and decision-making, in WFP and its partners, in response to food crises. The study is based on four in-depth case studies conducted in the latter half of 2006 (Sudan – principally the Darfur crisis, Pakistan – the 2005 Kashmir earthquake, Somalia and southern Africa – principally Malawi). Each study involved travel to the regions in question and interviews with key actors in WFP and other bodies. In addition, a number of other ‘reference’ cases were reviewed through documentation and interviews. The report suggests that the function of needs assessment in relation to decision-making is three-fold: to inform internal decisions about response throughout the life of a programme, to influence others’ response decisions, and to justify response decisions and appeals for funds.

Informing internal decisions

The study found that in most of the cases reviewed, WFPs own initial decisions about response were under-pinned by adequate information and analysis from assessments, whether conducted by WFP itself or through a collaborative process. Although WFP assessment practice has, in some respects, embraced a wider food security perspective, it is often still geared around one set of response questions, i.e. how much food aid is required and by whom? The rationale for the proposed food aid strategy is not always clear from the analysis of context in assessment reports and is rarely articulated against a wider range of potential response options. Furthermore, progress in informing initial programming decisions is not yet matched by an ability to make informed decisions throughout the life of a programme. The study recommends that WFP adopt an information strategy for all major responses and that this be budgeted explicitly. Overall, the study team concluded that there is a relative under-investment in the information and evidence base to support response decisions, particularly in monitoring and re-assessment. This is particularly evident in protracted crisis response through Protracted Relief and Recovery Operations (PRROs).

Different information requirements were identified in relation to four types of crisis: rapid onset, slow onset, chronic insecurity/displacement and transition/recovery. What is good assessment practice depends on the context, nature of the crisis, and time-frame for decision-making. The rapid onset cases considered showed the need to agree simple methods for determining initial resource requirements, clearly articulated working assumptions, and the necessity of re-checking those assumptions as situations develop. The slow onset cases showed the importance of agreed triggers for action, based on leading risk indicators or defined thresholds, for effective prevention. The conflict and displacement cases had all these plus other requirements, including ways of

assessing unmet need in currently inaccessible areas, ways of understanding the links between food insecurity and exposure to violence, and more robust methods for calculating the needs of dispersed as well as camp populations. The transitional contexts showed the need to invest more in mechanisms (including surveillance) to determine when a programme should change course or wind up.

According to the study, some of the data and analysis currently produced are simply not relevant to the needs of decision-makers, or are not presented in ways that show their relevance. Some important types of information are often not available – such as people’s relative dependence on food aid or other assistance, and how this may change over time and space. On the other hand, a number of good new tools (including market analysis) were found to be in use, even though the results did not always appear to inform response decisions. The study found a preponderance of quantitative over qualitative methods of analysis and suggests that a better balance needs to be found between them, particularly in livelihood related assessment.

The study team felt that more use could be made of external (local and international) as well as in-house expertise in conducting situational analysis. This could include sociological and anthropological perspectives in addition to more traditional food security approaches. Good needs assessment – particularly in conflict-related situations – is often dependent on the quality of political and social analysis, as much as on anthropometric or economic analysis.

Another finding was that analysis from the existing information and analysis mechanisms – early warning, Vulnerability Analysis and Mapping (VAM), Emergency Needs Assessment (ENA), food security monitoring, etc., is not well integrated. In particular, the relationship between VAM analysis and ENA in informing crisis response decisions is often unclear and demands further attention.

Too little attention is given to feedback of information from the operational level, and the need to build in better ‘feedback loops’ is essential to more responsive programming. At times, the pressure to implement an agreed programme according to plan – especially where complex logistical processes have been established – appears to militate against adaptive programming as needs change or as analysis is refined in the light of local realities.

Influencing external decisions

The link with external decisions was relatively weak. In some cases, decisions – particularly donor funding decisions – clearly precede any formal needs analysis. Many are based on projections of future need, particularly in the case of protracted crises, although the basis for these projections is not always clear.

Donor representatives often claimed that WFP does not help them prioritise between contexts, pointing to the need for a common reference standard and more explicit WFP judgements on relative priorities.

Recent efforts to strengthen needs assessment in WFP have had a significant effect in

building credibility. However, trust in WFP assessment reports is clearly still an issue. Donors expressed varying degrees of scepticism, and some felt that there was a tension between the credibility of WFP’s assessments and the messages it put out through the media. Regarding the latter, there was a perceived tendency to talk up the scale or severity of a situation and WFP’s own role, which was felt to be at odds with objective needs analysis. These credibility barriers appear to be overcome when a robust but constructive relationship exists between donor representatives and WFP country office staff, such that donors can ‘interrogate’ WFP’s findings locally or be directly involved in the assessment process.

Justifying decisions

Moves by WFP towards greater transparency in the assessment process – notably in the practice of publishing assessments reports on the WFP website – have gone a considerable way to providing stronger justification for response decisions, as well as enhancing the influence of the assessments themselves. From the assessment reports reviewed for the study, it is apparent that there is a need to distinguish situational analysis from response option analysis more clearly – but also to make the links between them more explicit. Assessments that are heavily geared towards a particular organisation’s response options have limited potential for informing and influencing others’ response decisions, and provide a relatively weak platform for justifying the organisation’s own response decisions. Demonstrating the links between situational analysis and response options is essential.

There appears to be little incentive (and some disincentive) for WFP country programmes to re-assess situations or to monitor change and impact, particularly if this is likely to indicate a scaled down programme. More generally, there appears to be little demand for information and analysis once an operation has commenced, except when a decision to continue or to exit has to be justified.

The diversity of donor practice in decision-making was found to be one of the single biggest variables in the study. Greater harmonisation of donor decision-making is a necessary condition for more timely and appropriate allocation of funds. The tendency to allocate funds at the time of greatest media coverage can lead to delayed response (in slow onset crises), front-loaded funding (in rapid-onset) and under-funding in protracted or low profile cases.

Overall, the study team concluded that WFP has a significant opportunity to take a lead in establishing good assessment practice across the sector. This involves a combination of rigour, adaptability to context, effective collaboration and good communication – providing timely information to decision-makers (internal and external) in a form they can use.

¹ Darcy, J, Anderson, S and Majid, N (2007). A review of the links between needs assessment and decision-making in response to food crises. Study undertaken for the World Food Programme SENAC project. Humanitarian Policy Group, May 2007. Available at <http://documents.wfp.org/stellent/groups/public/documents/ena/wfp128556.pdf>

Review of CMAM in Ethiopia, Malawi and Niger

Summary of research¹



Waiting area in CMAM programme in Maradi, Niger

USAID requested FANTA to conduct a review of the integration of community-based management of acute malnutrition (CMAM) into the national health systems of Ethiopia, Malawi and Niger. The review is located within a context of growing recognition of the importance of employing more sustainable approaches through existing health system infrastructure, to ensure services continue as emergencies subside and organisations, and their resource flows, diminish.

The objectives of the CMAM country review were to:

- Assess integration of CMAM into national health systems.
- Document challenges of integration and lessons learned and identify factors influencing integration.
- Provide recommendations for improved integration and guidance for Office for Disaster Assistance (OFDA) proposal guidelines and partner selection.

To meet these objectives, FANTA organised visits to Ethiopia, Malawi and Niger between April and June 2007. The review involved document reviews, field visits with direct observation of CMAM services, semi-structured interviews with key informants at national, regional, district and community levels, and discussions with health system staff, community health workers, community volunteers, beneficiaries and non-beneficiaries.

The review found a number of similarities and differences between the three country experiences. Similarities included start-up and scale-up of CMAM services during crises, weak health systems with poor access and low coverage of services, dependence on donor support for supplies, and the presence of numerous stakeholders with fragmented referral and treatment networks. Differences in integration revolved around the extent of Ministry of Health (MoH), UNICEF and international non-governmental organisations (INGO) leadership and coordination, and on varying strategies for transferring responsibility for CMAM to MoHs. The review identified five key elements for successful integration that should be considered by MoHs, NGOs and donors that are designing, implementing or coordinating CMAM programmes:

- The enabling environment for CMAM* demonstrates the importance of MoH technical leadership and coordination. A support unit to the MoH for technical guidance on CMAM is helpful for capacity development at national policy and district implementation levels. National guidelines serve as an important policy tool and lead to better harmonisation of CMAM services.

Over the long term, commitment by donors to develop and maintain capacities is needed, along with planning for future emergencies and for transition of services post-emergency.

- Access to CMAM services should be assured in priority districts following initial start-up in learning sites and gradual scale-up. Both inpatient and outpatient care needs to be made available by linking with a community-based network of formal and informal healthcare and community systems.
- Access to CMAM supplies should be ensured during and after emergencies. While beyond the means of most developing country budgets, it is critical that CMAM supplies of essential drugs and therapeutic foods be secured by MoHs. Long-term donor commitment to provide supplies is necessary.
- Quality of CMAM services can be assured through adherence to national CMAM guidelines, support to and supervision of CMAM services, and harmonised monitoring and evaluation tools that are linked to the national health information system.
- CMAM competencies can be strengthened through integrating pre- and in-service training for CMAM into national curricula for all levels of health care providers (community health workers, nurses, and physicians). Training should be augmented through practical learning experiences at CMAM learning sites, post-training on site mentoring support and supervision, and regular experience sharing at meetings and other fora.

The importance of a health systems approach – during service introduction, expansion or transition from emergency to development contexts – is especially important to ensure that CMAM is integrated into the national health system, while not supplanting other essential services. Accordingly, tools to improve assessment, design, monitoring and evaluation of the introduction and scale up of CMAM services are needed.

In countries with a high burden of acute malnutrition, national health policies will have to carefully assess the need for and situate CMAM within other essential health care and nutrition services. National health policies will have to identify context-specific strategies on how best to address high levels of acute malnutrition. CMAM services may be prioritised in certain highly vulnerable areas with a chronic burden of acute malnutrition, in emergency-prone areas, and/or as a nationwide service.

Global-level recommendations include:

- Advocate and attract technical and financial

support from donors to integrate CMAM into national health policies and strategic plans.

- Support country initiatives to invest in the key elements identified for successful integration and sustainability of CMAM.
- Invest in developing tools for improving assessment, design, monitoring and evaluation of CMAM.
- Update donor project proposal guidelines for CMAM programming and include guidance based on the key elements for improved integration identified in the review.
- Broaden the base of NGOs providing CMAM support and include grantees that are in best position to address key elements for integration and scaling up of CMAM through their expertise in strengthening health systems.

The review also identified the need to document in greater detail successful integration experiences, specifically examining the process and context of integrated service introduction and scale-up. In addition, evidence of integrated CMAM services and comparisons of these experiences to those of other integrated services, such as Integrated Management of Childhood Illness, is also important to document. Finally, the various approaches and strategies employed by NGOs and MoHs globally for CMAM service provision should continue to be documented and shared through various channels, including workshops, databases and publications.

¹ Review of CMAM in Post-Emergency Context: Synthesis of Lessons in Integration of CMAM into National Health Systems. Available to download at: http://www.fantaproject.org/publications/ethiopia_2007.shtml



A child attending a CMAM programme in Malawi

Summary of Lancet Series on Maternal and Child Undernutrition

Below are short summaries of the recently launched Lancet series of papers on Maternal and Child Undernutrition¹. This high profile series focuses on the disease burden attributable to undernutrition and the interventions aimed at addressing the problem by strengthening household food availability and use, maternal and child care and control of infectious diseases. Although this series mainly deals with nutri-

tional issues in stable contexts, it is nonetheless a critically important (as well as much criticised) body of work that provides a comprehensive update and snapshot on the state of nutrition globally. Furthermore, while the ENN and Field Exchange are mandated to focus on emergency nutrition, it is recognised both by the editorial team (and almost certainly by our readers) that the distinction between emergencies and stable

contexts is often ambiguous and at times quite arbitrary. Clearly, many of the findings in the LANCET series have relevance to emergency contexts. A number of our readers approached us to provide comment on the series, considering the ENN and Field Exchange as good fora for this type of exchange and these are included in the Letters section (Ed).

¹ <http://www.globalnutritionseries.org/>

Global and regional exposures and health consequences (Paper 1)

The first Lancet paper¹ presents new analyses to estimate the effects of the risks related to measures of malnutrition, as well as to suboptimal breastfeeding practices, on mortality and disease. The authors estimate that stunting, severe wasting, and intrauterine growth restriction together were responsible for 2.2 million deaths and 21% of disability-adjusted life years (DALYs) for children younger than 5 years.

Deficiencies of vitamin A and zinc were estimated to be responsible for 0.6 million and 0.4 million deaths, respectively, and a combined 9% of global childhood DALYs. Iron and iodine deficiencies resulted in few child deaths and combined were responsible for about 0.2% of global childhood DALYs. Iron deficiency as a risk factor for maternal

mortality added 115,000 deaths and 0.4% of global total DALYs. Suboptimal breastfeeding was estimated to be responsible for 1.4 million child deaths and 44 million DALYs (10% of DALYs in children under five years).

In an analysis that accounted for co-exposure of these nutrition-related factors, they were together responsible for about 35% of child deaths and 11% of total global disease burden. The high mortality and disease burden resulting from these nutrition-related factors make a compelling case for the urgent implementation of interventions to reduce their occurrence or ameliorate their consequences.

Key related research needs identified by the authors include;

- Prevalence of deficiencies of vitamin A, zinc, iron and iodine in sub-national populations.
- Consequences of nutritional deficiencies for mortality from HIV/AIDS, malaria, and other important infectious diseases.
- Consequences of nutritional deficiencies for immune competence, brain development, cognitive ability and other possible effects.
- Overlap of micronutrients and their joint effects on mortality and morbidity.
- Development of international foetal and newborn growth standards.

¹ Black et al, 2008. Maternal and Child Undernutrition 1. Maternal and child undernutrition: global and regional exposures and health consequences. Published Online January 17, 2008. DOI:10.1016/S0140-6736(07)61690-0

Consequences for adult health and human capital (Paper 2)

The second paper¹ in the Lancet series deals with the potential long-term implications of undernutrition. The paper reviews the association between maternal and child undernutrition and human capital and risk of adult diseases in low-income and middle income countries. Data are analysed from five long-standing prospective cohort studies from Brazil, Guatemala, India, the Philippines and South Africa.

The analysis found that indices of maternal and child undernutrition (maternal height, birth weight, intrauterine growth restriction, and weight, height and body mass index (BMI) at 2 years according to the new WHO

growth standards) were related to adult outcomes (height, schooling, income or assets, offspring birth weight, BMI, glucose concentrations, blood pressure). Systematic review of studies from low and middle income countries for these outcomes and for indicators related to blood lipids, cardiovascular disease, lung and immune function, cancers, osteoporosis, and mental illness was undertaken. It was found that undernutrition was strongly associated, both in the review of published work and in new analyses, with shorter adult height, less schooling, reduced economic productivity and for women, lower offspring birth weight. Associations with adult disease indicators were not so clear-cut. Increased size at birth and in childhood were positively associated with adult BMI and to a lesser extent with blood pressure values, but not with blood glucose concentrations.

In the new analysis and in published work, lower birth weight and undernutrition in childhood were risk factors for high glucose concentrations, blood pressure and harmful lipid profiles, once adult BMI and height were adjusted for. This suggests that rapid postnatal weight gain, especially after infancy, is linked to these conditions.

The review of published works indicated that there is insufficient information about long term changes in immune function, blood lipids or osteoporosis indicators. Birth weight is positively associated with lung function and with the incidence of some cancers, and undernutrition could be associated with mental illness.

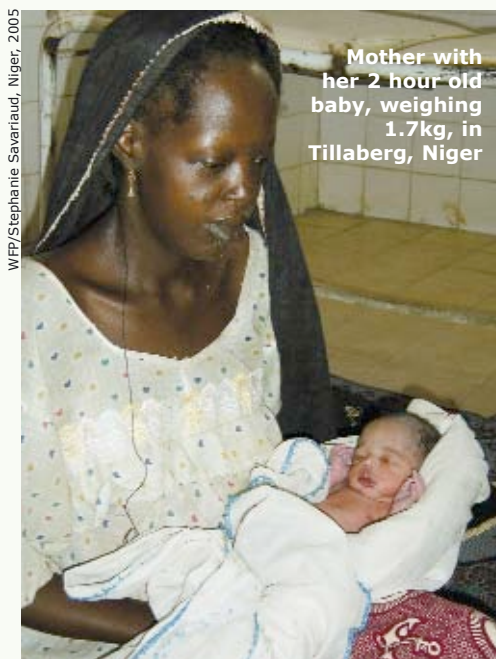
The reviewers also noted that height-for-age at 2 years was the best predictor of human

capital and that undernutrition is associated with lower human capital. The authors concluded that damage suffered in early life leads to permanent impairment, and might also affect future generations. Its prevention will probably bring about important health, education and economic benefits. Also, chronic diseases are especially common in undernourished children who experience rapid weight gain after infancy.

A number of areas for future research were highlighted:

- Association between rapid weight and length gain at different age intervals in infancy and childhood with human capital and outcomes related to chronic disease, to define the age after which rapid growth should be avoided.
- Long term effects of weight gain in late childhood stratified in previously stunted and non-stunted children, and for children with and without intrauterine growth restriction.
- Long term effects of micronutrient deficiencies in childhood.
- Association between undernutrition and longterm changes in immune function blood lipids, osteoporosis, and mental illness.
- Improved quantification of the economic effect of undernutrition on adult productivity.
- Interactions between genes and environmental factors in long term outcomes.

¹ Victoria et al (2008). Maternal and Child Undernutrition 2. Maternal and child undernutrition: consequences for adult health and human capital. Published Online January 17, 2008 DOI:10.1016/S0140-6736(07)61692-4



Mother with her 2 hour-old baby, weighing 1.7kg, in Tillaberg, Niger

WFP/Stephanie Saveraud, Niger, 2005

Interventions for maternal and child undernutrition and survival (Paper 3)

In the third paper of the Lancet series¹, the authors review interventions that affect maternal and child undernutrition and nutrition related outcomes. These interventions included promotion of breastfeeding, strategies to promote complementary feeding, with or without provision of food supplements, micronutrient interventions, general supportive strategies to improve family and community nutrition and reduction of disease burden (promotion of handwashing and strategies to reduce the burden of malaria in pregnancy).

The authors showed that although strategies for breastfeeding promotion have a large effect on survival and are deemed an essential intervention for infants younger than 5.9 months across all populations, the effect of breastfeeding strategies on stunting was small.

In populations with sufficient food, education about complementary feeding increased height-for-age Z score by 0.25 (95% CI 0.01-0.49). However, provision of food supplements (with or without education) in populations with insufficient food increased the height-for-age Z score by 0.41 (0.05-0.76). The authors consider complementary feeding counselling and support strategies in food insecure populations could substantially reduce the burden of stunting and related disease.

Management of severe acute malnutrition according to WHO guidelines reduced the case-fatality rate by 55% (risk ratio 0.45, 0.32-0.62). Recent studies suggest that newer commodities, such as ready-to-use therapeutic foods, can be used to manage severe acute malnutrition in community settings.

Effective micronutrient interventions for pregnant women included supplementation with iron folate (which increased haemoglobin at term by 12g/L, 2.93-21.07) and micronutrients (which reduced the risk of low birth-weight at term by 16% (relative risk 0.84, 0.74-0.95). Recommended micronutrient interventions for children included strategies for supplementation of vitamin A (in the neonatal period and late infancy), preventive zinc supplements, iron supplements for children in areas where malaria is not endemic and universal promotion of iodised salt.

The authors used a cohort model to assess the potential effect of these interventions on mothers and children in the 36 countries that have 90% of children with stunted linear growth. The model showed that existing interventions that were designed to improve nutrition and prevent related disease could reduce stunting at 36 months by 36%, mortality between birth and 36 months by about 25%, and disability-adjusted life years associated with stunting, severe wasting, intrauterine growth restriction and micronutrient deficiencies by about 25%. To eliminate stunting in the longer term, these interventions should be supplemented by improvements in the underlying determinants of under-nutrition, such as poverty, poor education, disease burden, and lack of women's empowerment.

The authors identified a number of evidence gaps:

i) The effectiveness and cost-effectiveness of nutritional interventions in national health systems need urgent assessment. Both single and packaged interventions that affect general nutrient micronutrient intake in

women and children should be assessed for their effect on stunting rates and weight gain.

ii) Few nutritional interventions for mothers have assessed a wide range of outcomes at sufficient scale. In particular, those with multiple micronutrients and calcium need to be assessed with long-term tracking of effect on maternal and child health.

iii) Few studies of large-scale interventions for promotion of breastfeeding have assessed their effects on feeding patterns and growth outcomes beyond infancy. With the new WHO growth standards, such studies are needed to assess the effectiveness of strategies for breastfeeding promotion and appropriate complementary feeding for growth and morbidity in various age-groups.

iv) There is a need for large-scale studies to verify the irreversibility of stunting in children aged 36-49 months and older.

v) Whether the adverse effects associated with stunting, e.g. cognitive impairment or risk of infection disease, can be ameliorated or reversed.

vi) Although the efficacy of preventive zinc supplementation is proven, studies of the effectiveness of various zinc delivery strategies (fortification, supplementation, and bio-fortification) are urgently needed.

vii) Since community-based preventive and treatment strategies for severe acute malnutrition have been the subject of only a few studies, robust experiments in this area should be prioritised.

¹ Bhutta et al (2008). Maternal and Child Undernutrition 3. What works? Interventions for maternal and child undernutrition and survival. Published Online January 17, 2008 DOI: 10.1016/S0140-6736(07)61693-6

Effective action at national level (Paper 4)

Paper 4 in the Lancet series¹ reports on an assessment of actions addressing undernutrition in the countries with the highest burden of undernutrition, drawing on systematic reviews and best-practice reports. Seven key challenges for addressing undernutrition at national level are defined and reported on: getting nutrition on the list of priorities and keeping it there, doing the right things, not doing the wrong things, acting at scale, reaching those in need, data-based decision-making and building strategic and operational capacity.

The authors argue that interventions with proven effectiveness that are selected by countries should be rapidly implemented at scale. The period from pregnancy to 24 months of age is a crucial window of opportunity for reducing undernutrition and its adverse effects. Programme efforts, as well as monitoring and assessment, should focus on this segment of the continuum of care. Nutrition resources should not be used to support actions unlikely to be effective in the context of country or local realities. Nutrition resources should not be used to support actions that have not been proven to have a direct effect on undernutrition, such as stand-alone growth monitoring or school feeding programmes.

In addition to health and nutrition interventions, economic and social policies addressing poverty, trade and agriculture that have been associated with rapid improvements in nutritional status should be implemented. There is a reservoir of important experience and expertise in individual countries about how to build commitment, develop and monitor nutrition programmes, move toward acting at scale, reform or phase-out ineffective programmes, and other challenges. This resource needs to be formalised, shared and used as the basis for setting priorities in problem-solving research for nutrition.

A number of research priorities to support national nutrition actions are suggested.

- Research on strengthening leadership and strategic capacity for advancing national nutritional agendas and actions. Positive experiences in Madagascar, Senegal, Thailand, Chile, Costa Rica and other countries have shown that leadership and strategic capacity are key ingredients for advancing the national nutrition agenda and action. Among other roles, these capacities are crucial for leveraging commitment and resources from government, international partners and the

private sector. Research is needed to document the capacities, strategies and tactics present in successful countries, to guide international investments, and to facilitate the exchange of experience between developing countries learning in this important area.

- Large-scale effectiveness assessments that can expand the evidence base for strategies, and tactics to achieve high, sustained and equitable coverage with proven interventions to address undernutrition are also needed.
- Development and assessment of valid indicators and methodologies that can be used at national level and below to provide rapid feedback on progress in generating political commitment, strategies and operational capacities, coverage and effect.
- Links between nutritional status and broader initiatives, such as food for work and micro-credit initiatives, need to be substantiated and used as the basis for assessing their effect on nutrition outcomes.

¹ Bryce et al (2008). Maternal and Child Undernutrition 4. Maternal and child undernutrition: effective action at national level. Published Online. January 17, 2008 DOI: 10.1016/S0140-6736(07)61694-8

Effective international action against undernutrition (Paper 5)

The last paper in the Lancet series (Paper 5)¹ opens with the statement that many transnational organisations work to support efforts to eliminate maternal and child undernutrition in high-burden countries. Financial, intellectual and personal linkages bind these organisations loosely together as components of an international nutrition system. The paper then goes on to argue that such a system should deliver in four functional areas: stewardship, mobilisation of financial resources, direct provision of nutrition services at times of natural disaster or conflict and human and institutional resource strengthening.

The authors review quantitative and qualitative data from various sources to assess the performance of the system in each of these areas, and find substantial shortcomings. Fragmentation, lack of an evidence base for prioritised action, institutional inertia and failure to join up with promising developments in parallel sectors are recurrent themes. Many of these weaknesses can be attributed to systemic problems affecting most organisations working in the field and these are analysed using a problem tree approach. The authors also make recommendations to overcome some of the most important problems. They propose five priority actions for the development of a new international architecture - a new global governance structure, a more effective United Nations (UN), fewer parallel organisations but fewer mandate gaps, more investment in capacity strengthening in high-burden countries, and research leadership in areas that matter.

The authors also make a number of interesting observations and points about emergency nutrition work, including:

Emergency food aid went principally to just six countries between 2000 and 2004 - Ethiopia, Sudan, Afghanistan, Angola, Iraq and North Korea. They claim that this clearly shows a politicised distribution and that food aid allocations at the macro level have traditionally served primarily domestic agricultural interests and foreign policy objectives. They also emphasise that information on coverage of nutrition services in emergencies is difficult to obtain. The dynamic nature of emergencies, and their resulting disrupted and mobile populations, makes estimating coverage challenging, and some have questioned the ethics of doing even applied research in these environments.

The authors also suggest that assessments and reviews of nutrition actions in emergencies have largely focussed on the effect of various feeding programmes on nutrition outcomes, such as growth and micronutrients status. What is often lacking is a clear analysis of the cost-effectiveness of different interventions. This would enable recommendations on the optimum rations composition, targeting and exit criteria, and the appropriate mix of complementary activities to improve health and nutrition outcomes.

They state that one key challenge is the absence of an agency with responsibility for taking an overview of the effectiveness and cost effectiveness of different types of intervention. Nutrition in emergencies is a mix of

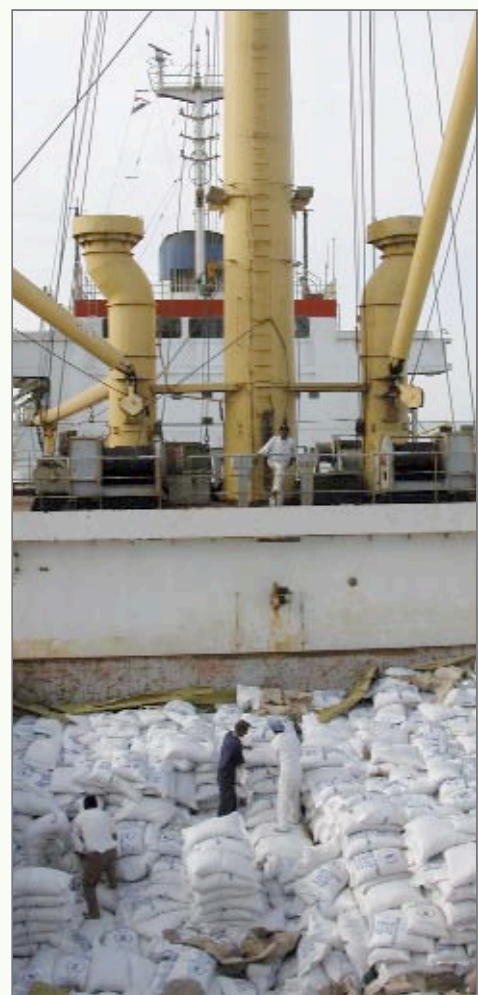
multiple agencies, agendas, protocols, and methods. The general lack of coordination and leadership has allowed the institutional status quo to prevail. Thus, agencies that have built up expertise and mandates around certain types of intervention (or intervention design) will continue to practice these interventions in emergencies without serious examination or challenge.

Several groups - including the UN Inter-Agency Standing Committee Nutrition Cluster, the Sphere Project, SMART, ReliefWeb, and the Emergency Nutrition Network - are providing guidance on best practice in emergency settings. Building on and consolidating these experiences will generate a minimum set of operational standards and a source of much needed documentation.

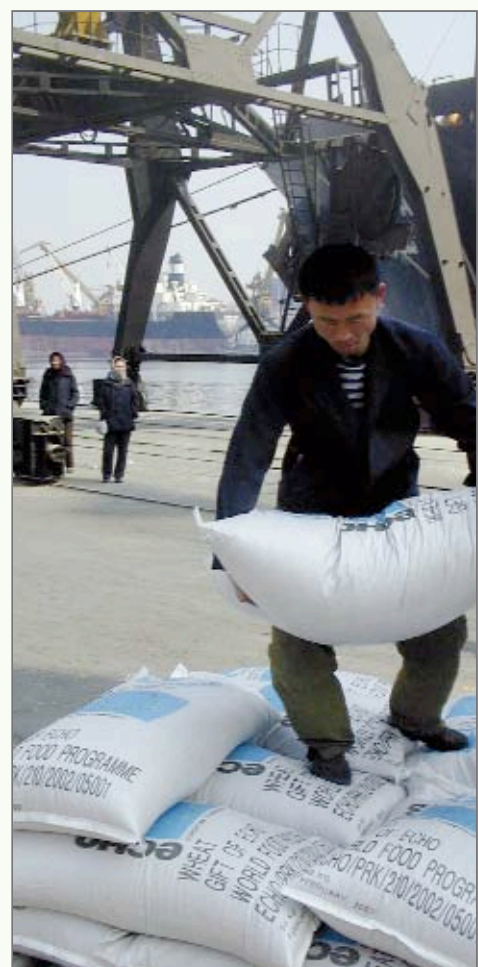
On research, the authors state there is a lack of rigorous programme evaluation data on which to build strong evidence-based guidance for nutritional nutrition programmes. Market forces and institutional barriers in international research centres have conspired to distort the research agenda away from solution-oriented analysis of the problems that contribute to the greatest burden of disease and lost human potential. Improving the quality and relevance of nutrition research is a crucial part of strengthening the international nutrition system.

The authors single out the following research priorities:

- Research into the accountability and responses of governments to their nutrition relevant commitments under international conventions.
- Rigorous analysis of the linkages between nutrition outcomes and global change processes such as climate change, trade liberalisation, etc.
- Research into the quantity and effectiveness of international aid for improved nutrition.
- Evaluation and prioritisation of interventions to ensure timely and relevant emergency responses. This should include improved problem analysis, more efficient sampling methods for estimation of prevalence of severe acute malnutrition and targeting of interventions, and cost-effectiveness studies of different food commodities and therapeutic foods.
- Research on the gap between current and required manpower, training capacity and training resources, at national, regional and global levels.
- Research on best practices for designing and delivering the pre-service training, continuing education, and knowledge management system that practitioners need to address undernutrition effectively.
- Meaningful self-assessment and peer-assessment of the effectiveness of individual organisations involved in designing and delivering goods, services, and ideas relevant to the elimination of maternal and child undernutrition.



A WFP shipment of 14,000 MT of rice arriving at the Iraqi port of Umm Qasr in 2003.



North Korean dock workers bagging donated wheat - part of a 39,500 tonne shipment in 2003.

¹ Morris et al (2008). Effective international action against undernutrition: why has it proven so difficult and what can be done to accelerate progress? Published Online. January 17, 2008. DOI: 10.1016/S0140-6736(07)61695-X

Methodology for a Nutritional Survey among the nomadic population of northern Mali

By Eva Vicent and Núria Salse



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Núria Salse is the Health and Nutrition Advisor in Acción Contra el Hambre. Previously she spent several years working on nutrition and medical programmes in Angola, Guinea Conakry, Niger and Argentina.

The authors acknowledge Thierry Métais who contributed to developing the methodology, and Waltraud Novak and Mathias Grossiord who undertook the field work and contributed to improving the method.

Acción contra el Hambre España (ACF-E) has been working in Gao and Kidal, two regions in northern Mali, since 1996. The population comprises largely farmers and herders in the valley area of the Niger River. Those living in the remaining vast expanse of the two regions are nomadic or transhumant. Both regions have similar annual rainfall ranging from 100 millimeters (mm) in the north to 350mm in the south. The nomadic population tends to practice an opportunistic type of livestock farming. They are continuously on the move following a set route that only varies when faced with a bad year that requires them to adapt in some way.

The ecological, geographical and social environment of this nomadic population does not allow for the application of standard methods for monitoring and assessing their vulnerability. Particular challenges for monitoring are that it is a large area of land with a low population density, it is hard to assess available resources at the end of the rainy season and the movement of the population and herd. These factors also make it very difficult to assess the nutritional situation. On previous occasions, nutritional assessments were mainly conducted on sedentary nomadic populations¹ in accessible camps². However, these survey findings could not be extrapolated to the whole population of the region - in some cases, more than half of the population lives outside camps, is on the move, and has a very different set of problems to the sedentary residents. The challenge, therefore, is how to randomly select a representative sample of the whole population in the region.

Survey options

The census carried out in Mauritania in 1965 was the first large scale survey of a primarily nomadic population. For this census, the 'fraction'³ was taken as the survey unit and lists of all people belonging to a fraction and its geographic

area were drawn up. Heads of each fraction were also recorded. The problem with this methodology was that it required a lot of preparation time and not all of the tents belonging to the different fractions could be identified⁴.

Exhaustive sampling methodologies had been carried out previously in Mali, using watering points and sedentary areas as starting points. However, given the wide geographic dispersion of the population and the difficulty in establishing the exact location of the camps, this method and ensuing results were also flawed.

Five different group sampling methods for nomadic populations have been put forward by Graft-Johnson (1979) based on a revision of the methods proposed by the United Nations (1977)⁵:

The group assembly method: The difficulty with this approach lies in trying to get all of the population to gather at a given point.

Camp method: In order to employ this method there has to be good population census data or lists of those in the camps with exact locations known.

Social structure methodology: This is only viable if the head of each fraction can draw up a list of the exact composition and whereabouts of each camp. There is a risk of omitting or double counting subjects, and finding the subjects can also be problematic.

Numbering by areas: As with other methodologies, there is an inherent problem with coverage, as it is not possible to cover an entire area (even if small). There is also the risk that subjects could move from one area to another.

Watering point method: This method can only be applied if the subjects of the survey are the same people who go to the watering holes.

Given the options, in November 2005, Acción Contra el Hambre designed a pilot study to

assess nutritional status in the study area. This was based on the area numbering method and on the cluster sampling approach advocated by SMART (Standardised Monitoring and Assessment of Relief and Transition⁶). In the SMART methodology, if the settlements are small there is the option to have more clusters, with fewer children per cluster, to ensure there will be a sufficient number of children at each site.

Pilot study methodology

The study used weight/height indicators expressed as z-scores⁷ and oedema. The number of clusters was calculated taking account of the number of children that a team could test per day. In a nutritional survey pilot test, carried out in the Anderamboukan district (Gao region), 14 children were selected per cluster. The sample size was calculated on the basis of the population in each area (as indicated by official statistics), the expected prevalence, the precision and the homogeneity of the sample (design effect).

Population estimates were reached in conjunction with the local authorities, given that there are no official figures per town, only per

¹ Save the Children UK. Nutrition Assessment in Gola Oda Woreda, East Haraghe, Ethiopia. March 26 April 6, 2001

² Susanne Jaspars and Hisham Khogali. Oxfam Food and Nutrition Group. Oxfam's Approach to Nutrition surveys in emergencies, May 2001

³ Fraction: Administrative unit used in Mauritania as a method of social organisation within a tribe.

⁴ Jaques Brenez. L'observation démographique des milieux nomades. L'enquête de Mauritanie ». Population. Année 1971, Volume 26, Number 4 p 721-736

⁵ William D. Kaslbeek, University of North Carolina, Anne R. Cross, Westinghouse Health Systems. Problems in sampling nomad populations.

⁶ <http://www.smartindicators.org>

⁷ These were calculated using the NCHS (National Centre Health Statistics) tables and the recent WHO 2005 standard tables. NCHS tables were used to compare with previous surveys and for programme planning (as NCHS were used as a criteria of admission). The low acute rate prevalence found in this population did not allow for detecting major differences between the NCHS references and WHO standards.

Figure 1: Grid distribution over Anderamboukan neighbourhood

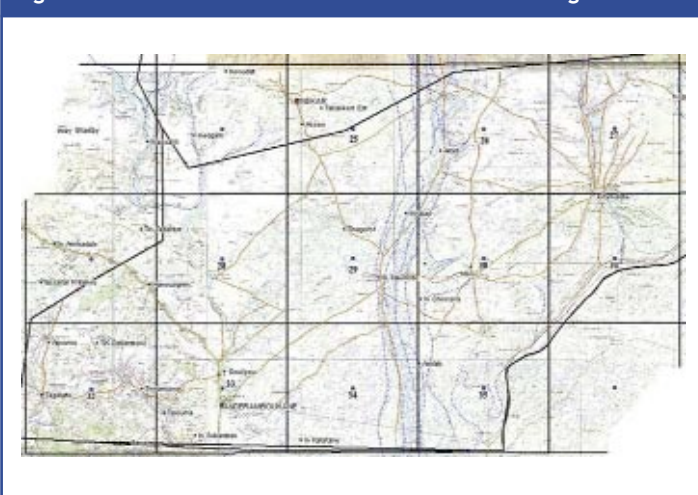


Figure 2: Choosing a camp or settlement in each cluster

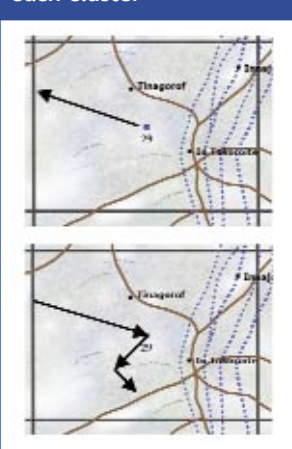


Table 1: Distribution of clusters, population size and corresponding grid

Geographical unit	Population size	Assigned cluster
Andremboukan	3000	1,2,3,4
Tinagorof	2000	5,6,7
Alladi	1400	8,9
Tamalate	2000	10,11,12
Inchinanan	1500	13,14
Tagalalte	1500	15,16,17
Goussou	2000	18,19
Inkalafane	1500	20,21,22
Hanouzigoren	1300	23,24
Nomade	7780	25,26,27,28,29,30,31,32,33,34,35

fraction or family. An estimate of the populations of the different sedentary areas and nomadic camps was made assuming the nomadic area had a homogeneously distributed population throughout the survey area and based on discussions with different members of the community. The Emergency Needs Assessment computer programme was used to analyse the clusters (example in Table 1).

In the nomadic area, each cluster is represented by a square⁸. Clusters were only retained if the central point was inside the survey area. Figure 1 shows the grid distribution in Anderamboukan for the 11 selected clusters that correspond to the nomadic area.

In order to select the children for the survey, the central point (centroid) of each cluster was taken as the starting point. This point was identified by using the 'MapInfo' programme and then transferring it to the Global Positioning System (GPS). On arrival at this point, the survey team followed the Epi method, which consists of throwing a pen into the air and following the direction it is pointing in when it falls to ground until arriving at a camp or villages. If no village was arrived at by the time the limit of the cluster had been reached or if the direction the pen was pointing in proved to be inaccessible, the team would return to the central point and throw the pen again. Once the team had reached the first settlement it then moved on to the next, and so on until the cluster was fully covered (See Figure 2).

If the centre of the cluster proved to be in an inaccessible place (for example, a lake), the starting point became the closest accessible place to the western edge of the central point. If, having set off in eight different directions, the cluster was still not complete, the survey team proceeded to the cluster directly to the right of the one they were working in.

If, following the direction indicated by the pen, a town or settlement was reached that had already been tested, it was skipped by stopping 3 km before the town or settlement and restarting 3 kilometres from the other side of the settlement or village in the same direction.

Discussion

In previous years, *Acción contra el Hambre* had elected to only test sedentary areas or to use an exhaustive methodology to assess nutritional status of the population in the region. This time, by applying different methods, we have obtained data on both the sedentary and nomadic populations. Also, by predetermining the sample and including the most isolated areas, as opposed to using an exhaustive approach, we have obtained a highly representative sample.

At the same time, the reduction in the number of subjects per cluster has allowed us to complete the surveys in each cluster. On average, only one cluster per survey has had to be complemented and therefore completed with children from a subsequent cluster.

This method also ensures the random selection of subjects, although two limitations did have to be taken into account. First, the 'border effect'. Selecting only those clusters that have their geographical centre inside the district and testing them in full means that sometimes the area surveyed does not coincide exactly with the existing administrative boundaries. Secondly, sampling in nomadic areas does not take into account the fact that the population

distribution is not homogenous and that some areas are more densely populated than others.

The use of GPS technology during the survey did not pose any difficulties as it is very simple to use and was included in the team training from the start. Sometimes, however, geographical circumstances and difficult terrain made finding the central points, and the teams' work in general, more difficult.

Following the first pilot test, it was decided to carry out exploratory trips before the surveys in order to find the central points and identify any possible geographical difficulties. This meant that the teams had received precise instructions on how to get to the central points and were able to modify the methodology according to the terrain, if necessary. This exploratory work made the teams' work considerably easier although it also increased the preparation time and cost of the survey.

Conclusions and recommendations

Using a group methodology for nutritional surveys in pastoral areas where the population is scattered presents problems in terms of locating and measuring certain groups of the population. The method of selecting groups that was proposed for the pastoral areas and described in this article facilitates the principle of random selection of children. Reducing the number of children per group also ensures that all the required measurements for each group were completed. The methodology used can contribute towards assessing the nutritional situation of the pastoral population of Mali.

If further nutritional surveys are to be carried out using this methodology, certain problems encountered should be addressed as follows:

- Reduce further the number of subjects per cluster in order to reduce the daily work load.
- Plan the time and resources required for identifying nomadic clusters, as this will greatly facilitate implementation of the survey.
- Make necessary improvements in epidemiology statistics to the methodology, in order to reduce possible bias in the selection of the target population and to increase the representativeness of the sample.

Acción contra el Hambre recommends ongoing research into appropriate assessment methods for pastoral areas. For example, recent studies published by Mark Myatt⁹ indicate that if Weight/Height indicator and Mid Upper Arm Circumference (MUAC) are used in surveys they lead to different findings in terms of prevalence of malnutrition as a result of differences in body shape. Future research on pastoral populations should include the use of MUAC to gauge the prevalence of acute malnutrition.

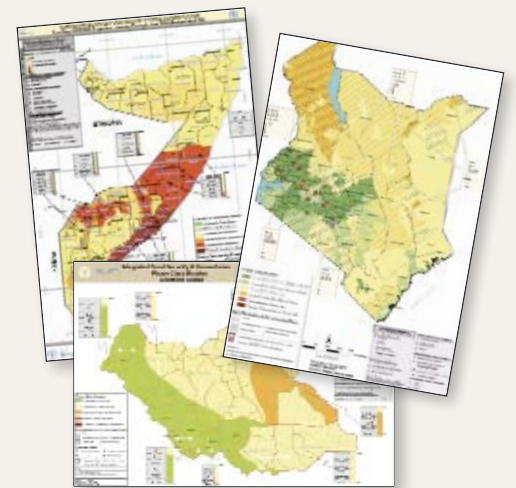
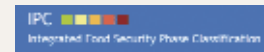
With this in mind, *Acción contra el Hambre* will be busy in 2008 improving and consolidating pastoral survey methods through new research involving its international network of agencies. A new publication on this subject will be coming out in the second quarter of 2008.

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⁸ The sampling area was represented as a grid as per the Centric Systematic area sampling (CSAS) method

⁹ Report concerning the analysis of data collected for the MUAC/weight-for-height/body-shape research study. Mark Myatt, Institute of Ophthalmology, University College London. 30th May 2007.

Integrated Food Security Phase Classification (IPC) Website Launched



The Integrated Food Security Phase Classification (IPC) is a standardised tool that aims at providing a 'common currency' for classifying food security. Using a common scale, which is comparable across countries, will make it easier for donors, agencies and governments to identify priorities for intervention before they become catastrophic.

A new website has been set up by the seven agencies and international NGOs supporting the IPC (see Global Partners below). Content includes IPC maps and food security classifications for many countries, information about training workshops, publications and news articles, and updates to the IPC technical manual. An e-learning course and related training materials and interactive features, such as forums, are also being planned.

Originally developed in Somalia by the Food Security Analysis Unit (FSAU), IPC maps are now being produced in Somalia and Kenya - where the IPC has been officially adopted by the national government. IPC related activities have been substantial in Southern Sudan and Burundi, while start-up activities are taking place in the Democratic Republic of Congo, Uganda and Tanzania. IPC related training, awareness raising activities and pilot tests have also taken place in Southern Africa and Asia.

The IPC Global Partners include the Food and Agriculture Organisation (FAO), The World Food Programme (WFP), Care International, the European Commission Joint Research Centre (EC JRC), the Famine Early Warning System Network, Oxfam Great Britain, and Save the Children UK and US. The European Union, the Dutch government, the Canadian International Development Agency (CIDA) and the U.K.'s Department for International Development (DFID) are providing funding.

Integrated Food Security Phase Classification (IPC) website: <http://www.ipcinfo.org>

Regional IFE Workshop held in Indonesia



The ENN, as co-ordinator of the IFE Core Group¹, co-facilitated a regional strategy workshop on infant and young child feeding in emergencies on 10-13th March 2008 in Bali, Indonesia. The theme of the meeting was 'Infant and Young Child Feeding in Emergencies: Regional Experiences and Challenges in Achieving Optimal Early Response'. This workshop was organised under the auspices of the Inter Agency Standing Committee (IASC) Nutrition Cluster that is led by UNICEF. Within the Nutrition cluster, the main organiser was the ENN, representing the IFE Core Group, in cooperation with UNICEF East Asia and Pacific Regional Office, UNICEF South Asia Regional Office, UNICEF Indonesia Office, and the Ministry of Health, Indonesia.

The workshop was funded by the IASC Nutrition Cluster and a contribution from

IBFAN-GIFA to support attendance of key delegates who were not self-funding.

108 participants from a mixture of key government, UN, donor, international and local NGO representatives from 16 countries attended the workshop. A press release was issued by UNICEF following the workshop, in response to the pledge for action agreed by the participants (see at http://www.unicef.org/eapro/media_7973.html).

The proceedings will be available from the ENN in late June 2008 and will be summarised in the next issue of Field Exchange.

¹ An interagency collaboration concerned with policy guidance and capacity building on IFE. Current members are UNICEF, UNHCR, WFP, WHO, IBFAN-GIFA, CARE USA, ACF and ENN. Associate members are IFRC and SC UK. See at <http://www.ennonline.net/ife>

Trigger Indicators and Early Warning and Response Systems

USAID's Office of Food for Peace (FFP) and the Food and Nutrition Technical Assistance (FANTA) Project have released 'Trigger Indicators and Early Warning and Response Systems in Multi-Year Title II Assistance Programmes', No. 5 in FFP's Occasional Paper Series.

In geographic areas and populations chronically vulnerable to food insecurity, early warning and response (EWR) systems can provide necessary information to help modify programme interventions and increase resources in response to shocks. Trigger indicators (TIs) are one such EWR mechanism.

The paper has been published to allow Title II Cooperating Sponsors a greater degree of

flexibility in responding to emerging crises and shocks in their areas of operation, without the risk of potentially undermining advances being achieved by development interventions. While written specifically for recipients of Title II assistance, it has relevance for others working in the food security context.

Support for the development of the guide was provided by USAID's Bureau for Democracy, Conflict and Humanitarian Assistance's Office of Food for Peace and Bureau for Global Health's Office of Health, Infectious Disease and Nutrition.

The guide can be downloaded from FANTA's website at <http://www.fantaproject.org>

FANTA Review of Essential Nutrition Actions in Ethiopia

The Food and Nutrition Technical Assistance (FANTA) Project has announced the release of the Review of Incorporation of Essential Nutrition Actions into Public Health Programmes in Ethiopia Report (January 2008).

The Essential Nutrition Actions (ENA) package is an approach to expand the coverage of seven affordable and evidence-based actions to improve the nutritional status of women and children, especially those under two years of age. The review, requested by USAID/Ethiopia, examined a number of facilitating and inhibiting factors to ENA integration in the context of Ethiopia's health system. It found that the approach has been incorporated into the Ethiopia Federal Ministry of Health system

and multilateral and NGO programming. However, improved training and other steps are necessary to further institutionalise the approach.

Support for the synthesis report was provided by USAID's Bureau for Global Health's Office of Health, Infectious Disease and Nutrition and the USAID Mission in Ethiopia.

The report can be downloaded from FANTA's website, <http://www.fantaproject.org> or contact: Information Associate, FANTA Project, 1825 Connecticut Ave., NW Washington, DC 20009, USA. Tel: +1 (202) 884-8000 fax: +1 (202) 884-8834 email: fanta@aed.org

New MSF website on field research

MSF has launched a new website that archives all its scientific articles published in peer-reviewed journals. The goal is to make MSF research experience available to health care workers, policy makers and researchers in developing countries without the usual costs associated with retrieving research articles.

The online and searchable content comprises:

- Published research and commentary for PubMed articles
- Conference abstracts
- MSF's Ethics Review Board
- Programme descriptions that give lessons learned from the field
- Collaborating partners.

The articles are available free, with full text, and in an easily searchable format. No login is required.

Users are invited to send comments about the website, published articles or other subjects via a Feedback section where all suitable comments will be posted.

Visit online at www.fieldresearch.msf.org

Evaluation of TALC's CD-ROM 'Community Nutrition'



TALC (Teaching-aids At Low Cost) is undertaking a mini-evaluation of their CD-ROM on 'Community Nutrition'. This CD contains documents and other materials relevant to health workers in low-income countries. In order to collect data from intended users, TALC will send a free copy of the CD and a one-page evaluation form to tutors of nutrition courses in low-income countries. Up to 10 free copies of the CD will be sent to all those who fully complete and return the form.

If you are a tutor, or know of any tutors, who can participate in this evaluation, send names, postal addresses and email addresses to TALC, email: info@talcuk.org or to Marlou Bijlsma, email: marloubijlsma@yahoo.co.uk or Ann Burgess, email: annpatriciaburgess@yahoo.co.uk

Three free copies of the CD are available to anyone who sends in advance UK£1 or US\$2 to cover postage costs. For more details, email: info@talcuk.org

The Community Nutrition CD can also be ordered online at www.talcuk.org/cd-roms.htm

New publication on Household Economy Approach

Save the Children UK (SC UK) and FEG Consulting (formerly known as the Food Economy Group (FEG)) have just brought out a new publication 'The Household Economy Approach: A guide for programme planners and policy makers'. It is part of a toolkit for the southern Africa Regional Hunger and Vulnerability Programme (RHVP), aimed at strengthening the capacity of staff from government and national and international non-governmental organisations (NGOs) to undertake vulnerability assessment and analysis in southern Africa.

To date, guidance on the Household Economy Approach (HEA) has been provided by the manual 'The Household Economy Approach – a resource manual for practitioners' (Save the Children, 2000), and by resources and training materials produced since then by the FEG and SC UK. The toolkit aims to bring together and consolidate this material and provide up-to-date guidance on the approach, its use in the field and its application for particular purposes.

The toolkit comprises three elements:

- i) The Practitioner's Guide to the HEA', which is a 'how to' guide for those participating in field work.
- ii) The Household Economy Approach, which is a guide for programme planners and policy-makers, targeted primarily at those who are involved in using assessment results to inform decisions on response and to assist in programme planning. It aims to help policy-makers and programme planners understand the methodology, interpret results and engage critically in the process of translating results into programme and policy recommendations.
- iii) The HEA training guide, targeted at those facilitating HEA trainings.

The new guide begins with an overview of the analytical framework (Chapter 2), outlining essential steps in HEA and why these are necessary. Chapter 3 describes the application to which HEA has been put over the past 15 years. The guide then gives an overview of how HEA is carried out – how information has been collected in the field to date and the tools that assist in HEA analysis (Chapter 4) and considers why such field methods are used and whether the information and analysis is reliable (Chapter 5). The linkages between HEA and other approaches and areas of inquiry are described in Chapter 6, which also outlines how HEA can be applied to a number of issues of relevance in the analysis of vulnerability, poverty and chronic food insecurity. Some of the criticisms that have been made of HEA are discussed in Chapter 7. Finally, a number of the products that can be generated from HEA analysis are outlined in Chapter 8.

The HEA Guide for programme planners and policy-makers is available to purchase from SC UK, price £14.99 sterling plus postage and packing (rates vary according to number of copies ordered and destination). For orders, contact: Save the Children Publications, c/o NBN International, Estover Rd, Plymouth PL6 7PY, UK. Tel: 0044 (0)1752 202301 Fax: 0044 (0)1752 202333 e-mail: orders@nbninternational.com <http://www.savethechildren.org.uk>



Regional Consultation on Nutrition and HIV in South East Asia

A regional consultation on nutrition and HIV in South East Asia was held in Bangkok, 8-11 October 2007. Representatives of countries from the region, together with scientists, researchers, programmers, decision makers, United Nations (UN) agencies, non-governmental organisations (NGO)s, civil society groups, caregivers, people living with HIV/AIDS groups, donors and bilaterals, gathered to review evidence, operational challenges and lessons. Recommendations for action were released in a participants' statement, summarised here.

Nearly 4 million living with HIV/AIDS live in South-East Asia, a region where 79% of the world's malnourished children reside and where several countries report over 40% stunting. With its large and rapidly growing populations, widespread malnutrition and burden of infectious and chronic disease, the region is particularly vulnerable to the HIV epidemic.

Nutrition must be incorporated into all aspects of HIV prevention, treatment and care programmes as a high priority - the challenge is to integrate nutrition into the continuum of care. 'Nutrition care and support' in this context should be defined broadly to include not only the provision of food and livelihood security, but also clinical care guidelines to include nutrition, counselling, capacity building to support integration of nutrition into care, and operational research.

Food and nutrition support is a critical component of a comprehensive response to HIV. Benefits include reduced susceptibility to infections, improved medication compliance and quality of life, prevention of mother-to-child transmission of HIV, and improved overall HIV-free survival of exposed infants through appropriate infant feeding practices.

Participants called for stronger commitment from policy makers and donors to integrate nutrition and HIV/AIDS into existing policies and make adequate resources available. A call for immediate actions included:

- Advocacy for greater awareness amongst policymakers and donors of

the critical link between Nutrition and HIV and the responsibility to incorporate nutrition and HIV considerations into existing national food, nutrition and HIV policies and plans.

- Improve food security and livelihoods of families and communities affected by HIV.
- Review and update existing policies, programmes, plans of action and guidelines to reflect the nutritional requirements of people living with HIV/AIDS.
- Promote and support optimal infant feeding practices for all children, including those infected with HIV, and meet the nutritional needs of HIV-positive pregnant and lactating women.
- Involve adults and children living with HIV in the design and provision of nutritional support interventions and actively pursue gender equity and elimination of stigma as obstacles to food security and access to health services.
- Urgently and rapidly collect country-specific HIV and related nutritional surveillance data.
- Continue building the evidence base through bio-medical, socio-cultural and operational research.
- Ensure multi-sectoral coordination and adequate resource allocation.
- Call for actions and commitments at the country level and urge country teams (Ministries/UN/NGOs) to draw up action plans that address these recommendations and regularly follow up and evaluate progress, preferably every two years.
- Make the highest level representation by UN agencies through global and regional forums such as the South Asian Association for Regional Cooperation (SAARC), the Association of Southeast Asian Nations (ASEAN), and the World Health Assembly, and through specifically organised meetings and workshops.

A report on the meeting, along with technical background papers, the participants' statement and related links are at: http://www.who.int/nutrition/topics/hiv_regional_consultation_bangkok/en/index.html

Webpage from the World Bank on the Food Price Crisis

As concerns grow over the emerging food crisis across the globe, the World Bank has created a page to inform the general public about their coordinated efforts to combat this growing problem. In brief, the World Bank's 'New Deal' on global food policy includes creating safety nets such as school feeding, food for work, and conditional cash transfers. Additional elements of this policy include doubling agricultural lending to Africa over the coming year and also providing immediate aid to the country of Haiti to feed poor children and other vulnerable groups. The 'Understanding the Crisis' section provides brief synopses of the situation in different parts of the world, including Africa and Asia. The site also contains a calendar of events and links to papers from the World Bank on related topics.

Visit <http://www.worldbank.org/html/extdr/foodprices/>

¹ Download at http://www.savethechildren.org.uk/en/54_4200.htm

US and Canadian responses to global food crisis

In response to the global food crisis, a press release on 1 May 2008¹ detailed a call by President Bush to the US Congress to provide an additional \$770million to support food aid and development programmes. This is in addition to \$200 million in emergency food aid recently made available via the Bill Emerson Humanitarian Trust (at the Agriculture Department). This extra funding would go towards existing emergency food aid programmes and agricultural development programmes in developing countries.

Acknowledging that the US must change the way food assistance is delivered, there was also a call to approve a proposal submitted to Congress in 2008, to purchase up to 25 percent of food assistance directly from farmers in the developing world. The need for the US administration to work with others was also highlighted, including securing food aid commitment from other G-8 countries and working towards the conclusion of a successful Doha Round agreement, to reduce and eliminate tariffs, other barriers, and market-distorting

subsidies for agricultural goods. The US president also urged that countries lift restrictions on agricultural exports and remove barriers to advanced crops develop through biotechnology.

Canada is the latest major donor country to 'untie' its food aid, by removing restrictions on where the food can be purchased². It will no longer insist on sending domestically grown food but will instead provide aid agencies with cash, giving them the flexibility to source cheaper food in the region or beneficiary country.

This leaves the United States of America, the world largest donor of food, as the only developed country with tied food aid. Canada also announced a donation of US\$230 million to food aid programmes, joining the United Kingdom, the European Union and Japan, who have also pledged significant amounts to deal with the current crisis.

¹ <http://www.whitehouse.gov/news/releases/2008/05/20080501-22.html>

² Johannesburg, 5 May 2008 (IRIN)

CE-DAT website launched



The new version of the Complex Emergency Database (CE-DAT) website has been launched. It offers an interface that allows users to access CE-DAT data through a map portal and a timeline tool. The CE-DAT Complex Emergency Monitor also provides an overview of the nature of mortality in complex emergencies.

Access the website at <http://www.cedat.be>

The latest issue of the CE-DAT Scene newsletter is available at: http://www1.cedat.be/Documents/Newsletter/newsletter_apr08.pdf

Breastfeeding: Practice and Policy Certificate Course

Dates: 9 – 27 June 2008

This three-week masters-level certificate held at the Centre for International Development (CIHD) in London, UK is the only advanced-level international training course on breastfeeding and related topics available worldwide. It is held annually in collaboration with WHO and UNICEF.

The course has been revised to provide an up-to-date scientific, technical and practical training on all aspects of breastfeeding, including policy and programme implementation. It is targeted at doctors and other health or allied professionals involved in national or local infant feeding programmes. Teams from the same country or facility are particularly welcome. The course takes an international perspective and is relevant for participants from all types of economies. The course is limited to 30 participants and is conducted in English.

The full three week Certificate course is in two parts, which can be taken together (recommended) or separately:

Part 1: Clinical Management and Public Health (9-20th June) provides a comprehensive in-depth study of breastfeeding, including physiology, practical skills and counselling and hospital/community visits to meet mothers and babies.

Part 2: Addressing Challenges to Optimal Practice and Implementation (23-27th June) provides a series of themed study days on infant and young child feeding, including Complementary Feeding, HIV and Infant and Young Child Feeding in Emergencies (IFE).

The IFE study day (Wed 25th June) is being carried out in collaboration with the Emergency Nutrition Network (ENN) and will be open to external candidates working in the emergencies sector.

Further details and a registration form are available at www.ich.ucl.ac.uk/education/short_courses/courses/2S24 or contact the Course Director, Sandra Lang, email: sandra.lang1@virgin.net

Updated Module on IFE available in English and French



Module 2 on Infant Feeding in Emergencies (IFE) was first produced by the IFE Core Group¹ and collaborators in December 2004 (version 1). It targets health and nutrition workers working in emergency situations. An updated version (v1.1, December 2007) is now available from the Emergency Nutrition Network (ENN) in English and, for the first time, in French. The new version includes updated key references, a revised section on infant feeding and HIV to reflect the latest WHO guidance, and incorporates the current version of the Operational Guidance on IFE (v2.1, Feb 2007).

Module 2 comprises four parts – a core manual, additional material (including sections on artificial feeding and management of acute malnutrition in infants under six months), annexes and slides content. These are available to download separately or as a complete document.

The update and translation into French was funded by the UNICEF-led Inter-Agency Standing Committee (IASC) Nutrition Cluster as part of a package of IFE activities implemented by the ENN and the IFE Core Group in 2007.

Module 2, v1.1 is available online in both languages at <http://www.ennonline.net/ife/view.aspx?resid=4> or follow the link from the ENN homepage at <http://www.ennonline.net>

Print copies in French (funded by the WHO) and in English are available from the ENN (postage and packaging charges apply, negotiable for recipients in developing countries). To save on distribution costs, regional sources of print copies in French are being established, including in East and West Africa and in the US.

Module 2 is also included on a CD of IFE resources developed for a regional workshop in Bali (see news piece) and CD copies are available from the ENN, at a cost of £2 each (plus P&P).

For requests, contact the ENN, tel: +44 (0)1865 324996/249745 or email: office@ennonline.net

¹ The IFE Core Group is an interagency collaboration concerned with the development of policy guidance and capacity building on IFE. Current members are UNICEF, UNHCR, WFP, WHO, IBFAN-GIFA, CARE USA, Action Contre la Faim and ENN. Associate members are SC UK and IFRC. See at <http://www.ennonline.net/ife>

Nutrition in Emergencies short course



The Centre for Public Health Nutrition at the University of Westminster, London is running its short course, Nutrition in Emergencies, again in London, UK (1-5 September 2008).

The five-day course provides participants with technical knowledge and up-to-date information regarding the delivery of nutritional support to those affected by humanitarian emergencies. The topics covered on the course include food security, malnutrition, supplementary and therapeutic feeding programmes, including Community Therapeutic Care, and other interventions.

Participants will explore types of malnutrition, their direct and underlying causes, how they are assessed, and common nutritional interventions. Participants are drawn from a wide range of backgrounds, although the course is particularly aimed at nutritionists, doctors, nurses and programme managers working in developing countries.

The fee for the course is £650. There are two full scholarships available – to qualify, applicants should be from a developing country, employed in the sector in an area prone to disaster. More scholarship details are online at the following link <http://www.wmin.ac.uk/scholarships/page-9319> (scroll down the page to 'Other University of Westminster scholarships' section).

For a course brochure, go to <http://www.wmin.ac.uk/sih/page-979> or contact Mark Armstrong on tel: +44 (0)20 7911 5883 or email: armstrm@westminster.ac.uk

Unified United Nations response to the global food price challenge

On 29 April 2008, a press release¹ detailed a unified United Nations (UN) response to the recent dramatic escalation in food prices that is unfolding as a worldwide crisis. This followed a meeting of the Executive Heads of the United Nations specialised agencies, Funds and Programmes and Bretton Woods institutions², in Bern on 28 and 29 April 2008. Under the chairmanship of the UN Secretary-General, a common strategy was agreed in support of developing country governance to confront the global food crisis.

To meet immediate emergency requirements, the Chief Executives Board (CEB)³ called upon the international community to fund urgently and fully the emergency requirements of US\$755 million for the World Food Programme (WFP), deliver on its pledges and provide maximum flexibility to target the most urgent needs.

The CEB also asked for action to be taken to counteract the effects of escalating energy, fertilizer and input prices by providing developing country farmers with the support required to ensure the next harvest. To address this:

- The Food and Agriculture Organisation (FAO) Emergency Initiative on soaring food prices has called for US\$ 1.7 billion in funding to provide low income food deficit countries with seeds and inputs to boost production.
- The International Fund for Agricultural Development (IFAD) is making available US\$200 million to poor farmers in the most affected countries to boost food production by providing essential inputs.
- The World Bank is exploring a rapid financing facility for grant support to especially fragile, poor countries and quicker, more flexible financing for others.

To address short to medium term challenges, the UN system will co-operate to provide for development of emergency safety nets and social protection of the most vulnerable and rapid employment and income generation programmes.

At the country level, UN Resident and Humanitarian Coordinators, Heads of the World Bank missions, and the UN country teams will

urgently meet with humanitarian agencies in affected countries to draw up support strategies for national governments and vulnerable populations and seek international support for their implementation.

The CEB has called upon countries where export restrictions on food have reduced supplies and contributed to price hikes, urgently to reconsider those policies.

In the medium to long term, the UN system will bring together its technical and analytical capabilities to fill research and knowledge gaps in order to support governments with the best information for agricultural decision-making to boost production and productivity. The CEB called for a rapid conclusion of the Doha Development Round to result in scaling down trade distorting subsidies that have damaged developing countries production capacity.

To address the long term challenges, the CEB urged that structural and policy issues, including challenges posed by climate change to productive systems that have substantially contributed to this crisis, be urgently addressed. Further research must be undertaken on the impact of diversion of food crops to bio-fuel production and all subsidies to food-based bio-fuels should be reviewed.

The specific needs of Africa as the most affected region should be addressed.

The World Bank, International Monetary Fund (IMF), IFAD and Regional Development Banks and relevant agencies of the UN system will collaborate to develop a long-term strategy. In order to create a prioritised plan of action and coordinate its implementation, a Task Force on the Global Food Crisis is being established immediately under the leadership of the Secretary-General bringing together the Heads of the United Nations specialised agencies, Funds and Programmes, Bretton Woods institutions and relevant parts of the UN Secretariat.

¹ <http://www.reliefweb.int/rw/RWB.NSF/db900SID/EGUA-7E6MKV?OpenDocument>

² The Bretton Woods Institutions are the World Bank and the International Monetary Fund (IMF). They were set up at a meeting of 43 countries in Bretton Woods, New Hampshire, USA in July 1944.

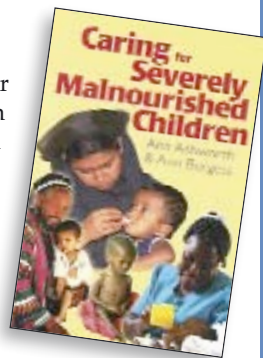
³ <http://www.unsystemceb.org/>

Update for 'Caring for Severely Malnourished Children' book

A short 4-page update for the book 'Caring for Severely Malnourished Children' has been prepared to reflect some important developments in the management of severely malnourished children since it was first published in 2003. In particular, the update includes community-based care and the use of ready-to-use therapeutic foods and enriched family foods, and antibiotic treatment of children with HIV.

The update is being inserted into all copies of the book sold by Teaching-aids At Low Cost (TALC), which costs £4.00 (£5.35 with an accompanying CD) plus postage and is available from TALC, P.O. Box 49, St Albans, Herts, AL1 5TX, UK. Fax: +44 1727 846852, email: info@talcuk.org website: <http://www.talcuk.org>

The update is also available in e-format from TALC, email: info@talcuk.org, or the authors, email: Ann.Hill@lshtm.ac.uk or annpatriciaburgess@yahoo.co.uk.



Public Health in Complex Emergencies training

The next Public Health in Complex Emergencies training will take place in Bangkok, August 11-23 2008 and in Uganda, November 3-15 2008.

This course is designed for NGO, INGO, UN and Ministry of Health staff working in humanitarian assistance programmes providing health and health-related services. Sectors covered include nutrition, epidemiology, reproductive health, psychosocial issues and coordination.

For more information on courses and for details regarding online applications, check the PHCE website: <http://phcetraining.org>

Contacts for specific trainings are:
Bangkok: Asian Disaster Preparedness Centre, Thailand.
Tel: (66-2) 516 5900 ext 351, Fax: (66-2) 524 5360 524 5350,
email: janette@adpc.net Website: <http://www.adpc.net>
(click Trainings and Workshops)

Uganda: Makerere University School of Public Health
Tel: (256-41) 543872, (256-41) 263158/9 Fax: (256-41) 531807,
email: P_nalubega@yahoo.co.uk Website: <http://www.musph.ac.ug>
(click Upcoming Events)

COMPAS course in project management/evaluation



The Quality COMPAS method and Dynamic COMPAS software are project and information management tools for humanitarian projects. They will be the subject of a short training course to be held at Groupe URD's head office in Plaisians (Provence, France) from 23rd to 27th June 2008. The course will be conducted in English. The deadline for applications is 13th June 2008.

The course has been designed for national and international aid workers involved in project management activities such as needs assessment, design, monitoring, self-evaluation and evaluation. Drawing its content from the COMPAS method, the course will cover subjects such as conducting a situation analysis which goes further than a simple needs analysis, designing a project beyond the logical framework, defining objectives and indicators in keeping with all the quality criteria, developing and implementing a monitoring system, understanding the difference between monitoring and evaluation, etc.

The course is organised around a case study that gives participants practical experience of quality management and using the COMPAS method and the Dynamic COMPAS software. To download the software and/or for more information on COMPAS, visit: <http://www.compasqualite.org/en/index/index.php>

Good value accommodation and food is available to participants. For more information and to request a registration form, contact: Pierre Brunet, Training Unit Coordinator, Groupe URD, La Fontaine des Marins, 26170 Plaisians, France
Tel/Fax: 00 33 (0)4 75 28 29 35
email: formations@urd.org
<http://www.urd.org>

The Effects of Global Warming on Food Security

By Kate Godden



Kate is a Senior Lecturer in the Centre for Public Health Nutrition at the University of Westminster where she teaches food security, programme planning and emergency nutrition. She has over 10 years experience within the emergencies sector.

With so many reports on climate change coming out from different quarters, it can be hard to know which are based on reliable information. Those of us who work in the food and nutrition sector do have real cause for concern, as it is highly probable that there will be a general increase in food insecurity in many of our most vulnerable populations over the coming years. Additionally, it is very likely that there will be an increased frequency of natural disasters caused by extreme weather, including flooding, heat waves and drought.

Sourcing objective information

The Intergovernmental Panel on Climate Change (IPCC) was set up in 1988 to review objectively and consolidate the latest scientific literature on the subject. In 2007, they released their Fourth Assessment Report (AR4)¹ based on 29,000 observational data series from 75 studies around the world (though data from developing countries are seriously lacking). The AR4 reflects that global warming is a reality, the average air temperature has warmed by 0.74°C (0.56-0.9°C) over the past 100 years. This is an average global figure and doesn't truly reflect localised temperature variations. It is also feared that the rate of global warming is increasing - eleven of the twelve years to 2006 rank among the twelve warmest years on record since 1850. Land regions are warming faster than the oceans and the northern latitudes are warming faster than southern ones with the average arctic temperature increasing at twice the global rate. There are also increased sea levels (global average 1.8, 1.3-2.3 mm per year 1961-2003). The rate of increase of the sea level accelerated in the last decade of the century but it is not yet clear if this was due to decadal variation or not. The world's third largest natural disaster of recent years, (after the tsunami of 2004, Pakistan earthquake of 2005) was, in fact, a heatwave that killed over 64,000 people² in southern Europe in July/Aug of 2003.

Observed changes in the climate

'Warming of the climate is unequivocal as is now evidenced from observations of increases in global average air and ocean temperatures, widespread melting of the snow and ice caps, and rising global average sea level' (IPCC, 2007).

Warm air is able to hold more water vapour than cooler air and this means that warm air is less likely to provide rainfall until it cools. Cooling, however, results in very heavy, localised rainfall coming from the water laden skies. Simplistically, this means hot regions become hotter and drier whilst cooler ones become warmer, wetter and with a higher potential for flooding. The rate of global warming is thought to be increasing at a rate of 0.2 degrees centigrade/decade.

The AR4 observes that trends in precipitation have changed, with eastern parts of North and South America, northern Europe and northern and central Asia having significantly higher rainfall in contrast to lower rainfall in the Sahel, Mediterranean, southern Africa and parts of southern Asia. Globally, the area affected by drought has almost certainly increased since the 1970s.

There has also been an increase in the frequency and/or intensity of extreme weather events over the past 50 years. Hot days and nights have become more frequent and cold days and nights less common. It is likely that heat waves are more frequent over most land areas, that the frequency of heavy precipitation has increased over most areas, and that the incidence of extremely high sea level has increased at a wide range of sites worldwide.

What does this mean for food security?

Naturally, these climate changes have direct effects on agricultural production. It is anticipated that for moderate global average temperature increases (estimated between 1-3°C), there will be an overall increase in global food production. Additional temperature increases, however, would cause an overall fall in food production.

So who are likely to be the winners as the climate changes and who are likely to lose out? In very general terms, some regions at lower latitudes will become hotter and drier with a shortened growing season. Small scale and subsistence farmers will be at particular risk. The AR4 has also confidently predicted that by 2020, rain fed agricultural production will fall by 50% in many African countries. A number of arid and semi-arid areas may simply fall out of agricultural production. In contrast, other regions, in higher latitudes and including parts of Europe and the western USA, will become warmer and wetter with an extended growing season. This provides the potential of an increased level of production, though producers may need to adapt and change their agricultural techniques and the types of crops grown. The ability of a country to respond to this may well depend on its preparedness and wealth.

Future changes in the climate

If predictions based on the current levels of global warming are realised, between 75 and 250 million people will be exposed to increased water stress due to climate change. By 2030, production from agriculture and forestry is projected to decline over much of southern and eastern Australia due to increased drought and fire. By 2050, freshwater availability will be decreased in Central, South, East and S E Asia. Coastal areas will be at increased risk of flooding from the sea or the river megadeltas.

Overall, this means that we can expect malnutrition levels to increase in some of the world's most vulnerable populations. Additionally, we need to anticipate more droughts, heat-waves and floods. This article has focused on the impact of climate change upon food security through agricultural production effects alone. However, the impact of climate change on other sectors like human health through changes in infectious disease vectors will also impact food security but are difficult to quantify.

To contact the author, email: K.Godden@westminster.ac.uk.

Additional information, including the entire IPCC report series, can be found at <http://www.ipcc.ch>

¹ IPCC 2007. Climate Change 2007. Synthesis Report. A Report of the Intergovernmental Panel on Climate Change. World Meteorological Organisation (WMO) and the United Nations Environment Programme (UNEP). Available at <http://www.ipcc.ch>

² Centre for Research on the Epidemiology of Disasters. (CRED), <http://www.cred.be>

Integrated Nutrition and Food Security Surveillance in Malawi

This article describes a surveillance system developed and implemented by AAH and partners in Malawi, that monitors nutrition and food security (through a food stress index) in a sample of children under 5 years at sentinel sites. The development of user friendly software programmes for data analysis is facilitating the integration of the system into government structures.



By Elena Rivero, Núria Salse and Eric Zapatero

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The Ministry of Health and Ministry of Agriculture of Malawi, in partnership with Action Against Hunger (ACF), have been running the Malawi Integrated Nutrition and Food Security Surveillance (MINFSS) system since May 2003. The system was initially piloted in six districts, but currently covers the whole country. The MINFSS system aims to provide information on nutrition trends of children under five years, as well as the household food security situation in Malawi. Any significant decline in the nutrition and food security situation detected by the system should lead to a detailed investigation, using standard nutrition survey and food security assessment methodologies. These would estimate the actual prevalence of acute malnutrition or the level of food security.

The MINFSS system monitors nutritional status of a sample of 9,100 children (350 per district) from five growth monitoring clinics (GMC) in each of the 26 districts in Malawi. These children are randomly selected from a population of children attending the GMCs and therefore include healthy, malnourished, and sick children. Out of the 9,100 children, 1,300 children (50 per district) are selected to gather household food security information. These same children are followed over the period of a year.

NUTRITION Information Collection and Analysis

Indicators

At each of the GMC sessions, the following information is collected from the 70 selected children:

- Child Identification
- Child age in months
- Sex
- Height (using a height board to the nearest mm)
- Weight (using a Salter scale to the nearest 0.1 kg)
- Mid-upper-arm circumference (MUAC) (using MUAC tape to the nearest mm)
- The occurrence of acute diarrhoea in the past 2 weeks
- Presence or absence of bilateral oedema

Methodology

Five health centres are selected within each district to ensure that all livelihood zones are covered. The centres are called sentinel sites. In each sentinel site, a number of GMC sessions are

conducted with caretakers of children under 5 years of age who regularly attend these clinics. In order to ensure all children attending a GMC have an equal chance of being selected, a random sampling is carried out at all the GMC sessions in a particular month.

The MINFSS system aims to create an information channel from rural Malawi Health Centres and Agriculture Extension Development Officers (AEDOs) through to their respective ministries in Lilongwe where data are entered and analysed. Results are reported to national and international decision/policy makers. Data are sent to Lilongwe at the end of each month and the 10th of the following month is the cut-off point for these data being received at Ministry offices. These data are entered into the Nutrition and Food Security databases.

Analysis

The anthropometric data are analysed with ANALYNUT (see box) to produce anthropometric indices, using the National Centre for Health Surveillance (NCHS) tables of reference. The analysis uses repeat measurements by pairing the same child from the previous month in order to make comparisons over time.

The weight for height z-score (WHZ)¹, as an indicator of acute malnutrition, is of primary interest. The proportion of children with GAM (global acute malnutrition) and SAM (severe acute malnutrition) are calculated. Data on trends in height for age z-score (HAZ)² are used as an indicator of chronic malnutrition or stunting. This information is disseminated once a year but can be made available upon request. Other nutrition indicators, such as the proportion of children with low mid upper arm circumference (MUAC), diarrhoea and oedema are also calculated using the ANALYNUT programme.

FOOD SECURITY Information Collection and Analysis

Indicators

Once the sampling has been carried out, a baseline survey is conducted to gather household food

¹ WHZ = (actual weight - reference weight)/reference standard deviation

² HAZ = (actual height - reference height)/reference standard deviation

ANALYNUT can be used to calculate monthly trends by extracting the relevant information from the monthly data files and calculating the mean and standard deviation for each sentinel site that are entered onto a worksheet. As a second stage, ANALYNUT carries out an adjustment for missing sites. The programme estimates a value for every child included at least once in the run of months for which the analysis is set up. This is done for every missing site in a district. The programme essentially calculates a best estimate of the value for each missing cell in a reiterative fashion using a missing data procedure. The programme provides a best estimate for the district based on the available data of previous months. For those districts with missing sites, the best estimates are only calculated for the mean, as confidence interval calculations need information on the number of children.

ANALYNUT is an ideal data analysis package from the point of view of capacity building of the Ministry of Health, since the programme is easy to use and can be run by individuals that have limited data analysis experience. The programme is purely Excel based (i.e. data entry, cleaning, flagging of biologically implausible indices, analysis, and output is all carried out in an excel programme). The results are comparable with other anthropometric data analysis packages such as EPI NUT contained within the Epi-Info programme (<http://www.cdc.gov/epiinfo/>) and Emergency Nutrition Assessment (ENA) Software (<http://www.nutrisurvey.de/ena/ena.html>).

More information on the ANALYNUT programme is available from the authors (see contacts details at the end of this article).

security related information. The main topics covered are:

- Structure of the household
- Assets ownership
- Land, crops and cultivation practices
- Cash income and income sources
- Loans
- Food consumption and preferences
- Sickness and health
- Water and sanitation

A shorter questionnaire is used on a monthly basis to monitor changes occurring in the household. It includes:

- Changes in the household (births, deaths, movements...)
- Cash income and income sources
- Food availability
- Food consumption patterns
- Shocks

Methodology

A sample of 10 children is selected from the list of the 70 children enrolled in nutrition follow-up. The selection is random using a sampling interval procedure. This child's household is then assessed via questionnaire each month to provide information on the main food security indicators. This sampling method allows for tracking changes over time and takes account of the need to combine nutritional and food security indicators in the same locality.

Analysis

The analysis of the food security data is conducted using two programmes developed by ACF for this project. These programmes were developed in Excel using Visual Basic in order to make it more accessible for users.

Surveyprogramv10 is used for:

- Simple accumulation of coded categories
- Mean, standard deviation, median and quartiles
- Accumulation of coded categories with more than one per cell
- Mean, median, etc with zero values ignored
- Accumulation of string variables

It is used for cleaning the data and to calculate the Food Stress Indexes. It can also be used to cross tabulate sets of data and calculate means and medians, etc.

Monthtrendsv5 is the latest version of a programme that is used to calculate monthly trends. It extracts the relevant information from the monthly data files, and assembles the mean for each sentinel site onto a worksheet. In a second stage, it carries out an adjustment for missing sites. Through the analysis of the data it is possible to follow several food security indicators each month in each district. It is also possible to compare the data between districts, regions and years.

Food Stress Index

The nine indicators from the monthly questionnaire which showed a discernible trend over the hunger period were combined into a 'food stress index'. This provided a useful summary of food insecurity for the 2004-05 hungry season and allowed comparison with 2003-04.

Food Stress Index mark 1(FSI1)

Nine of the variables which showed significant differences between months were combined into a food stress index. The percentage of households reporting each indicator is shown in Table 1. The mean of the nine indicators is the food stress index mark 1 (FSI1). A value of zero would imply that all households:

- had more than 50kg of cereal in store

Table 1: Percentage of households reporting each indicator for Food Security Index mark 1 (2003/04)

	Nov	Dec	Jan	Feb	Mar	Apr
Less than 51kg in store	46	60	66	77	80	49
100-access to cassava/sweet potato	55	66	50	46	39	39
Income<MK1000	56	74	68	73	69	59
100*(3-meal frequency)	77	66	89	105	104	90
100-cereals taken	7	8	15	9	10	8
100-legumes taken	58	61	61	66	63	44
Reduced amount/meal	59	58	63	65	65	49
Reduced meals/day	53	59	62	60	61	47
Entire days without staple	23	28	24	22	18	12
Mean (FSI1)	48	53	55	58	57	44

- had root crops available
- had a cash income greater than MK1000 per month
- ate three meals per day
- ate cereals every day
- ate groundnut or other legume every day
- did not have to undertake any form of food rationing.

At the other extreme, a value approaching 100 would indicate that few households experienced such conditions.

However a number of problems became apparent with the FSI1 indicator. The FSI1 was too heavily based towards maize whereas in some areas, other staple foods have a very important role, e.g. cassava in Nkhata Bay. Following discussion with the Malawi Vulnerability Assessment Committee (MVAC), it became apparent that new indicators needed to be included in the index. For example, ganyu, the system of casual piecework which sustains the most vulnerable non-food-self-sufficient households through the hungry season. Also, the emphasis placed on meal frequencies and enforced rationing (reduced portions and 'whole days without a staple food') was felt to be too high.

Food Stress Index mark 2 (FSI2)

Given the limitations of FSI1, a new index was developed, the 'food stress index 2' (FSI2). Eight indicators were combined into the FSI2. Adjusted weightings reduced the importance of food consumption indicators relative to the availability of starch food (cereals and root crops) and cash earnings. FSI2 is better able to deal with districts where cassava is one of the staple crops. It also includes information on ganyu, which was not available from the questionnaire in use before October 2004.

The following eight indicators were proposed for the new food stress index (FSI2):

1. The proportion of households that have very low supplies of starch staple food: less than 20 kg of maize, other cereal or dry cassava and no cassava or sweet potato ready for harvest (weighted 1.0).
2. The proportion that have a potential shortage in the longer term: less than 50kg of maize, other cereal or dry cassava and no cassava or sweet potato ready for harvest in the next two months (weighted 1.0).
3. Households with income less than MK1000 per month (weighted 1.0).
4. Households having difficulty finding ganyu (weighted 1.0).
5. 100 x (3 minus meal frequency) (weighted 0.33).
6. Households who have not eaten groundnut or legume on the previous day (weighted 1.0).

7. Households reporting that they did not have enough food at some time in the month (weighted 0.33).
8. Households going whole days without a staple food (weighted 0.33).

The first two indicators are closely connected but including them both emphasises the importance of immediately available food to the index. The meal frequency indicator operates on the assumption that most households would eat three meals a day if they had adequate food. Occasionally households report 4 meals per day but this is treated as 3 meals. Indicator 6 on legume consumption is indicative of food quality as well as changes in food access. Having experimented with various weights for the different indicators it was decided to downgrade the importance of the three indicators of food consumption (meal frequency, not enough food and whole days without staple) so that the three together carry the same weight as any one of the other indicators.

Each month, a Bulletin is issued with the results of the data analysis for both the Nutrition and the Food Security information. All reports and bulletins are shared with the ministries and any other interested institution. Results are also sent to the district representatives of the ministries and presented at Nutrition and Food Security meetings.

Challenges and Constraints

Possible biases of the methodology

Defaulting is an issue that arises and may be a source of bias because the same children are followed over time. If a large number of children default, the sample may cease to be random. However, for the purposes of tracking trends over time, the system needs a broadly representative sample rather than a random one. The statistical theory and methods are essentially those of time series rather than of surveys. All that is necessary is that the sample should be representative of the population.

Another potential source of bias is the nature of clinic attendees. For example, if there is a tendency for especially sick children or children of sick mothers to attend the GMC, sick children will be over-sampled. However, a counterbalancing factor may be that more health conscious caregivers attend the GMC.

Another potential bias is introduced by sampling children at the health centres and not the outreach clinics, so that more remote settlements are under-represented resulting in wealthier families being over-sampled. However this does not appear to be the case. At the start of implementation, both static and outreach clinics

Table 2: Components of the Food Stress Index mark 2

	Weighting	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Starch not available now	1	6.0	12.6	15.0	21.0	20.1	14.5	6.7
Starch not available soon	1	10.2	18.0	16.3	24.1	19.4	14.5	9.6
Income < MK1000	1	52.7	55.7	56.4	59.3	57.8	62.4	56.9
Difficult to get ganyu	1	27.8	34.2	43.0	39.6	32.4	35.0	33.0
3 minus meal frequency	0.33	80.2	79.0	82.9	81.6	77.9	74.1	56.9
No legume previous day	1	59.0	65.8	73.3	78.3	66.1	56.5	53.0
Not enough food	0.33	54.8	59.3	61.9	67.0	61.1	56.0	41.7
Whole days without staple	0.33	4.2	4.7	11.0	9.5	11.2	6.0	4.5
Weighted average		33.7	39.0	42.6	45.8	41.0	38.0	32.3
FSI2		34.9	39.3	43.6	47.0	42.4	39.0	33.1

were used in each district for the follow up of the nutrition and food security situation. Following an evaluation of the pilot, it was concluded that there was no significant difference between the population sampled from the outreach posts and those sampled from static GMCs (for both Nutrition and food Security).

Interview fatigue

Family's tire of being asked the same food security questions each month without any kind of 'reward'. In addition, it is sometimes difficult for AEDOs to complete the questionnaires, resulting in low questionnaire submissions rates.

Data return

Despite our best efforts, the dataset is at times incomplete, as completed questionnaires from specific sites in specific months are not always received in Lilongwe. There are two problems that affect data return. First, there are not enough children to be measured/monitored. Secondly, not all data are used due to poor quality. Insufficient numbers of datasets received every month determines that, currently, comparisons between regions are more useful and give a more accurate picture of the situation than district by district comparisons.

Discussion

The surveillance system implemented in Malawi has several important practical and statistical differences from a survey based system. The same children are measured over months as a time series whereas surveys use a point time data analysis methodology. Surveillance is effectively a moving picture while a survey is a snapshot of a movie. The sample size for surveillance is different from a survey. The pairing of the data (following the same children each subsequent month), requires a smaller sample size to produce good statistical power and precision in demonstrating significant changes over time. Currently the nutrition surveillance system at its maximum, providing a sample size of 350-paired data per district.

A priority aim of this surveillance system was to understand the linkage between nutrition and food security. Thus, a sub-sample of those households

with children monitored under the nutrition surveillance component was chosen for food security assessment monitoring. It was hoped that this would clarify the impact of the food security situation at household level on the nutritional status of the children.

The Surveillance System is proving an important source of information for all stakeholders and key decision makers. This was demonstrated during the food crisis of 2005 when the Integrated Nutrition and Food Security System provided information which allowed timely intervention when the situation appeared to be deteriorating.

The surveillance system is also providing useful and pertinent information to the MVAC³ in Malawi. It provides secondary data on food security and nutrition indicators which are used by the MVAC for the annual assessment report. This information is provided at harvest time when the MVAC is analysing the situation in Malawi. The system is also used by the MVAC to track the situation over time and monitor the predictions made.

Strategies are currently in place to ensure a smooth and sustainable integration of the system into governmental structures. Comprehensive handover to the Ministry of Health and Ministry of Agriculture is in progress and will hopefully lead to full Government ownership.

Conclusions

MINFSS applies statistical tests that are based on analysis of variance of WHZ from repeat measurements on the same children. This pairing of the same children improves the precision of the analysis in demonstrating changes over time, reduces the need for large samples and is more capable of showing a change in acute malnutrition over time. The food stress index allows comparison of food security between months (is it improving or faltering?), between years and between geographic units (regions, districts or livelihood zones). It does not predict the situation that will emerge later in the year nor does it provide an exact description of the situation in each district. However, after some years of running the system, it should be possible to predict the scale of deterioration in a 'hungry' season as there will be data over a number of years on which to draw. For the sake of continuity of the information and in order to establish valid trends over time, it is recommended that the same households are selected for one year and a new set of households selected thereafter on an annual basis.

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³ MVAC (the Malawi Vulnerability Assessment Committee) is a consortium committee of government, NGO and UN agencies that is chaired by the Ministry of Economic Planning and Development. MVAC members have contributed to livelihood zoning of Malawi. Livelihood zones feature baseline profiles that are monitored and re-assessed yearly.

SAM inadequately addressed in the Lancet Undernutrition Series

Dear Editor,

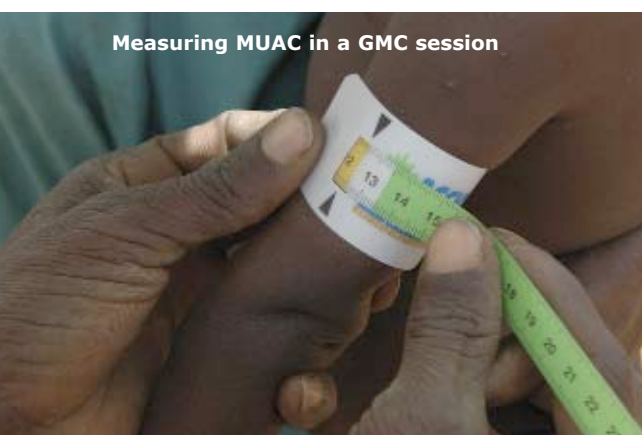
In 2003, The Lancet captured and focused attention on saving children's lives with the publication of a five-part series on child survival. In 36 succinct pages, this series described the "where" and "why" children are dying and highlighted the contributing role of undernutrition to approximately 50% of all deaths in children under 5 years of age¹. With the recent Maternal and Child Undernutrition series, The Lancet continues its commitment to shine the spotlight on nutrition as "a desperately neglected aspect of maternal, newborn, and child health." The toll exacted by childhood undernutrition is felt every day by Médecins Sans Frontières (MSF) field workers in more than 60 countries around the world. Development of nutrition programmes is an increasingly important focus of our work. MSF has gone from treating 100,000 malnourished children during the period from 2000-2005, to reaching 150,000 such children in 2006 and again in 2007.

MSF welcomes this series and commends the efforts to emphasise the vital importance of nutrition for vulnerable populations, particularly children under 2 years of age. The series also highlights the glaring under-allocation of resources to this area. However, we think the series misses the mark in some important areas; underestimation of disease burden of severe acute malnutrition and failure to acknowledge the tremendous potential of new treatment strategies.

Underestimation of the disease burden of severe acute malnutrition and the associated mortality

In paper 1 of the series, the burden of disease is estimated, by prevalence, to be 19 million (3.5% of 555,729,000) children suffering from severe acute malnutrition (SAM), and 178 million (32% of same population) stunted children². As SAM is a transitory condition, with known seasonal variations in many parts of the world, a cross-sectional survey 'snapshot' at any one point in time will certainly lead to an underestimation of the caseload. In addition, no mention is made in paper 1 (or any of the other papers in the series) of kwashiorkor, a common form of SAM in central and eastern Africa, further underestimating the burden of SAM.

According to the series, SAM is identified as a significant cause of death, responsible for 449,160 deaths per year among children in developing countries. This estimate is substantially lower than the 1 million SAM-attributable deaths reported in the UN Joint Statement on Community-based Management of Severe Acute



Measuring MUAC in a GMC session

E Rvivero, ACFS, Malawi, 2007

Malnutrition³ and again raises questions about the validity of calculating mortality from prevalence surveys.

The risk of death associated with SAM is reported as 9.4 times higher than for a non-wasted child, yet the global case fatality rate calculated using the authors' data is only 2% - this with only a minute fraction of the 19 million children receiving treatment for SAM. In 2007, MSF's nutrition project in Maradi, Niger, treated 22,250 children for SAM using WHO standards for admission criteria. This programme reported an 83% recovery rate, while case fatality and defaulter rates were 2.7% and 8.8%, respectively (G. Harczi, personal communication). Thus, even with effective and proven treatments, case-fatality rates are not as low as suggested in paper 1.

Despite the increased risk of death associated with SAM, however, the undernutrition series focuses its attention on stunting, and interventional strategies targeting the 36 countries that account for 90% of this condition. Countries such as Turkey are included in this list, while Chad, Somalia, Central African Republic, Sierra Leone, Liberia, and Haiti are not. This type of analysis prioritises the needs of the less undernourished over those most immediately at risk of death.

Failure to acknowledge the major impact of Community-based Treatment of SAM

Treatment of SAM is not a 'key message' in paper 3, despite its huge potential to save lives. Relying solely on data from randomised controlled trials (RCTs), the authors limit their recommendation to treat SAM in facility-based programmes instead of endorsing community-based management. This fails to accurately reflect current reality of practice and does not acknowledge community-based care strategies using ready-to-use therapeutic foods (RUF) as an enormous advance in the ability to treat this lethal condition and its potential to reach vast numbers of children.

In paper 3, the authors give several reasons for not widely recommending community-based care. Firstly, their intent is to discuss intervention effects in national populations, not in "special circumstances of crisis." This differentiation ignores the fact that, although initially developed and implemented for more effective response in emergency relief⁴, outpatient management of SAM is gaining favour with national governments. Ethiopia, Malawi, Sri Lanka, and Niger are institutionalising community-based SAM management protocols, with many more countries following their lead. The vast majority of children affected by SAM do not live in areas of conflict or "special circumstances," but rather live in families that are fundamentally food insecure.

Secondly, the authors of paper 3 cite the lack of robust, randomised studies as a reason for not endorsing community-based care. In web table 5, the authors present their search criteria, which led to the selection of RCTs, including those with historical controls. Their search methods returned 19 articles addressing the use of RUF in community management of acute malnutrition, of which only 5 were considered suitable for analysis. Of the 14 studies excluded, 5 were observational studies, one of which enrolled 2,131 severely malnourished children⁵. However, large-scale observational studies can provide equivalent or better

evidence, especially when randomised studies are small and inadequately control for confounding variables⁶.

Thirdly, the authors of paper 3 focus on reduction of case fatality rate as the basis for making their recommendations. Thus, facility-based care according to WHO protocols is recommended for implementation (Table 1 of paper 3) because it is deemed effective at reducing the case fatality rate for children with SAM, compared with those not treated according to this protocol. Yet none of the five published studies cited and used for this pooled analysis (Ahmed, Ashworth, Deen, Falbo, Wilkinson) for supporting improved facility-based care used randomisation. These studies used historical controls from the same facility or non-random controls from case series. Furthermore, no mention is made of the coverage or defaulter rates associated with facility-based treatment. In MSF's experience in Niger, exclusive facility-based treatment has been associated with substantially higher default rates compared with combined or strictly outpatient care: 28% vs 16.8% and 5.6%, respectively⁷. Thus, actual mortality from stand-alone facility-based programmes is likely to be underestimated.

Compared with resource-intensive, facility-based inpatient management, community-based care is a practical, large-scale intervention, as evidenced by ~60,000 children treated in Niger in 2006⁸, and >26,000 treated in Malawi, Ethiopia, and Sudan in 2001-2006⁹. Coverage of >70% with community-based treatment, versus <10% in facility-based programmes, suggests community care has a much greater impact at the population level¹⁰, with improved outcomes¹¹. Furthermore, it is important to remember that community-based treatment includes WHO protocol facility-based care; it is an effective strategy because it offers inpatient care for complicated SAM while achieving high patient coverage through an outpatient network, and minimising defaulter rates by decreasing opportunity costs for mothers.

While the authors of the undernutrition series are to be commended for their rigor in establishing a solid evidence base for making recommendations, the fundamental question remains: what rules of evidence should be applied? Of the 10 original papers cited as references for the UN Joint Statement on Community-based Management of Severe Acute Malnutrition, four were expressly excluded from consideration in the Systematic Review of Management of Childhood Severe Malnutrition for the undernutrition series. Among these, there is a controlled trial with systematic allocation, a clinical trial, a retrospective study and a review (paper 3, webtable 5). It may be time to re-examine the rules of what constitutes valid evidence.

The three studies from the UN Joint Statement that are included in the paper 3 SAM review are RCTs. Although RCTs have become the gold standard for clinical decision-making, the same standard is not sufficient for public health decision-making where the pathways from intervention to impact are multiple and complex¹². Evidence-based public health decisions must therefore rely on a variety of data types, not just from RCTs, ranging from highly controlled efficacy trials, to observa-

tional studies with control or comparator groups, to the reporting of results obtained from large-scale programmes in differing contexts.

Lastly, many of the interventions recommended for the 36 countries in Table 1 of paper 3, e.g. hand washing and behaviour change communication, are not supported by studies showing an effect on nutritional status or mortality. Different standards thus seem to be used to recommend some interventions and not others.

Moving forward

The Lancet Undernutrition series has taken important steps forward in acknowledging and beginning to define the problems with nutrition for women and children under 2. But some of the recommended interventions—exclusive breastfeeding, complementary feeding practices and hand washing—rely on behaviour change, presuming that mothers can easily change their busy, overburdened lives. Furthermore, Vitamin A and zinc supplements address only part of the nutritional deficits.

As the Lancet series points out, funding is woefully inadequate. If the nutrition community is serious about addressing the crisis of maternal and child undernutrition, it must not be limited by inexpensive solutions that intervene on the margins. Funding must increase and programming developed to ensure that energy-dense, nutrient rich foods or supplements get into the mouths of young children. Scaling up community-based treatment of SAM is a major step in the right direction, but it is not sufficient. A child should not have to deteriorate to the point of severe wasting to "qualify" for nutritious food.

Susan Shepherd, MD
Nutrition Advisor
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¹ Black, RE et al. Where and why are 10 million children dying every year? *Lancet* 2003; 361: 2226-2234.

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⁴ Collins S, Sadler K. Outpatient care for severely malnourished children in emergency relief programmes: a retrospective cohort study. *Lancet*; 2002. 360: 1824-30.

⁵ Linneman Z, Matilsky D, Ndekha M, A large-scale operational study of home-based therapy with ready-to-use therapeutic food in childhood malnutrition in Malawi. *Matern Child Nutr*. 2007 Jul;3(3):206-215.

⁶ Shrier I, Boivin J-F, Steele RJ, et al. Should meta-analyses of interventions include observational studies in addition to randomized controlled trials? A critical examination of underlying principles. *Am J Epidemiol* 2007; 166: 1203-9.

⁷ Gaboulaud V, Dan-Bouzoua N, Brasher C, Fedida G, Gergonne B, Brown V. Could nutritional rehabilitation at home complement or replace centre-based therapeutic feeding programmes for severe malnutrition? *J Trop Pediatr*. 2007; 53: 49-51.

⁸ Defourny I, Seroux G, Abdelkader I, Harczi G. Management of moderate acute malnutrition with RUTF in Niger. *Field Exchange* 2007; 31: 2-4.

⁹ Collins S, Sadler K, Dent N, et al. Key issues in the success of community-based management of severe malnutrition. *Food Nutr Bull* 2006; 27 (suppl 3): S49-82.

¹⁰ Collins S, Dent N, Binns P, Bahwere P, Sadler K, Hallam A. Management of severe acute malnutrition in children. *Lancet* 2006; 368: 1992-2000.

¹¹ Ciliberto MA, Sandige H, Ndekha MJ, et al. Comparison of home-based therapy with ready-to-use therapeutic food with standard therapy in the treatment of malnourished Malawian children: a controlled, clinical effectiveness trial. *Am J Clin Nutr* 2005; 81: 864-70.

¹² Victora CG, Habicht, JP and Bryce J. Evidence-Based Public Health: Moving beyond randomized trials. *Am J Public Health*; March 2004; 94, 3. 400-405.

Challenging conclusions and analysis of the Lancet Undernutrition Series

Dear Editor,

We welcome the opportunity provided by the Lancet to highlight the “*desperately neglected*” subject of nutrition through its series on maternal and child undernutrition. We appreciate the substantial scope of the series as well as the scientific rigour applied in producing it. We find the analysis in many instances to be both thoughtful and perceptive. However, we take issue with some of the major conclusions of the series and the fact that certain areas of analysis have been over-simplified and poorly developed.

There are four key conclusions in the series which we would like to briefly comment upon:

- There is a lack of evidence about effective programming.
- There are a small group of ‘single’ interventions that are effective in reducing undernutrition.
- There are a small number of countries who have successfully reduced undernutrition.
- There is a lack of leadership and ‘fragmentation’ in the international nutrition system.

Lack of evidence base

The authors cite a limited evidence base for programme effectiveness but, at the same time, throw out a great deal of data because of failure to meet criteria for admissible evidence. The vast bulk of the acceptable evidence is for single interventions, which address the immediate causes of malnutrition. Single interventions are easier to evaluate and demonstrate impact on malnutrition levels than multi-sectoral interventions. Randomised control methodologies may be applied to the former, but are very difficult, in practical terms, to apply to the latter.

We feel that there has been a lack of caution from authors in highlighting which interventions are ‘proven’ to be effective. The impression given is that unless there is evidence of effectiveness using strict scientific criteria, an intervention should not be implemented. For example, it is stated in paper 4, page 1, “Nutrition resources should not be used to support actions that have not been proven to have a direct effect on undernutrition....” This would effectively mean that all emergency food aid programming (with the exception of foods used in therapeutic care programmes) should cease as there is no firm evidence base for its effectiveness (Duffield et al 2004).

What we would like to have seen addressed is the question why there haven’t been more evaluation studies which meet the scientific criteria (randomised control trials) set by the Lancet? The obstacles to such evaluation need to be understood, in particular the need to develop more rigorous and operationally feasible methods to evaluate the impact of multi-faceted approaches. Scientific evaluation of impact needs to be planned at the outset of programmes. Donors need to be aware and willing to provide the resources needed to fund rigorous scientific evaluation. Currently, donor funding mechanisms for interventions tend to favour agencies with a ‘track record’ for delivering outputs rather than outcomes (for example the delivery of food rather than the impact of the food on undernutrition). The focus on outputs rather than outcomes at donor level reflects administrative pressures and the lack of nutritional expertise within donor agencies.

We would have liked the Lancet to highlight the lack of epidemiological expertise, within donor and implementing agencies, to develop and implement appropriate methodologies for impact evaluation.

Another key factor which allows this ‘status quo’ to prevail is the lack of institutional accountability for programme outcomes. There is no single agency with a mandate or responsibility to ensure that nutrition intervention impact is assessed and, therefore, no overview within the system as to which programmes or design features deliver the desired impact. Consequently it is left to entrepreneurial individuals or agencies to amass such evidence and ultimately push for better designed interventions. Such an ad hoc situation is unsupportable. While the Lancet series highlights this deficiency (paper 5), there is no institutional analysis of how to remedy this situation. An important opportunity for advocacy has therefore been missed.

Small group of effective interventions

The Lancet identifies 14 interventions of which three (breastfeeding counselling, vitamin A supplementation and zinc fortification) have the greatest proven benefits in terms of reducing stunting and micronutrient deficiencies. Most of these 14 interventions are ‘single’ interventions (eight on micronutrient supplementation or fortification, three on promotion of good infant and young child feeding through counselling and behaviour change, one on treatment of severe malnutrition, one on intervention to reduce tobacco consumption and one on hand-washing and hygiene intervention).

The reviewers in paper 3 report that they have “*analysed large-scale nutrition programmes, to derive estimates of population effect, achievable coverage levels and sustainability*” but it is unclear what conclusions have been drawn about the success or otherwise of multi-sectoral nutrition programmes. Only one large-scale nutrition programme met the criteria for prospective evaluation (Progressa in Mexico) and the authors conclude that “*given the paucity of effectiveness data, strengthening of monitoring and rigorous assessment of large-scale nutrition programmes are imperative*”.

Furthermore, certain interventions were excluded from the analysis (education, untargeted economic strategies or those for poverty alleviation, unconditional cash transfers and microcredit programmes etc.) Overall, the implication is that the short route of single interventions is the way to reduce undernutrition. There is no discussion about the added benefit of linking interventions together (for example growth monitoring alone cannot impact on nutritional status but linked with vaccination, vitamin A, iron/folate supplementation, breastfeeding counselling, de-worming, may well have an impact). Neither is there discussion about linking short-term with longer-term strategies, though implicit throughout the series.

We were disappointed by the failure of analysis. We would at least like to have seen an analysis of funding decisions in relation to nutrition programming. For example, has funding been biased in favour of short term, single interventions, such as micronutrient supplementation, and not on longterm investment in governments and longer-term multi-sectoral programmes?

Small group of countries where undernutrition has been reduced

A number of countries are reported to have

successfully reduced undernutrition. These are Costa Rica, Cuba, Sri Lanka, Thailand, Mexico and, more recently, China. However, the analysis as to how these improvements occurred is limited and is largely descriptive. Crucially, the link between the 14 nutrition interventions identified in paper 3 and the country level improvements is not made explicit. For example, did improvements in nutritional status in China arise mainly due to micronutrient supplementation and improved rates of breastfeeding or are more complex factors or longer term factors at play and if so, what are these?

Furthermore, there is no analysis at a country level of the ‘how’ in relation to nutrition programming rather than the ‘what’. We would have liked the ‘how’ question to have been addressed in this series. How have some countries been able to reduce undernutrition while still remaining poor, while in other countries the opposite seems to have occurred? What social, political and funding mechanisms were needed and how much capacity development was necessary to achieve these reductions?

Lack of leadership and fragmentation

The lack of responsibility for, and leadership in, international nutrition is recognised and the ‘fragmentation’ in the sector identified. But there is no analysis of why or recommendations for what can be practically done.

What is lacking in this section is an historical analysis of past initiatives to improve coordination and coherence in the sector and why these have petered out over time. For example, there is no analysis of why post-International Conference on Nutrition initiatives evaporated. What de-railed the process?

Analysis of the nutrition ‘architecture’ for responding to emergencies is especially weak. Generalisations about the politicisation of food aid are poorly supported by the evidence presented, while the issues highlighted are a regurgitation of the recent literature and add little insight into ways forward. The authors could have made far better use of historical analysis and positive examples to indicate how to make progress where this is needed.

In conclusion, we were disappointed by the superficial analysis of the Lancet series in a number of important areas especially in light of the efforts put in to the quantitative analysis. We feel that there has been a lack of answers to critical questions relating to the lack of an evidence base, the ‘how’ of nutrition programming, funding decisions and accountability.

What most concerns us is what a senior government figure from a developing country would make of the conclusions. Will s/he conclude that national nutrition policy should be re-written to focus only on micronutrient supplementation/fortification and promotion of good infant and young child feeding practices? What other policy and strategy insights has the Lancet series given us to support improvements in nutrition in what is acknowledged to be this “*desperately neglected*” area which claims millions of young lives every year?

Regards

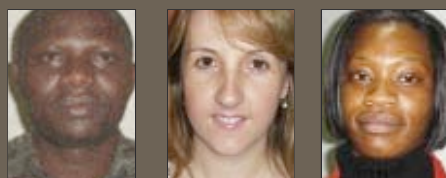
Carmel Dolan and Fiona Watson,
NutritionWorks

¹ Duffield A et al (2004). Review of the Published Literature for the Impact and Cost-effectiveness of Six Nutrition Related Emergency Interventions. Report prepared by the ENN; December.



Measuring weight and height of a child.

Piloting LQAS in Somaliland



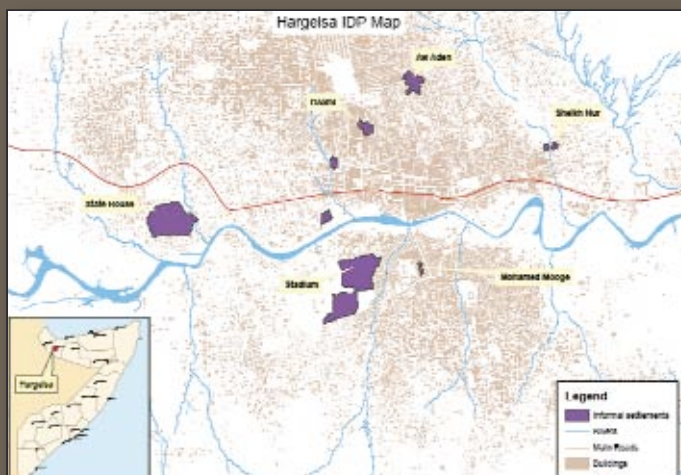
By Tom Oguta,
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The authors would like to express sincere thanks to the FSAU nutrition team in the implementation and write up of this report, to the partners UNICEF and the Ministry of Health Somaliland, to the local authorities of Somaliland for all the logistical support in the implementation of the study and to the community of the IDP camps, who participated in this study.



This article presents a pilot study¹ conducted in Somaliland by the UN Food and Agricultural Organisation Food Security Analysis Unit, (FAO/FSAU). It uses the Lot Quality Assurance Sampling (LQAS) method to assess the nutritional situation and compares the results to a 30x30 cluster survey conducted simultaneously in the same sample population.

The North West Region of Somalia, whose borders follow those of the former British Somaliland Protectorate, declared itself independent (Republic of Somaliland) in May 1991 (see Map 1). However, the declaration of independence is not recognised in other parts of Somalia or internationally. The region has, nonetheless, managed to avoid the protracted conflict and violence that has afflicted much of southern Somalia. Hargeisa town is the biggest urban centre in the region and is the capital town of Somaliland. Hargeisa is the concentration for public administration private sector, and hosts large numbers of persons from the international aid community. Due to its dynamic market and labour opportunities, it is also the destination for many refugees, returnees and internally displaced persons (IDPs). Hargeisa currently hosts more than 80,000 IDPs.

Since 1997, large numbers of UNHCR's 'official' returnees to Somaliland from camps in Ethiopia have selected Hargeisa as their chosen destination. Several returnee settlement areas have sprung up on the outskirts of the city and have grown considerably since UNHCR began its voluntary repatriation programmes in 1997. Many returnees have been settled in permanent settlement areas, namely Sheikh Nur, Mohammed Mooge, Aw Aden and Ayaha. Most others remain in temporary settlements in three different areas (State House, Stadium, A and Daami) and many more are unaccounted for, scattered in different sites within the municipality. Another poor settlement called Sheedaha is also emerging in the northern part of Hargeisa town, mainly inhabited by the urban poor who are unable to pay for rents for better housing in town. These comprise pastoral dropouts who lost their animals in previous droughts and are seeking alternative livelihoods, and those who have currently been displaced from the renewed conflicts in Mogadishu.

Nutritional status

The returnees and IDPs have been identified as nutritionally vulnerable over the past few years, reflected in a series of nutrition surveys that have found rates of global acute malnutrition (GAM) over 10%. These high rates result from inconsistent and limited income generating opportunities and lack of basic services such as sanitation, protected water and health care. Routine assessments are conducted on this population to monitor the nutrition situation and inform appropriate response. In September 2007, the Food and Agricultural Organisation (FAO) Food Security Analysis Unit (FSAU) with UNICEF, Ministry of Health and partners, conducted one 30x30 cluster nutrition survey and two exhaustive surveys in the three most concentrated and protracted IDP populations in Somaliland - Hargeisa, Berbera and Burao. The opportunity was also taken to trial an alternative sampling methodology, Lot Quality Assurance Sampling (LQAS), to assess its sensitivity in determining the nutrition situation.

LQAS and prevalence of malnutrition

LQAS is a method of sampling derived from the manufacturing industry and, over the last two decades, has been also applied to the health sector (see Box). More recently, adaptation of LQAS principles has been explored in relation to estimating the prevalence of GAM. The sampling method traditionally used to assess the prevalence of acute malnutrition in emergencies is a 30x30 cluster survey. This method provides statistically reliable results if implemented correctly but with a sample size requirement of 900, it can be time-consuming and expensive to carry out. FANTA (Food and Nutrition Technical Association²) has been exploring the use of LQAS as a rapid and cost-effective alternative for assessment of the prevalence of acute malnutrition. A study by FANTA, Catholic Relief Services (CRS), and Ohio State University (OSU)³, field-tested the use of the LQAS designs in an emergency setting in Ethiopia⁴. The study concluded that LQAS designs provide statistically appropriate alternatives to the more time-consuming 30x30 cluster survey, though the variance is larger, resulting in wider confidence interval round the point prevalence, and additional field testing was recommended.

¹ The results of this study have been published in the FAO/FSAU monthly Nutrition Update, August 2007.

² More information on LQAS is available on the FANTA website: www.fantaproject.org

³ Deitchler et al (2007). A Field Test of Three LQAS Designs to Assess the Prevalence of Acute Malnutrition. *International Journal of Epidemiology*, May 2007.

⁴ Field testing LQAS to assess acute malnutrition prevalence. Summary of published research. *Field Exchange* 31. September 2007, p4

Lot Quality Assurance Sampling (LQAS)

LQAS is a method of sampling derived in the 1920s for assessing quality of lots (or batches) of products in the manufacturing industry. By the 1980s, the LQAS sampling concepts were recognised as having universal applications and the approach is now being used all over the world to assess coverage of maternal and child health, family planning and HIV/AIDS programmes, quality of health workers performance and disease prevalence. It is based on the principle that inspection of a small, representative sample of a 'lot' will, with high probability, allow for the valid rejection of the entire lot, should the number of defective goods in that sample exceed a predetermined allowable number.

A global review (covering a total of 805 LQAS surveys) of the use of LQAS surveys to assess aspects of health care including service delivery, health behaviour and disease burden was carried out by the World Health Organisation (WHO) in 2006. LQAS surveys were found to be a practical field method increasingly applied in the assessment of preventative and curative health services and for measuring variation in behaviour change when collected recurrently at multiple points in time. Most LQAS surveys have been used to assess risk factors for HIV/AIDS and sexually transmitted infections, although substantial numbers have also been conducted to assess immunisation coverage, growth and nutrition, and post-disaster health status of communities.

FSAU Pilot

In September 2007, FSAU undertook to pilot and field-test the LQAS methodology among the IDPs in Hargeisa, in order to compare the findings with a 30x30 assessment and explore its potential application in the nutrition surveillance system in Somalia.

There are two sampling options for the estimation of the prevalence of acute malnutrition using LQAS; a 33x6 cluster design, where 33 clusters are selected with 6 children per cluster, and a 67x3 cluster designs, where 67 clusters are selected each with 3 children. Although both methods provide similar precision in relation to estimation of malnutrition, the latter has shown a higher precision for household level data. However, as 67x3 clusters requires more travel time, FSAU opted to trial the 33x6 approach.

Methodology

A 33x6 cross-sectional LQAS assessment was conducted alongside a standard 30x30 cluster assessment, amongst the protractedly displaced populations concentrated in seven sites⁵ in Hargeisa town of Somaliland. Both studies used the same sample frame and were conducted by two separate teams concurrently.

For both studies, a two-stage cluster sampling methodology was used to select the clusters and the households. In the case of the LQAS, 33 clusters were drawn from the sampling frame, while 30 clusters were selected for the 30x30 cluster surveys. The clusters were randomly selected using the Nutrisurvey⁶ software. The recommended SMART (Standardised Monitoring and Assessment of Relief and Transitions) method⁷ was used for the second stage sampling of households and children. The same tools were also used for both studies, with quantitative data collected through a standard household questionnaire for nutrition assessment. This included data on child anthropometry, morbidity, vitamin A supplementation, measles and polio immunisation coverage, dietary diversity, and access to water and sanitation. Qualitative data were collected through focus group discussions and key informant interviews by an interagency team comprised of assessment supervisors and coordinators, to provide further understanding of possible factors influencing nutritional status.

For the LQAS study, as all eligible children in a sampled household were assessed, this

resulted in a total of 204 children. For the 30x30 surveys, a total of 905 children were sampled. Two households overlapped between the two studies. As only 198 children were required for the LQAS analysis, the six extra children were randomly eliminated at the analysis stage using a table of random numbers. For both studies, household and child data were entered, processed (including cleaning) and analysed using EPI⁶ and Nutrisurvey software.

Thresholds and Decision Rule (DR) for LQAS

LQAS is a hypothesis test to determine whether an outcome is \geq or $<$ a defined threshold. LQAS uses two thresholds, an upper and a lower threshold, to define the alpha and beta (α and β) errors (tolerable statistical error)⁹. Therefore, to design an LQAS sampling plan, the threshold of interest for an indicator (e.g. GAM prevalence), and tolerable statistical error (α and β) are defined in advance. The upper threshold is the threshold at which the area is at risk (e.g. $\geq 10\%$ for Hargeisa IDPs). The alpha error is the probability of incorrectly classifying an area as not being at risk when the true GAM prevalence is \geq the threshold of interest. For the purposes of this pilot study, the lower threshold is the GAM prevalence at which an area would not be considered a priority for an intervention (e.g. $\leq 5\%$) and the beta error is the probability of incorrectly classifying an area as being at risk when the GAM prevalence is $<$ the threshold of interest.

The null hypothesis assumes the GAM prevalence is \geq the upper threshold. To classify GAM prevalence as \geq or $<$ the upper threshold, the number of children with GAM is counted and then compared against a Decision Rule (DR) determined using binomial probabilities¹⁰. GAM prevalence is judged as \geq the upper threshold if the number of children with GAM in the sample is $>$ than the DR. Similarly, GAM prevalence is judged as $<$ the upper threshold if

⁵ Ayaha, Aw Aden, Sheikh Nur, Daami, Mohamed Mooge, Stadium, and State House.

⁶ <http://www.nutrisurvey.de/>

⁷ The method involves a modification of the standard Expanded Programme on Immunisation (EPI) method to reduce the bias in sampling the households in the centre of the settlement

⁸ <http://www.cdc.gov/epiinfo/Epi6/ei6.htm>

⁹ Megan D et al (2007). A field test of three LQAS designs to assess the prevalence of acute malnutrition. International Journal of Epidemiology. May 2007, pp 2-5.

¹⁰ Valadez J, Weiss B, Leburg C and Davis R. (2003). Assessing Community Health Programs: Using LQAS for baseline surveys and regular monitoring. London: Teaching-aids at low cost.

Table 1: Decision Rules for 33x6 LQAS design (n=198) for various GAM thresholds

Decision Rule – Number of children identified as acutely malnourished in a 33x6 LQAS study	Outcome
≤ 13	GAM is $< 10\%$
> 13 but < 23	GAM is $\geq 10\%$
> 23 but < 33	GAM is $\geq 15\%$
> 33	GAM is $\geq 20\%$



Table 2: Comparative Analysis of findings using 30x30 standard cluster and 33x6 LQAS methodologies

Indicator	Prevalence		95% CI		CI Width		Standard Error		Design Effect	
	30x30	33x6	30x30	33x6	30x30	33x6	30x30	33x6	30x30	33x6
Global acute malnutrition (GAM) (WHZ)	10.3	9.6	8.4 – 12.2	6.1 – 13.1	± 1.9	± 3.5	0.06	0.08	0.91	0.72
Severe acute malnutrition (SAM) (WHZ)	1.1	1.0	0.5 – 1.7	0 – 2.4	± 0.6	± 1.4	0.003	0.007	0.70	0.98
Stunting (HAZ)	19.2	19.2	16.3 – 22.2	12.7 – 25.7	± 3.0	± 6.5	0.09	0.10	1.30	1.42
Underweight (WAZ)	18.0	20.7	14.8 – 21.3	15.0 – 26.4	± 3.3	± 5.7	0.06	0.08	1.68	1.02
Reported diarrhoea	15.3	13.6	11.7 – 19.9	7.9 – 19.4	± 1.8	± 5.8	2.07	2.94	2.91	1.46
Reported acute respiratory tract infection	15.4	19.2	11.3 – 19.4	11.9 – 26.5	± 2.3	± 6.3	2.08	3.71	3.00	1.74
Reported febrile illness	3.0	2.5	1.2 – 4.7	0.5 – 4.6	± 1.4	± 2.1	0.90	1.06	2.53	0.90
Suspected measles	2.2	1.6	0.82 – 3.64	0.0 – 3.9	± 1.3	± 2.3	0.72	1.17	2.03	1.65
Measles immunisation	58.3	57.7	52.3 – 64.3	43.6 – 71.8	± 3.4	± 14.1	3.08	7.20	3.33	4.01
Vitamin A supplementation	60.9	43.4	53.5 – 68.2	33.4 – 53.5	± 3.4	± 10.1	3.74	5.13	5.33	2.12
Polio immunisation	89.4	93.9	86.4 – 92.4	88.7 – 99.2	± 2.2	± 5.3	1.53	2.70	2.23	2.53
Dietary diversity (>3 food groups)	80.9	90.6	76.5 – 85.3	84.1 – 97.0	± 3.8	± 6.5	2.23	3.30	1.63	1.35
Access to safe water	84.7	97.2	75.9 – 93.5	94.2 – 100	± 8.8	± 3.0	4.50	1.55	7.82	0.94
Access to latrine	68.4	74.5	58.2 – 78.6	65.1 – 82.5	± 10.2	± 9.4	5.18	4.73	6.25	1.25

WHZ: Weight for height z score HAZ: Height for age z score WAZ: Weight for age z score a

the number of children with GAM is \leq than the DR. This is illustrated in Table 1 based on a 33x6 LQAS study. Here, if more than 13 children but less than 24 children are identified as acutely malnourished, then the global acute malnutrition rate can be estimated to be 10-15%.

Results and Discussion

Overall, the 33x6 LQAS design produced more or less similar results compared to the conventional 30x30 design for the child data (malnutrition, morbidity and health programmes coverage) but less correlation for the household data (household dietary diversity, access to water and access to sanitation facility). However, as expected given the smaller sample size of the LQAS design (198 children), the standard error is larger, and consequently the confidence intervals are wider for the LQAS results. The design effects were generally lower for the LQAS design (See Table 2).

Analyses of the findings from the two assessment designs provide similar estimates of acute malnutrition. An acute malnutrition rate (WHZ < -2 and/or oedema) of 9.6% (CI: 6.1 – 13.1) was reported using the LQAS (33x6) design. Comparable results (confidence intervals overlapping) were reported from the conventional 30x30 design with acute malnutrition rates (WHZ < -2 and/or oedema) of 10.3% (CI: 8.4 – 12.2). For hypothesis testing against a threshold of below or above GAM of 10%, 19 children were found to be acutely malnourished, indicating levels above 10%¹¹ and <15% according to the DR shown in Table 1.

Conclusions

The LQAS approach required fourteen less person days and cost approximately 60% less (\$5,600 compared to \$13,700) than the 30x30 approach. A further benefit was to the staff who reported being less tired and more motivated.

Given these findings, there would appear to be a role for LQAS in the nutrition surveillance system for Somalia – especially for filling information gaps during the seasonal assessments and for areas with limited accessibility. In addition, given the chronically high rates of acute malnutrition reported in Somalia, this method could be used to identify hot spots and help prioritise interventions where the nutrition situation has deteriorated significantly. There is a considerable amount of baseline nutritional information in Somalia which would allow for this type of comparison.

However, for interpretation purposes, more emphasis will be needed on adapting the decision rule approach to provide a range estimate rather than an absolute prevalence estimate, given the small sample and the wide confidence intervals. This may, in turn, limit the use for monitoring the situation over time except when a significant change in the nutrition situation has occurred.

FSAU is planning to conduct further studies using the LQAS approach in less secure and accessible areas in Southern Somalia in 2008. As with this study, parallel standard surveys will be conducted to allow for comparability of the results. The results of these studies will be reported in the monthly Nutrition Updates.

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¹¹ Only 13 acutely malnourished children are required to hypothesize GAM levels of \geq 10%.

SC UK's experiences with Central Emergency Response Funds (CERF)

Summary of evaluation report¹

In May 2007, Save the Children UK (SC UK) surveyed all of its field programmes operating in countries where Central Emergency Response Funds (CERF) had been granted over the year. This was a follow up to a published position paper on CERF in January 2007, which argued that unless non-governmental organisations (NGOs) achieve direct access to CERF funding, the CERF would never achieve its full potential. The January paper highlighted several concerns, including the speed of forward disbursements, lack of transparency, problems in United Nations (UN) /NGO relations in the field and poor communication.

Of the 37 countries that had received CERF funding in 2007 at the time of the survey, SC UK was operational in seventeen. Of those 17, SC UK had successfully applied for grants in two countries – Mozambique and Liberia. The Somalia response team also benefited from CERF, through CERF funded UN cargo flights that assisted SC UK relief programming in Hiran region.

Currently, each UN agency requires using its own sub-agreement form with NGOs. Also, overhead costs still need to be negotiated on a case-by-case basis that takes time. Experience in Mozambique revealed that CERF did not provide the critical jump-start funding for either UN agencies or NGOs in the wake of the flooding in February 2007. According to the Inter-Agency real-time evaluation of the response to the February 2007 floods and cyclone in Mozambique, there would have been considerable delays in assistance had UN agencies and NGOs not had their own seed money to begin operating right away. The report also states that “the most difficult area of the CERF was the application for funds for NGOs via the CERF”.

According to the SC UK survey it is problematic that UN agencies do not adequately keep track of when and how much CERF funding is passed through to NGOs. Without these data, it is impossible to gauge the impact of CERF funding on beneficiaries. To its credit, the CERF Secretariat has introduced new reporting requirements which should improve the transparency. The UN and the International Organisation for Migration (IOM) are now required to submit an annual report, including lessons learned on accessing funds from the CERF and analysing its impact. The Humanitarian/Resident Coordinator (HC/RC) annual reports are meant to document forward disbursements to NGOs.

Another finding from the survey is that the relationship between the UN agencies and NGOs in the field varies greatly. Mutual suspicion and a lack of communication can prevail in certain contexts, and a lack of transparency feeds this problem. SC UK found that there was confusion (and scepticism) amongst Country Directors about the

UN agencies' motivations for applying for CERF funding. There was a perception that they use the CERF to 'top up' their own budget shortfalls, which is not the intended use of CERF. In two countries, SC UK Country Directors made clear how frustrated they were at being excluded from the decision-making processes. In both cases, they were assured they would be consulted next time.

Several of the SC UK programmes were simply unaware that CERF funding had been granted to the countries in which they work. This points to not only a lack of communication but also to the state of UN-NGO relations.

SC UK, Oxfam and representatives from UN agencies attended a CERF Training of Trainers in April 2007, which helped finance staff understand better the mechanisms, limitations and opportunities with the CERF. Trainings from the Humanitarian Liaison Support Unit in the UN Office for the Coordination of Humanitarian Affairs (OCHA) have also helped the wider NGO community – particularly field based staff – know more about the CERF.

SC UK makes a number of recommendations regarding the CERF:

- The CERF Secretariat should establish pre-approval procedures or standardised Letters of Understanding (LoU) between the CERF Secretariat and NGOs with proven competency. Alternatively, a standardised global LoU would also be useful between any UN agencies and NGOs with proven capability.
- The CERF Secretariat and UN agencies must continue to improve the transparency of CERF funding, including regular public reporting of the speed and impact of CERF funding for humanitarian programmes on the ground. There should be clear guidelines for timing, minimum percentage of funds to NGOs and percentage of overheads.
- The CERF Secretariat should pursue a project tracking system, to track funds all the way from CERF to beneficiaries.
- The CERF Advisory Group and UN member states must hold UN agencies accountable to higher levels of transparency and speed for disbursement of funding from the CERF, in order to improve this important mechanism and better demonstrate impact for beneficiaries on the ground. A real-time evaluation of CERF's speed and transparency should be piloted.
- The Inter-Agency Standing Committee (IASC) Working Group and CERF Secretariat should navigate a way to allow NGOs with established capabilities direct access to CERF funding, in order to improve the timeliness and effectiveness of humanitarian response.

¹ SC UK (2007). Save the Children's Experience with CERF in 2007. May 2007. Available from <http://www.scuk.org>



A mother waits for WFP food aid distribution with her child in Malawi

Evaluation

Peer review of WFP evaluation process

Summary of report¹

A recently commissioned peer review of the evaluation process and function within the World Food Programme (WFP) has been completed and posted on the WFP website². The review assessed the central evaluation function, i.e. the Office of Evaluation (OEDE) of WFP, as its starting point, but also included analysis of decentralised evaluation in WFP. The review was based upon preparatory desk study, field visits to WFP regional bureaux and country offices, a meta-evaluation of twelve OEDE evaluations, a web-based survey of the views of WFP staff (87 responses) and peer panel interviews with selected stakeholders.

The panel concluded that the independence of WFP evaluations was adequate in comparison to similar organisations, however the credibility of products was uneven. While the process of evaluations was somewhat more credible, they were also problematic. The criteria of utility of evaluations were partially met with regard to contributing to programming, but structures and mechanisms to promote utility were weak in most other respects. In addition, OEDE is a strong unit with committed, well-trained and highly motivated staff. Over the past seven years, OEDE has invested much effort on improving evaluation. However, evaluation is of more variable quality at the level of Regional Bureaux and Country Offices, with levels of motivation and invested resources dependent upon the interest and priorities of the offices concerned.

Independence

Evaluation resources are currently safeguarded while OEDE is outside of line management whilst, at the same time, sufficiently integrated into WFP leadership structures to facilitate impact. However, accountability for the implementation of recommendations is unclear. Some OEDE staff are concerned that their careers may be affected by their evaluation role, which could lead to inappropriate risk averse behaviour in their management of sensitive evaluations. There are also insufficient safeguards to prevent partiality and conflicts of interest amongst external evaluators. The role of Regional Bureaux in both oversight and advisory support to Country Offices has problematic implications for the independence of

their role in decentralised evaluation. Their evaluation function involves public critique of programming while they must also ultimately maintain collegial day-to-day relationships with Country Offices.

Credibility

Although WFP has an evaluation policy, it is a layered series of documents that detracts from clarity and applicability. Evaluation policy is not sufficiently used to guide practice. Evaluators and Regional Bureaux have been unclear regarding what is expected in terms of quality, due to a lack of specification within OEDE itself and concerns that headquarters expectations do not take into account resource and time constraints in the field. On the whole, OEDE evaluation function is impartial with the views of all stakeholders often sought. However, there appears to be an uneven emphasis on stakeholders who are more accessible and articulate, with beneficiary views, in particular, under represented. The process of preparing for evaluations, management, and advising and supporting teams in the field is handled in a highly professional manner by OEDE. Terms of reference are generally of good quality, but they are, at times, too standardised and over ambitious. The quality of evaluations is mixed but should improve with the planned establishment of new quality standards by OEDE. A failure to take into account the cost implications of recommendations, together with factors related to the nature of priority setting in WFP, has damaged credibility of evaluations among some WFP staff.

Utility

Evaluation is insufficiently integrated into many of the processes by which WFP sets, monitors and analyses policies. Evaluation is primarily focused on outputs, as opposed to outcomes and impact, which reflects the demands of many stakeholders. In a narrow sense of contributing to an understanding of how to 'do things right', evaluation makes a notable contribution to programme design and management. In a wider perspective of learning about 'doing the right thing,' performance is not so good. There have been some efforts within evaluations to present evidence that can stimulate greater reflection within WFP - over the changing role of food aid, for example. However, the corporate view of evaluation has tended to focus primarily on its utility for making modest adjustments to existing approaches. New OEDE plans, to tie evaluation closely to logical frameworks, may enhance utility through a focus on outcomes; but lack of prevailing understanding and use of logical frameworks within WFP will make it difficult. At decentralised levels there is a close link to utility, since there is a direct desire to use evaluation to inform and justify new programmes and phases.

Evaluation makes an inadequate contribution to overall knowledge building within WFP and virtually none among partners. Access to reports and findings through website, debriefings, etc, is acceptable, but promotion of the

use of evaluation products is not sufficiently proactive.

Recommendations

OEDE should develop an evaluation policy as a transparent vehicle for promoting greater communication among internal and external stakeholders, regarding the aims and intended utility of evaluations.

OEDE should develop an 'accountability map' of key WFP stakeholders, both internal and external, to help in clarifying roles and responsibilities.

OEDE should look for ways of promoting, and providing incentives for staff to adopt more participatory approaches to evaluation. Engagement with partners at country, regional or global levels is primarily a responsibility of other parts of WFP.

After an evaluation has been submitted to the Executive Director, OEDE should not be involved with drafting or compilation of responses from different parts of the organisation. The management response mechanisms should include rules about the timeframe for the response and procedures for follow up, as well as for reporting to the Executive Board. A similar system for management response should be used for decentralised evaluations. Management response and follow up mechanisms should be transparent with relevant documents easily accessible for WFP and partners and routinely posted in electronic form.

The capacity of OEDE staff should be maintained over time to stimulate interest in the evaluation field and encourage professionalism.

The learning element of evaluations should be linked to a larger organisational knowledge management strategy. OEDE should continue recent efforts to systematically harvest lessons from existing evaluations, as well as external fora such as ALNAP³, the Inter-Agency Standing Committee (IASC)⁴ and relevant partners.

OEDE should develop a more transparent, rigorous and competitive approach to selection of team leaders. All evaluation teams should include at least one evaluation specialist, preferably the team leader.

In order to address concerns that only a small portion of the overall evaluation budget is within the direct control of OEDE, WFP's senior management should devise ways to safeguard the funding allocated to evaluations for the next biennium. The establishment of a centrally managed fund for both OEDE evaluations and decentralised evaluations should be investigated.

¹ Baker, J et al (2007). Peer review of the evaluation function at WFP. Stockholm, November 5th, 2007. The report is available at <http://www.uneval.org/indexAction.cfm?module=Library&action=GetFile&DocumentAttachmentID=2003> or on the WFP website (see footnote 2)

² http://wfp.org/operations/evaluation/doclist.asp?section=5&sub_section=8&EBDoc=WFP/EB.1/2008/7-A&Year=2008&ID=WFP153652

³ Active Learning Network for Accountability and Performance in Humanitarian Action, <http://www.alnap.org>

⁴ <http://www.humanitarianinfo.org/iasc/>

Blanket BP5 distribution to under fives in North Darfur

Bags of BP5 packed, ready to distribute

By Hanna Mattinen, ACF



Since 2005, Hanna Mattinen has been Food Aid Advisor at the Action contre la Faim (ACF) headquarters, focusing on policy and operational issues around food assistance and cash-based interventions. Previously she worked with ACF as Food Security coordinator in Guinea, Liberia, Chechnya/ Ingushetia, Nepal and Indonesia.

Many thanks to Philippe Crahay, Hanibal Abiy Worku and Loreto Palmaera (ACF Food Security Coordinators in Darfur), David Mahouy (ACF Food Aid Officer in Darfur), Emille Crozet (ACF Food Security Expert in Darfur), Sophie Laurence and Aurelie Fournier (ACF Nutrition Coordinators in Darfur), Béatrice Mounier (ACF Nutrition Surveillance Coordinator in Darfur), Dorothy Dickinson (ACF Nutrition Officer in Darfur) and their teams, as well as to Olivia Freire, ACF Nutrition Advisor in Paris, all of whom have been involved in implementing the project and collecting and analysing the data used in this article. Thanks also to Rebecca Brown and Andrew Mitchell for proof reading.

The current conflict in Darfur, Sudan started in 2003. Since then, large-scale violence has decreased but fighting and attacks continue over large parts of the territory despite ongoing peace building efforts. Over 3.5 million people are estimated to be affected by the conflict, with more than 1.8 million people having been displaced from their homes.

Widespread looting and destruction of assets, displacement and restricted movement has had a significant impact on people's lives and livelihoods (farming, livestock herding, trade and migration)¹. The region, which was formerly self-sufficient in food except in unusually bad drought years, became a major recipient of food aid. Most livelihood strategies are now restricted and poorly remunerated, markets and trade are severely disrupted and coercion and exploitation are deep-rooted².

Despite food aid and other external assistance, the prevalence of global acute malnutrition (GAM) in the region is estimated at 16.1%, with the highest rates in North Darfur at 20.5%³. The malnutrition rates are found to fluctuate considerably in time and in space and an overall increase in GAM from 12.9% in 2006 has been noted in greater Darfur.

This article focuses on the situation in Abu Shok and As Salaam internally displaced popula-

tion (IDP) camps in North Darfur State, where Action Contre la Faim (ACF) has implemented nutritional activities since 2004. More specifically, it looks at the impact of a blanket distribution of high energy biscuits to under five year olds, following the detection of extremely high acute malnutrition rates in these camps in June 2007.

Situation in the camps

Abu Shok and As Salaam IDP camps are situated in North Darfur State, 4 km north-west of El Fasher town. Abu Shok camp was opened in April 2004 with 42,000 IDPs registered. As the maximum capacity of Abu Shok was reached, a new camp, As Salaam, was set up within sight of Abu Shok in June 2005. The camps were officially closed to new arrivals in November 2005, but sporadic registrations still take place. The current caseload is approximately 50,000 people in both camps.

General food distributions are implemented by the Sudanese Red Crescent in collaboration with the World Food Programme (WFP), providing the IDPs a full daily ration. WES (Water and Environmental Sanitation)/ Government of Sudan, Unicef and Oxfam are in charge of water and sanitation programmes. Primary health care and kindergartens are also present. ACF's nutritional activities in both camps include supplementary feeding

programme (closed in October 2006), a therapeutic feeding programme, involving a therapeutic feeding centre and outpatient therapeutic programme, active case finding and nutritional surveillance⁵.

Malnutrition rates showed an overall declining trend with some seasonal variations⁶, until the GAM peaked in June 2007 at 30.4%⁷, as shown in the Figure 1. This GAM rate is significantly higher than the GAM rate found at the same period during the previous year (22.8%). In addition, over 30% of the children screened during the survey were found to be at risk of malnutrition (80-85% weight/height percentage of the median). There was no statistically significant difference between the severe acute malnutrition (SAM) rates. The extremely high June 2004 malnutrition rates followed a measles outbreak, just after a major population displacement at the beginning of 2004.

Causes of malnutrition

Various causes of the increased GAM rates were identified by staff in the field and corroborated through a Nutritional Causal Analysis conducted by ACF in the camps in November 2007. The following associations suggesting immediate and underlying causes of malnutrition have been identified⁸:

- Malnourished households generally have a

¹ Buchanan-Smith M and Jaspars S (2007). Conflict, camps and coercion: the ongoing livelihoods crisis in Darfur. *Disasters*, 31 (s1):s57-76. Blackwell Publishers, London.

² See footnote 1.

³ WFP, FAO, Unicef, MoA/GoS, MoH/GoS and CDC (2007). Food Security and Nutrition Assessment of the conflict-affected population in Darfur, Preliminary Results. August/September 2007.

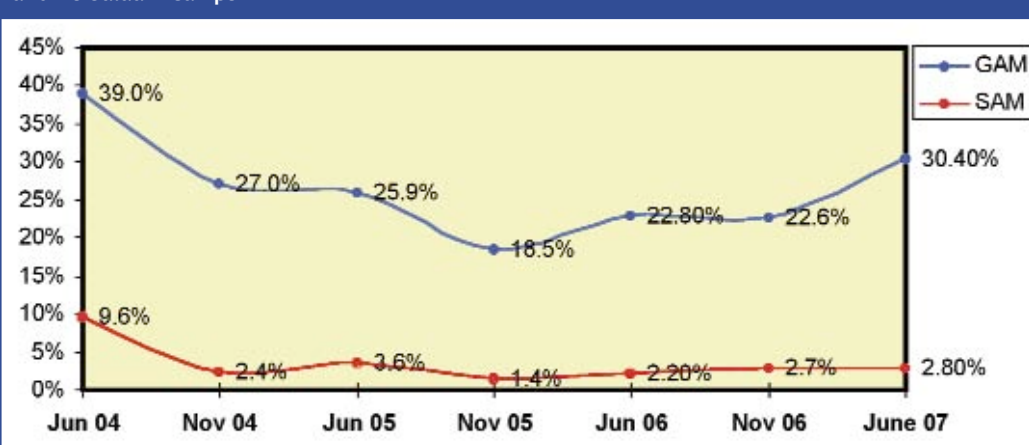
⁴ Blanket under-5 distribution refers to a distribution that targets children under 5 years of age (6-59 months) in a given geographical area.

⁵ For a detailed analysis of ACF nutritional programmes in North Darfur, please refer to the evaluation Action Contre la Faim nutritional intervention in North-Darfur 2004-2007 carried out by B. Feeney, Valid International in March-April 2007.

⁶ The traditional hunger gap period falls roughly between May and September/October each year.

⁷ Action contre la Faim. June, 2007. Nutritional Anthropometric and Retrospective Mortality Survey, Children aged 6-59 Months. Abu Shok and As Salaam IPD Camps. El Fasher, North Darfur State. GAM reported as weight/height below - 2 Z-scores and/or oedema; SAM defined as weight/height below - 3 Z-scores and/or oedema.

Figure 1: Evolution of malnutrition rates for children under 5 years (6-59 months) in Abu Shok and As Salaam camps





David Mahony, ACF Sudan.

Women having just received the BP5 ration

lower income than non-malnourished families. Main income sources in the camp include urban casual work in the neighbouring town of El Fasher and to a lesser extent, rural casual work, as well as petty trading and sales of food items from the general food distribution. The income sources are largely similar for both malnourished and non-malnourished households.

- The majority of households with at least one malnourished child were found to have settled in the camp more recently and were more likely not to have a general food distribution card than families without malnourished members.
- Food diversity in families with a malnourished child is slightly lower, especially in terms of the consumption of lentils, meat and Corn-Soya Blend (CSB) porridge and/or snacks.
- Children in households with at least one malnourished child are more susceptible to diseases than those in families without malnourished children (level of hygiene was found to be lower).
- Mothers with malnourished children have a slightly higher workload than mothers in households without malnourished children.
- A lower proportion of mothers in families with malnourished children attend antenatal or postnatal consultations than mothers in families without malnourished children.
- Families with malnourished children under five years were more likely to leave their children with their older siblings than those with malnourished children.
- Exclusive breastfeeding until 6 months of age is practiced by less than 30% of the households interviewed in all camps⁸. Water and animal milk are introduced early in the diet of an infant (increasing the risk of diarrhoea, particularly if the water is not clean).

In addition to these findings, the quantity of CSB in the general food distribution in Abu Shok and

As Salaam was reduced in January 2007. Various reasons were put forward for the decision to cut the ration – restrictions regarding the use of genetically modified maize in the country were under discussion, disruption in the availability of CSB and reports of excessive sales of CSB by the population. The reduction in the CSB ration translated into lower overall energy and micronutrient¹⁰ content of the ration, as well as less availability of food items particularly suitable for feeding children less than five years of age. Focus group discussions with women immediately after the nutritional survey confirmed that they lacked porridge to feed their children after the ration was cut. However of note, the June ACF nutritional survey did take place during the traditional hunger gap and at the peak of preparations for the upcoming agricultural season when the workload of caretakers was particularly high. Younger children were often left in the care of their older siblings. In addition, the survey was conducted during the school holidays and some mothers mentioned that during this period, the morning meal for children was given less importance¹¹.

Water supply is also an issue of concern in the camps as it depends substantially on hand pumps, with 12 to 15 pumps having run dry or yielding a reduced volume of water over the past 3 years¹². Assessments show that only about half of the water is used for drinking and bathing purposes, whereas the rest is used for brick making and other livelihood activities¹³. However, no particular disease outbreak took place before or during the survey.

Blanket under-5 distribution

Organisation

ACF decided to implement a blanket food distribution to children between 6-59 months as the lack of adequate food for children¹⁴ was identified as one of the key causes for the dramatic increase in the prevalence of acute malnutrition. Infants under 6 months of age were excluded

from the distribution to promote exclusive breastfeeding. A preventive approach was favoured as opposed to a curative approach due to the large number of children at risk of malnutrition. Targeted supplementary feeding was hence not an option. SPHERE standards also stipulate blanket supplementary feeding as a response when malnutrition rates are so high that it may be inefficient to target the moderately malnourished and all individuals meeting certain at risk criteria (e.g. those 6-59 months) may be eligible¹⁵.

The blanket distribution was designed to be complementary to the general food distribution, with a ration covering approximately 60% of the energy needs of a child under five years of age¹⁶ until the end of the hunger gap period. Four 15-day distributions were organised between August and October 2007 targeting all the children in the camps. The end of the hunger gap was considered the appropriate moment to end the complementary distributions because traditionally, food availability increases as the harvests start and food prices decline¹⁷. A subsequent nutritional survey was planned after the end of the blanket distribution to measure the impact and the potential need for a follow up intervention. The project was funded by the European Commission Humanitarian Office (ECHO) and cost approximately 1.35 million euros¹⁸.

BP5 biscuits were chosen as the appropriate food item due to their high energy and micronutrient content and the fact that they could easily be used as porridge to feed younger children. Additionally, previous ACF distributions of BP5 in Darfur had demonstrated great acceptability among beneficiaries. The biscuits were crushed and pre-packaged by ACF prior to distributions, in order to limit re-sale and to promote the use of the product as porridge. ACF also considered SP450, but the product could not be sourced in adequate quantities in the required timeframe. Plumpy'nut and Supplementary Plumpy were discarded as options as they were developed for the treatment of malnutrition, not prevention. CSB-oil-sugar mix was not considered satisfactory, given its low acceptability and poor performance in treating malnutrition in ACF supplementary feeding programmes in Darfur¹⁹. ACF staff registered children under five at the outset of the project with the help of local leaders (umdas and sheiks). The height of a child was used as a proxy for their age²⁰. In total, 15,337 children were registered and over 150 MT of BP5 was distributed during the project period. Large-scale information and awareness-raising sessions were organised to explain the aim of the project to the population. Special efforts were made to

⁸ Action contre la Faim (2007). Nutritional Causal Analysis. North Darfur Camps. North Darfur State.

⁹ Caregivers were interviewed on breastfeeding practices and an event calendar was used to define the time period, when needed. It is acknowledged that this method may induce bias and allows only for a rough estimation.

¹⁰ CSB is the most richly fortified item in the food ration.

¹¹ ACF closed down its supplementary feeding programmes in Abu Shok and As Salaam camps in October 2006. While it is unlikely that this measure impacted the drastic increase in malnutrition rates, monitoring of admission numbers in such programmes may have provided useful early warning information on the deteriorating nutritional situation.

¹² Tearfund (2007). Darfur: Water supply in a vulnerable environment. Darfur, Sudan.

¹³ ACF is currently rehabilitating a dam approximately 2 km from the camps and it is hoped that the water made available will be used for livelihoods activities.

¹⁴ The lack of adequate food was particularly clear for children under 5 years, especially at the age when complementary foods were being introduced.

¹⁵ SPHERE (2004). 'SPHERE. Humanitarian Charter and Minimum Standards in Disaster Response'. <http://www.sphereproject.org>

¹⁶ The nutritional requirements of a child under five are estimated at 1,200 kcal/day, varying according to the child's age. The ration of three BP5 bars a day provides 756 kcal and covers 63% of the daily requirements in energy and micronutrients.

¹⁷ The end of the blanket distribution was not conditional on reinstatement of the full CSB ration in the general food distribution because there were no clear provisions made for this.

¹⁸ This amount excludes the cost of a reserve stock and its transport, which was not distributed within the current project.

¹⁹ Caregivers noted dissatisfaction with CSB-oil-sugar mix as one of the reasons for defaulting in ACF supplementary feeding programmes in Darfur.

²⁰ According to WHO standards, children measuring under 110cm are considered under 5 years of age.

²¹ Action contre la Faim (2007). 'Post Distribution Monitoring. Blanket distribution for children under 5 years old. Abu Shok and As Salaam IDP camps'. El Fasher, North Darfur State.



ensure the involvement of umdas and sheiks, who could relay the message to the population, further promoting its acceptance. ACF nutrition screening teams also organised hygiene education sessions, awareness raising on breastfeeding practices and cooking demonstrations, and visited homes in-between the distributions to give further information and assistance.

Impact

Post Distribution Monitoring, organised after each distribution round, showed that the number of meals for children under 5 years increased during the project period and that almost all the BP5 was consumed within the household²¹. Less than 1% of the product was sold or exchanged. Intra-household sharing, as well as using BP5 to feed infants under 6 months of age, which were common during the first round of the distribution, decreased substantially due to additional efforts put into sensitisation (Figures 2 and 3). Education sessions for women waiting in distribution lines and the time given to discuss the use of BP5 were important factors in limiting intra-household sharing.

A nutritional survey organised by ACF after the end of the blanket distributions in November 2007 showed a radical improvement in the nutritional status²². The GAM rate in children 6-59 months decreased from 30.4% to 14.3% and the SAM rate decreased from 2.8% to 0.6%. For the first time since the beginning of the conflict, the malnutrition rates dropped below the emergency threshold. The GAM and SAM rates were found to be significantly lower when compared to the situation the previous year at the same time period (respectively 22.6% and 2.7% in November 2006 – see Figure 1)²³.

Caregivers reported during focus group discussions that children were given a first meal of BP5 porridge in the morning and that children rarely asked for more food before the fatur (lunch). This is reportedly common when other food items (most commonly those provided in the general food distributions) are used. In terms of satisfaction with the product, mothers compared it favourably to the traditional porridge, madida, which was used prior to the conflict and was composed of millet, oil, sugar, milk and salt.

While the provision of adequate complementary food during the peak of the hunger gap undoubtedly contributed to improvement of the nutritional situation, seasonal factors also impacted positively. Overall food availability increased with the onset of the harvests and the workload for caregivers decreased. In addition to this, sensitisation and awareness raising campaigns associated with the blanket distribu-



MUAC screening at a distribution site

David Mahony, ACF Sudan.

Figure 2: Use of BP5 within the households

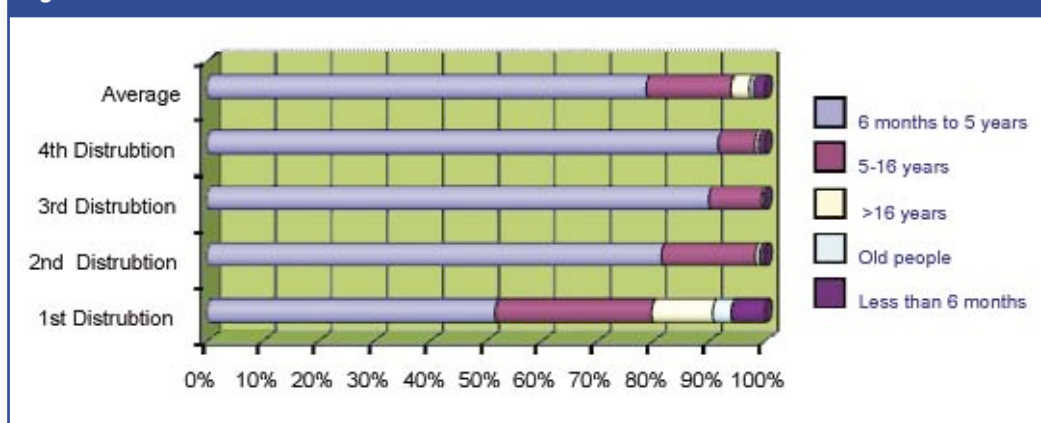
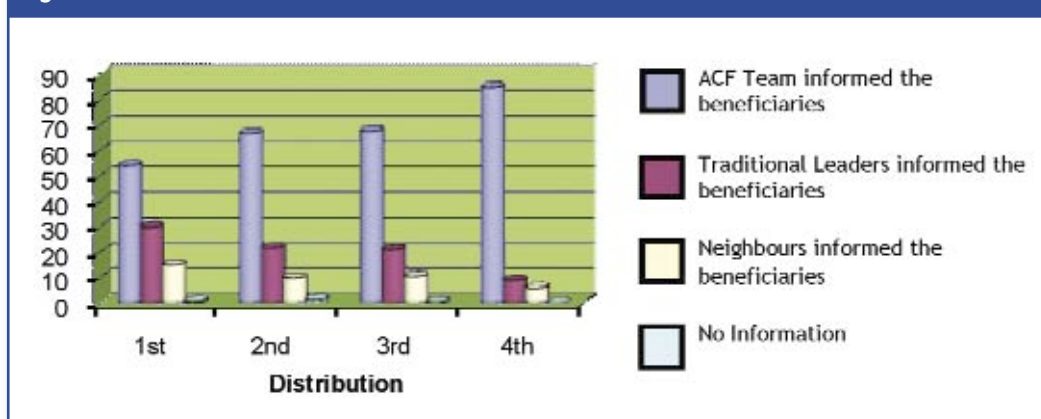


Figure 3: Sources of information for the distributions



tion put child feeding and care practices high on the agenda in the camps. Beneficiary satisfaction with BP5 biscuits, their acceptance and understanding of the aims of the project were also key factors in the success of the operation.

Conclusions and outstanding questions

This experience from Darfur shows that timely blanket distributions, which use appropriate products and are accompanied by sensitisation and awareness-raising, can be an effective measure to tackle transitory peaks in malnutrition. Such distributions, however, suffer from two main drawbacks - the distributions remain costly and their impact, especially as a stand-alone response, is not sustainable.

Cost is particularly high when foreign-produced, highly sophisticated and expensive products are purchased and airlifted to the project area. In this case, roughly 35% of the budget was used for the purchase of BP5 and 30% for international air transport. However, there were no appropriate local alternatives available at the time of the crisis. Further research into local fortification and/or local production of supplementary foods may provide future solutions that are less costly and more sustainable than the options that are currently available. The organisation of a parallel registration exercise, two-week distribution cycles and thorough monitoring also increased the cost of the intervention, but were crucial to ensure adequate quality.

The role of food aid in saving lives and preserving livelihoods in the current conflict in Darfur is widely recognised²⁴. At the same time, it is clear that food aid alone, including blanket distributions, does not provide sustainable long term solutions for preventing malnutrition, even if, in the short term, its impact can be life-saving. Food aid can have a sustainable impact on livelihoods, food security and ultimately malnutrition only when the immediate, underlying and basic causes of malnutrition are understood and tackled. In the long term, security measures, land tenure and market issues as well as peace build-

ing at the community and national levels are essential for food aid to have a meaningful effect on livelihoods in Darfur²⁵. Deep-rooted cultural practices are among other causes of malnutrition. These require careful analysis and the development of long term approaches to achieve behavioural change.

The current experience also highlights the need for food security surveillance to rapidly detect potential problems. A change in ration composition is one of the key early indicators in areas where food aid is the main source of food and income. Targeted supplementary feeding programmes, where these are in place, may also play a role in early warning through the monitoring of admission numbers.

Another question arising from this experience is whether the ration composition in the general food distribution is adequate for all population groups in terms of macro- and micro-nutrients and their bioavailability. The GAM rates increased to above 30% while the general food distributions were ongoing with a theoretical ration providing over 2000 kcal/person/day, at a time when morbidity and mortality rates had not changed significantly²⁶.

For further information, contact: Hanna Mattinen,
email: hmattinen@actioncontrelafaim.org

²² Action contre la Faim (forthcoming): 'Nutritional Anthropometric and Retrospective Mortality Survey, Children aged 6-59 Months, November 2007. Abu Shok and As Salaam IPD Camps.' El Fasher, North Darfur State.

²³ Note that the malnutrition rates in November 2006 were found to be higher than expected due to the delayed rainy season and high prevalence of disease.

²⁴ Gelsdorf K, Walker P and Maxwell D (2007). Editorial: the future of WFP programming in Sudan' *Disasters*, 31 (s1):s1-8. Blackwell Publishers, London.

²⁵ Young H (2007). Looking beyond food aid to livelihoods, protection and partnerships: strategies for WFP in the Darfur states. *Disasters*, 31 (s1):s. Blackwell Publishers, London.

²⁶ Note that WFP plans to include in the general food distributions in North Darfur a supplementary ration including CSB mixed with milk powder for children under five years of age during the lean period in 2008.

Agency Profile

Name:	Samaritan's Purse
Address:	Samaritan's Purse, 801 Bamboo Road, Box 3000, Boone, NC 28607, USA
Email address:	info@samaritan.org
Website:	www.samaritanspurse.org
Founded:	1970
Director:	Franklin Graham, President
No. of staff in Boone (Headquarters):	389
No. of staff in the field (international):	175
Projected income (2008):	\$304 million USD

Samaritan's Purse
INTERNATIONAL RELIEF



Children in a village in Guatemala, pictured by Mary Lou's colleague whilst "scouting" for acute malnutrition (left). Mary Lou with one of the women helping in the SFP in Kenya.

By Jeremy Shoham, ENN

The ENN recently interviewed Mary Lou Fisher, Health and Nutrition Advisor for Samaritan's Purse, based in North Carolina, USA. Mary Lou started her professional life as a registered nurse. In 1996 she received a degree in advanced practice nursing from Johns Hopkins University (JH) and continued her career as an adult nurse practitioner in the emergency department. Having always wanted to serve overseas, Mary Lou took every opportunity for short-term medical work with Samaritan's Purse while still working for JH who allowed short secondments. Memorable early experiences in the Balkans include trekking over the Albanian Alps with Kosovars wishing to return home. While there, she also worked in a MASH for Albanian Kosovars and a western-style emergency medical department in Gjakova. Her other short-term assignments included work in Afghanistan and western Darfur. In November 2006, she became the full-time International Health and Nutrition Advisor for Samaritan's Purse.

Samaritan's Purse was founded in 1970 by Dr. Bob Pierce who, 20 years earlier, had created World Vision. Those of you who know your Bible (not me) will realise that the name Samaritan's Purse comes from the New Testament parable about someone helping an injured stranger by the road side whom others had passed by. Mary Lou described how the story symbolises the importance of helping absolutely anyone in need no matter who that person is or how critical you may feel about them. Samaritan's Purse is committed to helping anyone in need. As representatives of the Christian faith, staff understand the importance of following Jesus' command to love one's brother (or sister).

Samaritan's Purse began as a strictly emergency-focused organization, providing relief in the form of feeding programmes, housing, water, and sanitation. However, over the years the organization has also branched out into development and will often remain in-country to establish longer-term infrastructure and services after an emergency intervention.

The types of feeding programmes that Samaritan's Purse implements include general food distributions and selective feeding, i.e. supplementary and therapeutic feeding programmes. After the NATO bombing in Kosovo ended, Samaritan's Purse distributed over 4,000 loaves of bread daily. While in Afghanistan, they fed hundreds of men involved in reconstruction. Skip back one decade and Samaritan's Purse distributed food and livestock

in Bosnia and food and medical supplies in Mogadishu. More recently, feeding programmes have been established in Darfur. In line with the shift towards more developmental programming, Samaritan's Purse is now looking at setting up a Child Survival project in Niger and also has a grant proposal with USAID and WFP to implement nutrition and health care programming, including school feeding, in Guatemala.

Views on nutrition are evolving within Samaritan's Purse. Mary Lou believes that the recent Lancet nutrition series is very timely and really highlights the need to refine programme focus on children two years old and under to make sure they get optimum nutrition. This is especially important given the risks of chronic illnesses associated with overfeeding after the age of two. The series also highlights additional interventions for maternal and child undernutrition and survival, including international action.

In line with many other humanitarian agencies, Samaritan's Purse is moving away from the centre-based model for treatment of severe malnutrition to community-based care, e.g. community management of severe malnutrition (CMAM). Another shift is employing more qualified staff, like nurses with public health degrees and experience. Samaritan's Purse has learned that "one answer does not work for all situations and that you need good assessments everywhere you work to make sure you get context-specific solutions." Other lessons include the value of maximising the involvement of national staff and the importance of networking by attending nutrition sector meetings.

The ENN asked Mary Lou to talk about her best and worst programme experiences. Her work in Hamish Koreb, a village in eastern Sudan with a high rate of malnutrition, fitted both bills. The area is populated by the Beja, a tribe that had previously been pastoralists. Many of the residents had lost their livestock because of conflict and were forced to live as virtually destitute IDPs. Samaritan's Purse became involved in a number of sectors between 2004 and 2006, including food, medical, water, and agriculture programming. The organisation set up its main office across the border in Asmara, Eritrea, and at one time had 45 Eritrean and expatriate staff living in the Hamish Koreb compound. The programme also established a nursing school for men and women. Through this project, illiterate women, with no previous schooling, were successful in learning disease prevention and treatment. In order for the Beja women to understand, lessons were verbally translated from English to Tigrinian to Arabic to

Bedouit with the help of three translators. The students were given oral examinations of the material and did surprisingly well. Sadly, following the signing of the peace agreement between the SPLA and the Sudanese Government, Samaritan's Purse was asked to leave the area. The Beja appreciated how staff were respectful of their culture and wanted the organisation to return. Samaritan's Purse is now working to re-establish this programme. Recent assessments have shown that the situation has more or less gone back to 'square one' with high rates of undernutrition, especially among women and children.

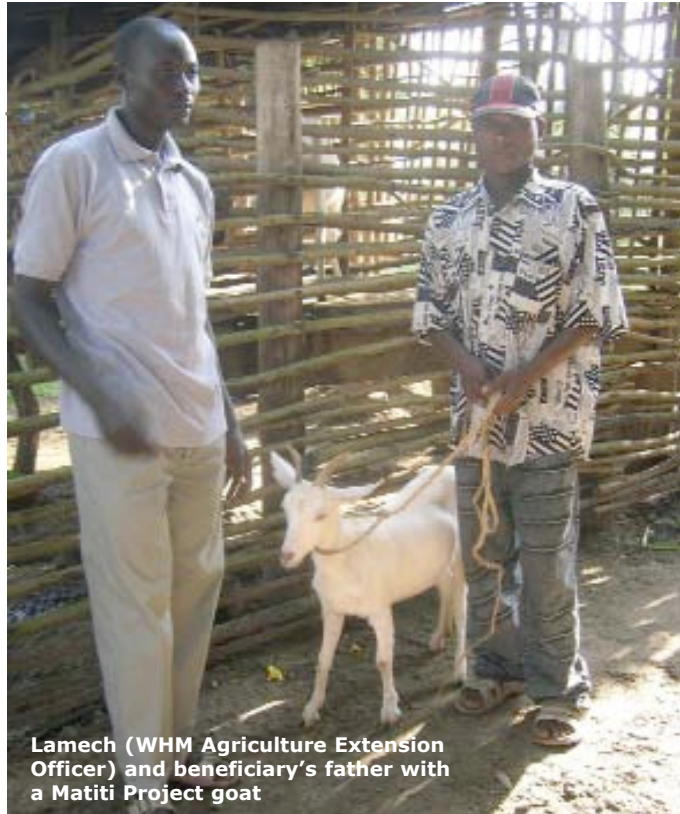
Samaritan's Purse gets 95% of its funding from private donors and foundations. It is a faith-based evangelical organisation and a number of employees are the children of missionaries who grew up in underdeveloped countries. Although most of the work is standard emergency-type programming, Samaritan's Purse is also involved in building and repairing churches destroyed during conflict.

Mary Lou feels that Samaritan's Purse has many positive qualities. They always do what they say they are going to do even when faced with danger. She describes the valour of some staff as "beyond understanding" because they are willing to work in places that many others might not countenance. She also feels that when Samaritan's Purse "sets up shop somewhere," everyone knows about their work. When she is able to run for a bit of recreation while in-country, she often encounters local citizens who recognize her and know about the organisation's work.

Samaritan's Purse is working to more effectively document the impact of the work being done. The organisation is also looking to expand into more countries.

It is clear that the work of Samaritan's Purse is being increasingly recognised by fellow non-governmental organisations, governments, and other agencies as staff participate in international forums and networks. As a result, they are becoming more involved in cutting-edge programming approaches and issues. Mary Lou said that they are using models such as Positive Deviance (PD) Hearth and CARE Groups for interventions, while Lot Quality Assurance Sampling (LQAS) may also be a way forward in assessment.

After thanking Mary Lou for the interview we agreed that we would look out for each other the next time one of us was out running along the banks of the Nile. I got the feeling that she might be hard to keep up with.



S. Jilcott, WHM Matiti Farm, Uganda, 2007

Lamech (WHM Agriculture Extension Officer) and beneficiary's father with a Matiti Project goat

Animal husbandry and agriculture efforts toward programme sustainability

By Stephanie Jilcott, Karen Masso, Lamech Tugume, Scott Myhre and Jennifer Myhre

Stephanie Jilcott, PhD, recently finished an 18-month term with World Harvest Mission as a Nutrition Programme Officer in Bundibugyo District. She began the Chicken Project and the Byokulia Bisemeye Mu Bantu Project.

Lamech Tugume is a WHM Agriculture Extension Officer, and has been working with BundiNutrition Projects in Bundibugyo for over two years.

Karen Masso is a WHM Nutrition Programme Officer. She began the Matiti Dairy Goat Project and has over 10 years of experience caring for malnourished children and motherless infants in Bundibugyo.

Jennifer Myhre, MD, MPH, is a WHM Team Leader in Bundibugyo, and has been a volunteer pediatrician for Bundibugyo District Health Services for 14 years, during which she has had extensive experience working with malnourished children, motherless infants, and HIV-affected children. She began the therapeutic feeding programme at Nyahuka Health Centre.

We wish to acknowledge the tireless work of Pauline Kentaro and Geoffrey Batisibwa, both WHM Agriculture Extension Officers. We also thank health centre staff such as Basaliza Costa, Kyamukano Robinah, Babika Kudula, Kabasomi Naumi, Tayali Yonason, Kiyaya Tadeo, Bihuko Misaki, Bwambale Expedito, and Ithungu Regina, as well as volunteers Besemeliya Sipisoza, Biira Annet, Mbusa Augustine, and Musinguzi Johnson. This work could not have been done without cultural insight from Batigwa Angelite. We gratefully acknowledge those who spearheaded Byokulia Bisemeye mu Bantu Project food production, including Mbusa Florence, Tarunji Rodah, Mangada Mperwa, Mugisa Justina, Butulibwabo Antonina, Bazara Peace, Asiimwe Mary, and Mugisa Jane. We are grateful for the daily, diligent care shown by Basaija, Jackson, and Engonzi to the goats and chickens.

Bundibugyo District, situated on the western side of the Rwenzori Mountains, is one of the most disadvantaged districts in Uganda. The district is recovering from Allied Democratic Force (ADF) rebel attacks in the late 1990s, and is on the border with the Democratic Republic of the Congo (DRC) so that there is a constant threat of instability. There are no paved roads and no electricity, making the transport and storage of goods (including food) very difficult. Cocoa, the most popular cash crop, increasingly usurps land previously used to grow food crops.

A nutrition survey conducted in January 2007 (dry season) indicated that both acute and chronic malnutrition are problematic in Bundibugyo (global acute malnutrition (GAM) 3% and stunting 45%). Ugandan and Congolese children who are either severely malnourished or at-risk for malnutrition present at local health centres. However, case presentation was complicated by a recent Ebola outbreak (29 November 2007 - 26 February 2008) that decreased patient willingness to attend health centres, while eroding health centre capacity to provide auxiliary health services.

World Harvest Mission (WHM) is a Christian non-governmental organisation, with a presence in Bundibugyo since 1985. In 2003, WHM began a partnership with the World Food Programme (WFP) and a local government health centre (Nyahuka Health Centre IV), wherein supplemental food rations were distributed to malnourished and at-risk children (motherless, HIV-affected), as well as women enrolled in the prevention of mother-to-child transmission of HIV (PMTCT) project. This partnership ended in November 2006, as WFP left Bundibugyo to serve in other needy areas.

This article describes WHM's and the Nyahuka Health Centre's efforts to continue nutrition services originally involving WFP-supported Supplementary Feeding Programmes (SFPs). The 'BundiNutrition' programme focuses on increasing sustainability through two animal husbandry projects and an agriculture project. Increasing sustainability is especially important as providing therapeutic milk for all children who are malnourished or at-risk is cost-prohibitive, logistically difficult and absorbs much of WHM's resources. All BundiNutrition projects have the following goals:

- Caring for individual children who are malnourished or at risk for malnutrition
- Encouraging caregiver reciprocity
- Building local capacity to produce high protein foods
- Encouraging food crop cultivation.

Priority groups of children served are paediatric inpatients with severe acute malnutrition, recently discharged inpatients, moderately malnourished outpatients without complications, motherless infants under 1 year, and children aged 6 - 18 months whose mothers are HIV-positive and who are attempting to wean them². Although the antenatal clinic-based prevalence of HIV infection among women in Bundibugyo is low at 2.9% (Scott Myhre, personal communication), the children born to HIV-positive women need special medical attention and nutrition advice to prevent transmission of the virus from mother to child.

The BundiNutrition Projects

The BundiNutrition projects include a chicken project and dairy goat project to provide animal protein to malnourished and at-risk children, and the Byokulia Bisemeye mu Bantu ('Good food for people') project, which promotes cultivation of high-protein food crops through seed distribution and return, and provides locally ground groundnut paste and soybean flour to malnourished outpatients (see Box 1).

Chicken Project

The BundiNutrition programme previously purchased and distributed eggs to children. To move toward greater sustainability, and to encourage local farmers to invest in chickens, a demonstration chicken coop was built in January 2007, to house 200 hybrid 'layer' chickens. A coccidiosis epidemic (March-April 2007) reduced the original number to 39 hens that began laying in August 2007. Eggs are given to HIV-affected children, surrogate breastfeeders (also called wet nurses) of motherless infants, and malnourished inpatients on the Nyahuka Health Centre paediatric ward (in the latter case, to supplement the therapeutic milk once appetite is regained).

Matiti Dairy Goat Project

For motherless infants, surrogate breastfeeding or wet nursing by a HIV-negative woman in the child's family is promoted. When a wet nurse is not available, the problem becomes harder to solve. Dairy cows are scarce, as is processed cow's milk from other areas of East Africa. While Bundibugyo District is a harsh environment in which many animals fail to survive, goats are a valued part of the

¹ Jilcott SB, Masso KL, Ickes SB, Myhre S, Myhre J (2007). Surviving but not quite thriving: Anthropometric survey of children 6-59 months in a rural western Uganda district. *J Am Diet Assoc.* 2007 Nov;107 (11):1983-8.

² For the most recent recommendations on infant feeding and HIV, visit: HIV and Infant Feeding: Update based on the Technical Consultation held on behalf of the Inter-agency Task Team (IATT) on Prevention of HIV Infection in Pregnant Women, Mothers and their Infants, Geneva, 25-27 October 2006, WHO, 2007. http://www.who.int/child-adolescent-health/New_Publications/NUTRITION/

Box 1: Project description, beneficiaries and sustainability issues for the BundiNutrition Projects

Project	Description	Beneficiaries	Sustainability/ local capacity building
Chicken Project	Hybrid layer chickens are cared for by WHM staff and eggs are given to malnourished and at-risk children.	<ul style="list-style-type: none"> Children 6 – 18 months of HIV-positive mothers trying to wean Malnourished inpatients Motherless infants < 1 year 	<ul style="list-style-type: none"> Eggs are a local food (overcomes transportation difficulties). Eggs are a good source of animal protein. The chicken coop and garden for chicken fodder are a demonstration project for local farmers. The agriculture extension officer is a resource for local farmers with chickens. The project could be self-sustaining if more chickens are brought in.
Matiti Dairy Goat Project	Hybrid dairy goats are brought in from Masaka, Uganda and given to caregivers of needy children.	<ul style="list-style-type: none"> Children 6 – 18 months of HIV-positive mothers trying to wean Underweight HIV-positive children Motherless infants < 1 year 	<ul style="list-style-type: none"> Mating of local female goats with hybrid males should produce greater lactation potential in offspring. Sensitisation and on-farm trainings for farmers and beneficiaries regarding fodder establishment, record-keeping, and general goat care. Reciprocal relationship with beneficiaries as they are asked to return the first born female to the project to be given to another needy child. Participatory monitoring and evaluation.
Byokulia Bisemeye mu Bantu Project	Local production teams volunteer to roast and grind groundnuts and soybeans, which are given to moderately malnourished outpatients in two satellite health centres.	<ul style="list-style-type: none"> Moderately malnourished (underweight) children served as outpatients 	<ul style="list-style-type: none"> Hand-powered grinders (also for community use) given to women’s groups who volunteer to produce the supplemental food (reducing reliance on outside foods). Volunteers and health centre staff have been trained and equipped for growth monitoring, giving nutrition education, identifying malnourished children, and distributing food supplement. Sensitisation seminars and agriculture trainings for local farmers Reciprocity is encouraged as caregivers are asked to bring moringa leaves to the health centre each week. Reciprocity and community ownership also increased by groundnut, sesame, and soybean seed distribution, where farmers are asked to return a portion of the harvest to the project be given to others in the community.



S. Jilcott, Bubandi Central Village, Uganda, 2007

A member of Busunga Production Team preparing dried moringa leaf powder, added to the groundnut paste distributed in satellite feeding programmes

culture and seem to survive well. Thus, the Matiti Dairy Goat Project emerged. Hybrid dairy goats from Masaka, Uganda, are selected, purchased and transported to Bundibugyo to be given to at-risk families. Potential recipients are identified through health centre staff and volunteers at Nyahuka Health Centre, and are invited to dairy goat sensitisation meetings conducted by a WHM-hired agriculture extension officer. The recipient list is finalised based on the child’s need, number of trainings attended, ability to manage dairy goats well, and construction of a goat pen. Recipients are asked to return the firstborn female to the project.

The Byokulia Bisemeye mu Bantu (“Good food for people”) Project

This Project is located at two satellite health centres (Busunga Health Centre II and Busaru Health Centre III). Children are eligible for the 5-week programme if they are below the Ugandan Child Health Card weight-for-age growth curve, or have a mid-upper arm circumference less than 12cms. Supplemental food consists of three cups of groundnut paste and three cups of soybean flour, mixed with dried moringa leaf powder when available. This supplement is produced locally as hand-powered grinders were distributed to women’s groups (production teams) who volunteer to produce the supplemental food. (Hand-powered nut shellers donated to WHM by the Full Belly Project were also given to community groups to make the process of shelling groundnuts less labour-intensive.) The soybeans and groundnuts are purchased by WHM, distributed to production teams, who roast, grind, and package them, keeping a portion of what is produced. WHM staff trans-

port the finished product from production team to the satellite health centres. In October and November of 2007, volunteers and health centre staff received nutrition education and training, as well as training to identify malnourished children and distribute the food supplement.

In addition, WHM-hired agriculture extension officers to conduct agriculture trainings for local farmers. WHM also distributes groundnut, sesame, and soybean seed to farmers in exchange for a portion of the harvest to redistribute to other farmers. Seed is distributed based on farmer preferences. Fields are monitored prior to seed distribution to ensure proper preparation.

Implementation evaluation

Chicken and Matiti Dairy Goat Projects

From August – November 2007, 2,433 eggs from the Chicken Project were distributed at the local health centre. Although the project is not currently cost-effective, there are many benefits. The chicken coop serves as a demonstration project, eggs are easy to transport to the nearby health centre, and they provide animal protein to malnourished and at-risk children. The biggest implementation hurdle thus far was the coccidiosis epidemic.

In 2006, 36 hybrid dairy goats were given out, and by the end of 2007, 26 were still alive. In April 2007, 72 were distributed, of which 10 died and four were stolen. In total, there are 89 mature male and female hybrid dairy goats in the field, 32 exotic goat kids, and 23 other cross breeds. Fourteen goats were returned to the project and passed on to other families in 2007 and the beginning of 2008. Several goat

Table 2: Goat location and milk yield

Location of goat	Duration of lactation (months)	Average amount of milk obtained (mls/day)
Hakitara	6	1750
Kagora	6	1000
Kinyante	5	1000
Lamia	5	1000
Busunga	6	1750
Busunga	4	500
Busunga	4	1000
Kisonko	4	1000
Nyankonda	4	1000
Bunyangule	3	1000
Lamia	2	750
Murungitanwa	3	750
Kabatabule	3	750
Tombwe	2	500
Njuule	3	1000
Nyahuka	2	750
Nyahuka	5	1500
Bundibugyo	2	750
Mukidungu	3	1000

Table 1: Seed returned as a percent of seed

	Groundnut	Soybean	Simsim
Bubandi Sub-county	361/673 = 53.6%	84/169 = 50.0%	48/70 = 68.6%
Busaru Sub-county	186/712 = 26%	173/413 = 41.9%	70/212 = 33.0%

Table 3: Average weight gain for moderately malnourished children

Health Centre	Cycle	Number enrolled	Average weight gain in g/kg/d
Busunga	Pre-ebola, 13 Nov – 11 Dec	21	4.3
	Post-ebola, 22 Jan – 19 Feb	21	2.0
Busaru	Pre-ebola, 14 Nov – 28 Nov	21	4.3
	Post-ebola, 23 Jan – 20 Feb	16	2.0



Costa (health worker) with the caregiver of a severely malnourished child, an inpatient on the paediatric ward



A member of Busunga Production Team demonstrates the grinder

management seminars were conducted. Implementation problems include frequent divorces so that the goat ends up in a household without the malnourished child. Additionally, goats are not given to children from the DRC due to the difficulty of giving quality veterinary care in an unstable region. Finally, some beneficiaries have reported that goats have a difficult time conceiving.

Byokulia Bisemeye mu Bantu Project

To learn more about how to improve the programme, qualitative interviews were conducted with the chairpersons of two production teams. Reported benefits of being on the production team included getting a share of the product, being able to grind without paying, learning more about preparing healthy food for the family, and an increase in local groundnut cultivation. Difficulties include that grinding is physically difficult, teams are working without any salary, and on one team there is reported distrust among members due to disputes over profit share.

Although production teams were told to allow the community to use the grinders for a small fee (100 Uganda Shillings per 2 cups of groundnuts), they reported that the community did not use the hand-powered grinders. When random community members were asked why they did not use the grinders, they reported that this was due to lack of awareness, not having groundnuts, the distance from their homes to the grinder, belief that the grinder was for the production team members only, and the belief that the production teams charged too much money for grinding. Additional implementation issues include the difficulty of procuring moringa powder during the rainy season, as well as systematic quality control of the groundnut paste and soybean flour, which would be different in appearance from week to week.

Despite implementation hurdles, production teams have thus far met programme targets of 63 cups of soybean flour and 63 cups of groundnut paste per week, in addition to 12 cups of groundnut paste as an incentive for health workers and volunteers administering the programme.

Table 1 shows the amount of seed returned to the Byokulia Project as a portion of the seed distributed. The seed return discrepancy between Busaru and Bubandi sub-counties is attributed to leadership issues, including not taking initiative to motivate constituents to return the seed – this has been especially difficult since some leaders themselves did not return seed they received.

Evaluation of impact on patients served *HIV-exposed children*

In addition to dairy goats, twenty-five HIV-exposed children also receive biweekly food supplements (groundnut paste, eggs and beans), distributed when the mother attends the clinic for antiretroviral treatment. Table 2 shows the location of the nineteen lactating goats in the field, the duration of goat-lactation to date, and the average amount of milk obtained per day from each goat.

Two home visits were conducted to examine the impact of the animal husbandry on HIV-exposed children. In the first case, the HIV-positive mother received a hybrid goat in the April 2007 distribution. Before its untimely death two weeks prior to this (not replaced), she reported that it had trouble conceiving. This mother weaned her infant at six months and he is normal weight and HIV-negative. Bi-weekly she receives eggs and beans as she comes to the clinic for antiretroviral drugs.

The second child and mother visited were given a lactating goat in April 2007, just as the child turned six months, because her mother (HIV-positive) reported being ready to wean. The family obtained approximately 2 cups of milk per day, milking in the morning and evening. The milk was prepared by boiling one half volume of water to milk, mixing in a teaspoon of sugar, then pouring it into a plastic cup to cool. The child is now weaned, normal weight, and HIV-negative. The mother reported never giving milk to other children in the compound. In addition to goat's milk, the child received bi-weekly food aid (groundnut paste, beans, eggs) at clinic visits.

Both mothers reported giving the bi-weekly food to other children in addition to the child enrolled in the programme.

Moderately malnourished outpatients

Two 5-week programme cycles were completed at each of the health centres. At Busunga Health Centre, one child enrolled had a congestive heart defect, died, and was removed from analysis. At Busaru Health Centre (post-ebola outbreak cycle), follow-up times varied, from 14 – 28 days. Table 3 shows average weight gain in each cycle.

Six home visits were made and caregivers were asked to demonstrate preparation of the groundnut paste and soybean flour. Most caregivers began by peeling and boiling bananas, then adding one or two tablespoons of groundnut paste and soybean flour to the sauce. Many caregivers then added cabbage, dodo, or moringa. Overall, the sauces were very dilute.

Mothers did not report feeding the food to other children in the compound.

Future activities

- The Matiti Project plans include identifying model farmers ('early adopters'), i.e. those who are doing well with fodder establishment and goat management. These farmers will then be trained to educate other farmers on best practices for goat care and management. Matiti Project staff also plan to selectively breed to establish a line of local dairy goats.
- An addition to the chicken coop is being constructed with a plan to bring in a new stock of 200 day-old chicks in May 2008.
- Future work includes adding cooking demonstrations (requested by caregivers) to the nutrition education component of each Byokulia Project cycle.
- Because several children who enrolled in the first 5-week cycle qualified again for enrolment in the second 5-week cycle, the length of the Byokulia Programme was extended from 5 to 10 weeks.
- To decrease the number of defaulters, weekly return to the health centre is being heavily promoted, using the idea that the food is like a medicine.
- In response to complaints about the quantity of food given at outpatient centres (perhaps because of previous emergency relief efforts), caregivers are being educated about the nutritional value of the food received.
- The current food supplement given in the Byokulia Project is not used by caregivers as a ready-to-use supplemental food (RUSF). Future work includes working with production teams to standardise production methods so that the food supplement can be marketed to caregivers as RUSF rather than a supplement to sauce.
- Production teams are working very diligently as volunteers. Therefore, microfinance initiatives enabling teams to benefit from the work are greatly needed.
- Due to low seed return rates, the next seed distribution will include caregivers of malnourished outpatients, volunteer health workers, and those from the previous distribution who returned seed.

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Participants of the Regional Workshop on Infant and Young Child Feeding in Emergencies, 10-13 March, 2008

People in aid



Geofrey Batsiwa, Uganda, 2007

Busaru Production Team in WHM programme (see field article), Bumate Village, Uganda.



S Jlicot, Busaru Health Centre, Uganda, 2007

Graduates of WHM nutrition trainings pose in their 'Byokulia Bisemeye mu Bantu' t-shirts



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.

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On the cover

An airdrop by an Ilyushin cargo plane in Oringi, Sudan.
WFP/Fred Noy, Sudan, 2007

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



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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, FieldExchange, 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 (Field Exchange technical editor) and Marie McGrath (Field Exchange production/assistant editor) are both ENN directors.



We are delighted to welcome a new addition to the ENN Team, Diane Crocombe. Diane recently joined the ENN as part-time Project and Finance Support Officer based in Oxford. Diane has extensive fundraising and management experience with Oxfam for the past 25 years, both in Oxford and overseas including Kenya, India and Cambodia.



Rupert Gill is ENN office manager and fundraiser, based in Oxford.



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



Sarah Foster works part-time with ENN to support mailing of Field Exchange and IFE Resources.



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



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



We are sorry to say that Dan George has left the ENN, to pursue fulltime study. Dan has been the Finance Assistant with ENN since the office moved to Oxford from Dublin in late 2004. He will be greatly missed, not just for his mastery of Excel spreadsheets but for tales of his latest biking antics. We all wish him the best of luck in his next adventures.

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