



Understanding nutrition data and the causes of malnutrition in Niger

A special report by the Famine Early Warning
Systems Network (FEWS NET)

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The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

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BACKGROUND

Niger is a landlocked Sahelian country, with a population estimated at nearly twelve million (11,972,000).¹ One of the poorest countries in the world, Niger faces numerous handicaps, notably an arid climate, recurrent drought, demographic pressure and scarcity of resources.² Over 80 percent of Niger's population lives in rural areas and 63 percent lives below the absolute poverty line.³

While there is no doubt that Niger experienced a crisis in 2005, the type of emergency, the scale and severity of the crisis, and the point at which it became critical are subjects of contention. What is clear, however, is that the humanitarian response was slow. This raises questions regarding government and donor failure to provide sufficient resources on a timely basis, but also raises pertinent concerns regarding the quality of early warning and assessment analysis as well as the appropriateness of the response.⁴

FEWS NET is interested in deepening its understanding of the nutrition situation in Niger to improve the interpretation of the high malnutrition prevalence rates reported in 2005 through the drafting of two Special Reports on the nutrition situation.

This Special Report aims to:

1. Assist food security and early warning analysts, including those in FEWS NET to better understand the nutritional aspects of the 2005 crisis in Niger including the possible contributory causes to persistently high rates of malnutrition in Niger;
2. Highlight the issues in analyzing and interpreting nutritional data in the Niger context, based on the 2005 experience; and
3. Outline broad recommendations regarding what types of nutrition-related information should be collected and analyzed and how the situation should be monitored.

¹ World Health Organization (WHO). World Health Report 2005. Geneva: WHO, 2005.

² Niger was ranked last in the world in 2005, with a Human Development Index of 0.281. United Nations Development Programme (UNDP). Human Development Report 2005. New York: UNDP, 2005.

³ UNICEF At A Glance Country Data Statistics for Niger, 2005.

⁴ Humanitarian Policy Group. Humanitarian issues in Niger, August 2005.

NIGER 2005: FOOD SECURITY AND NUTRITION SITUATION

As is often the case, there is disagreement as to whether there was a food crisis, famine and/or nutritional emergency in Niger in 2005. This was also the case in Ethiopia in 2000 and recently in Malawi in 2005. On the one hand, documented excess deaths and high malnutrition rates indicated a serious crisis in Niger; on the other hand, FEWS NET and others have argued that the situation constituted a severe but localized food security crisis.

FOOD SECURITY SITUATION

Yields associated with the 2003/4 agricultural season in Niger were moderately affected by the combined affects of rain failure and locust infestation. Total grain production in 2004/5 was estimated at 2.6 million metric tons (MT), which is 11% below the five year average, leaving an import requirement of 315,000 MT. Similar crop failures were experienced throughout the sub-region.⁵ Production was above that of the relatively poor 2000/1 season, which did not lead to a major food security crisis. A joint food security assessment (GoN/FAO/WFP/FEWS NET) conducted in April 2005 estimated that 2.4 of the 3.6 million people living in agro-pastoral areas were highly vulnerable to food insecurity. Food prices were 75 to 80 percent above their five year average and declining livestock prices meant that cereal purchasing power for livestock-dependent households was a quarter of what it had been at the same time in 2004. A United Nations World Food Programme (WFP) food security assessment in October 2005 noted that the crisis had affected households across the board, and led to extensive animal sales, heavy indebtedness and increased migration in search of income.⁶ This assessment categorized groups according to the severity of food insecurity they faced, estimating that 1.22 million households faced severe food insecurity and 1.99 million households faced moderate food insecurity.⁷ Overall, in absolute numbers most of the food insecure households were found in the regions of Dosso and Tahoua. In terms of the most severely food insecure, the highest proportions of households were located in Tahoua (24%), Dosso (19%) and Tillaberi (16%).

Several authors have suggested that the Niger crisis has been misinterpreted, and that rather than a unique phenomenon resulting from a large shock, it resulted from adverse longer-term trends and structural causes of vulnerability, exacerbated by relatively moderate production and price shocks. Because most households are unable to produce sufficient cereals for their own consumption even in “normal” years, they rely heavily on the sale of animals, labor, petty trade and loans to access food and thus have options to engage in other strategies to offset reductions in production. However, in 2005 the capacity to purchase food on local markets was undermined by high cereal prices and localized harvest failures in the 2004/5 agricultural season. They purport that, devastating as it has been, 2005 differs only by degree from past difficult lean seasons.⁸

FEWS NET reported improvements in food security in November 2005 with post-harvest estimates of cereal production of more than 3.6 million MT, a surplus of 21,000 MT above the country’s projected needs.⁹ However, WFP estimated that 3.2 million people in Niger (a third of the rural population) will remain severely or moderately food insecure in 2006, mostly due to reduced food stocks and the fact that many families likely used a significant portion of the harvest to repay household debt incurred during the 2005 hunger season.¹⁰ Since more families will depend on local markets to purchase food, grain prices are also a concern.¹¹

⁵ FEWS NET and USAID. Niger: An evidence base for understanding the current crisis. Washington DC: FEWS NET, July 2005.

⁶ WFP. Emergency Food Security Assessment in Niger, October 2005. Available: <http://documents.wfp.org/stellent/groups/public/documents/ena/wfp086583.pdf>.

⁷ Severe food insecurity was defined as less than 3 months of cereal stocks, sale of animals, incurrence of heavy debt, reliance on gifts and loans in kind, poor food consumption and low dietary diversity. Moderate food insecurity was defined as 3 to 5 months of stocks, decapitalization of animal herds, and dependence on sale of produce, sale of animals, daily labor and remittances.

⁸ FEWS NET and USAID. Niger: An evidence base for understanding the current crisis. Washington DC: FEWS NET, July 2005.

⁹ FEWS NET. Monthly food security update: Food security improving. Washington DC: FEWS NET, November 2005.

¹⁰ A joint SAP/FAO/WFP/FEWS NET mission (March 2006) concluded that 1,865,550 people face moderate or severe food insecurity in 2006.

¹¹ WFP, situation report, February 2006.

NUTRITION SITUATION

While the debate continues as to the specific severity of the crisis and the impact of drought, the facts regarding malnourished children are clear. Thousands of children were acutely malnourished in 2005, many of them severely malnourished. The questions are then:

- To what extent do high prevalence levels of malnutrition represent a critical nutritional emergency?
- How do the high acute malnutrition rates of 2005 differ from the ‘norm’ in Niger?

Multiple evaluations of the 2005 crisis in Niger point to long-term and structural factors and persistently high rates of malnutrition as primary causes of the crisis.¹² These long-term and structural determinants include unequal land distribution; poor soil quality and erosion; lack of knowledge of good agricultural practices; recurrent drought; animal diseases and improper animal husbandry; low education levels and infrastructural underdevelopment.

Niger lacks a robust nutritional surveillance system, and nutritional data collection is at best ad hoc. For example, the Demographic Health Survey (DHS) was last conducted in Niger in 1998. Thus finding a baseline, particularly a well-designed population-based national survey - against which to compare recent malnutrition rates is somewhat difficult. Global acute malnutrition (GAM, i.e., weight-for-height of <-2 Z scores and/or edema) rates throughout the Sahel have remained high for the last five years (see Table 1). An estimated 55% of child deaths in the region are associated with malnutrition.¹³

Country	Prevalence (%) of global acute malnutrition (GAM) WFH <-2 Z scores and/or edema	Source
Niger	15.3 %	CDC/UNICEF/GON October 2005
Mali	10.6 %	Demographic and Health Survey 2001
Mauritania	12.8 %	Demographic and Health Survey 2001
Burkina Faso	18.6 %	Demographic and Health Survey 2003

In Niger, both chronic malnutrition (stunting, i.e., height-for-age of <-2 Z scores) and global acute malnutrition have remained high over time. An FAO country profile written in 1998 noted that “the nutritional situation in Niger is serious with over 32% stunted (chronically malnourished) of which half are severely stunted and 15% wasted (acute malnutrition) with wasting rates in Maradi reaching 20%.”¹⁴ This trend appears to have remained for over 20 years. The Centers for Disease Control and Prevention (CDC) conducted a rapid nutritional assessment during a drought period in Niger in 1984/5. The survey was conducted before the lean season and estimated a global acute malnutrition rate of 11.5 percent with higher levels in Maradi region (14 percent).¹⁵

A plethora of nutrition surveys were conducted during 2005. Table 2 compiles the available data from surveys from the 1990s through 2005, using the same methodology (30x30 cluster sampling using Z scores). While the interpretation and analysis in most survey reports was poor, the results presented in the table clearly demonstrate that malnutrition in Niger is endemic (always present with seasonal fluctuations). Rates of

¹² Government of Niger (GoN), Centers for Disease Control (CDC) and UNICEF. National nutrition and mortality survey October, 2005.

¹³ United Nations Consolidated Appeals Process (CAP), 2006.

¹⁴ FAO Niger Country Profile, 1998.

¹⁵ CDC. A rapid nutrition assessment during a drought in Niger. MMWR 1986, 35 (23):384-6. The survey used percent of median rather than Z score which makes direct comparisons to other surveys difficult.

chronic malnutrition remain high at nearly 40 percent. Rates of acute malnutrition are cause for concern. Agro-pastoralist groups (mostly in the south) have higher rates of acute malnutrition than other groups. Three southern regions in particular (Maradi, Zinder and Tahoua) have shown persistently high rates of acute malnutrition over time, often exceeding traditional emergency thresholds (see Annex 1).¹⁶

Data on admission to feeding centers and hospital nutrition units are scarce prior to 2005. However, MSF data on admissions to inpatient and outpatient therapeutic feeding programs (2002-2005) show dramatic increases in admissions during 2005 compared to previous years. In 2005 admissions began to increase earlier than previous years starting in January/February (well before the seasonal peak) and sharply increasing in June (See Figure 1).

Table 2: Prevalence of acute and chronic malnutrition in Niger (1996-2005)¹⁷

Agency/Source	Date	Region	Global Acute Malnutrition (WFH <-2 Z scores and/or edema)	Severe Acute Malnutrition (WFH <-3 Z scores and /or edema)	Under Five Mortality Rate (per 10,000/day)	Chronic malnutrition (HFA <-2 Z scores)
1.DHS 1998, MICS/WHO, UNICEF	1996-2000	All	14	3.2	-	39.5
2.FAO Nutrition Country Profile	1998	All	15		-	32
		Maradi	20			43
3.World Vision	2003-2004*	Maradi and Zinder (ADP)	16	4.1%	-	56
4. Helen Keller International/WFP	Jan. 2005	Maradi and Zinder	13.4	2.4	-	-
5. MSF-F/ Epicentre	Apr. 2005	Tahoua and Maradi	19.4	2.6	-	-
6. MSF-CH/ Epicentre	Aug. 2005	Rural areas of Zinder	18.6 (15.4-21.8)	3 (1.7-4.2)	4.1	-
7.GoN/UNICEF/CDC	Sept.-Oct. 2005	All	15.3	1.6		-
		Tahoua	17.9	1.8	2.1	
		Zinder	16.1	1.2	2.2	
		Maradi	16	2.3	1.3	
8. Action Against Hunger	Oct.-Nov. 2005	Maradi and Tahoua	20	4.1	-	-
		Agricultural	19.2 (16.6-21.8)	4.1	1.97	-
		Agro-pastoral	24.7 (20.8-28.7)	5.4	1.63	-
		Pastoral	16.4 (12.6-20.1)	2.8	1.73	-

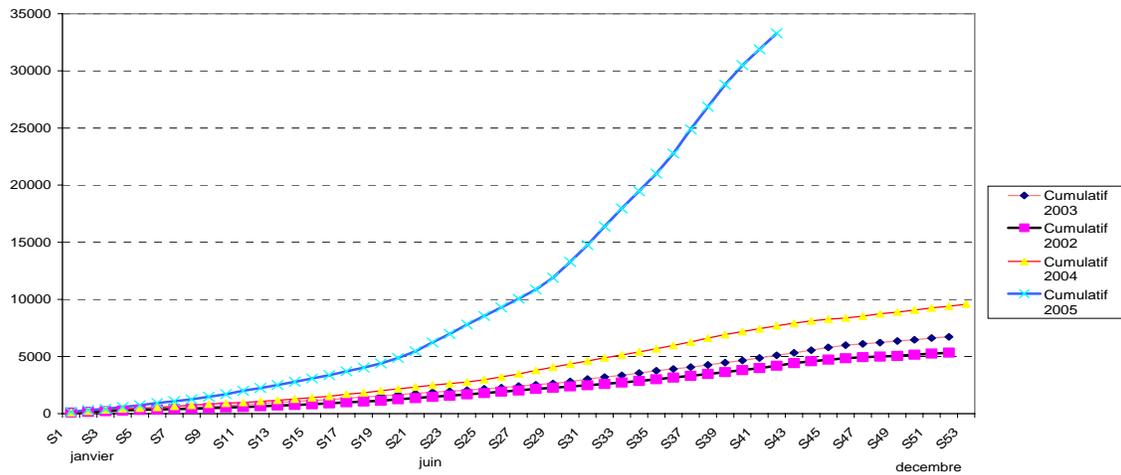
*2004/5 was an “above average” harvest year in Niger. These findings are not representative of the whole region, only the Area Development Programs (ADPs) within those regions.

+U5MR >2/10,000/day indicates a serious emergency: 4/10,000/day indicates an extremely serious situation (WHO, 2000).

¹⁶ Thresholds levels based on prevalence rates have been revised to take into account causal factors. In some cases (e.g. SMART) they have been abandoned altogether.

¹⁷ Data and report sources: 1. UNICEF global data base, 2004; 2. FAO country nutrition profile, 1998; 3. World Vision, Transformation Development Indicators and cluster surveys/Maradi and Zinder Area Development Program 2003 2004.; 4. HKI/WFP. An evaluation of nutritional status among children 6-59 months in Maradi and Zinder regions, April 2005; 5. MSF-F/ Epicentre. Nutrition survey in Tahoua and Maradi, April 2005; 6. Epicentre. Satut nutritionnel et mortlaite retrospective: Enquete realisee dans la peripherie rurale de la ville de Zinder, August 2005; 7. Government of Niger/UNICEF/CDC. National nutrition and mortality survey, October 2005.; 8. ACF. Etude de l'etat nutritionnel chez les enfants ages 6-59 mois des zones agricole, agropastorale et pastorale des regions de Maradi et de Tahoua, Niger.

Figure 1: Cumulative admission data to MSF nutrition programs in Maradi Region: 2002-2005¹⁸



Admissions to MSF therapeutic feeding centers in 2005 were four times the 2004 admission levels. While MSF made this information widely available, it did not trigger any action until MSF survey results were published and media attention intensified in May and June 2005.¹⁹ In part this may be because admission to selective feeding programs is not typically used as an early warning indicator, although when analyzed in context, it can provide valuable information about an impending crisis. During 2005, the number of supplementary and therapeutic feeding sites increased exponentially. A total of 861 centers or treatment points were opened in 2005 in Niger. The majority of nutrition programs started in July, with peak admissions in September/October 2005 (Figure 2). The number of malnourished children reached during 2005 was far greater than previous years in Niger and greater than most emergencies, due to two main factors: implementation of a system of decentralized outpatient care using ready-to-use therapeutic food (RUTF, e.g., “Plumpynut”) for severely malnourished children, and involvement of a large number of agencies in this type of program. MSF alone treated over 60,000 severely malnourished children.²⁰

UNICEF estimated that 160,000 children would require treatment for acute malnutrition (based on an estimated 20 percent prevalence rate, of which 32,000 would require treatment for severe acute malnutrition (based on a prevalence of 4%). In fact by the end of 2005 there were a total of 250,097 reported admissions, thus exceeding estimations.

Overall program outcome indicators were reported to have met SPHERE standards.²¹ However there are some issues with this seemingly successful nutrition intervention. A closer examination of program data shows that while there were large numbers of reported admissions, this does not mean that children were successfully treated (discharged cured). In fact, in some programs drop out rates were much higher than those reported to UNICEF, the United Nations agency coordinating the nutrition response. At the same time there has been duplication of services in some areas and double counting of admissions.²² In other areas coverage of selective feeding programs for acutely moderate and severely malnourished children was very low. A

¹⁸ MSF admission data 2002-2005 presented at MSF meeting on community approaches to managing acute malnutrition, MSF, New York, November 1, 2005.

¹⁹ Images of emaciated children began appearing on television in June. In August, when the UN issued another Niger appeal, for \$81 million (two earlier appeals had been issued but largely ignored), government and private-sector donors responded promptly.

²⁰ Tectonidi, M. Crisis in Niger-outpatient care for severe acute malnutrition. *New England Journal of Medicine*. January 19, 2006.

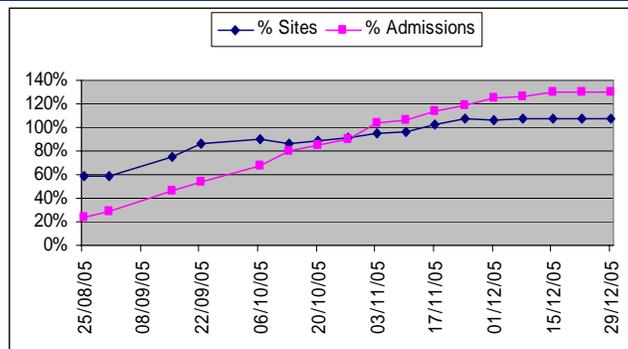
²¹ Ibid.

²² Gobler-Tanner, C. Evaluation of World Vision emergency nutrition program in Maradi and Zinder, February 2006.

coverage survey conducted by Valid International in Tessoua, Maradi found coverage was only 30 percent. Thus, 70 percent of acutely malnourished children were not in a program. This was attributed to confusion regarding entry criteria (children who should have been admitted were turned away and vice versa) and lack of community participation and understanding of the program.²³ It is highly likely that other programs also had low coverage.²⁴ Thus either the numbers of acutely malnourished children in Niger was higher than originally thought, and/or children were admitted (sometimes to more than one program and double counted) but did not use the program. It is clear that effective monitoring of nutrition programs and outcome data, including program coverage of the target population, is essential to gain a better understanding of the overall picture, to ensure effective response.²⁵

Quantitative data and information (food security, malnutrition prevalence rates and admissions to therapeutic feeding programs) are not sufficient to determine the severity of a crisis or to design a response. An understanding and analysis of the causes of malnutrition and interpretation of data in context are required. The analytic framework within which the problem of malnutrition is analyzed may include assumptions about the main causes of malnutrition; a food access-focused framework may overemphasize the contribution of food access at the expense of full appreciation of the role of poor hygiene, morbidity and care practices to malnutrition. Below, the data on the causes of malnutrition in Niger are discussed.

Figure 2: Admissions and nutrition center openings²⁶



²³ Myatt, M. Coverage of Save the Children UK Community Therapeutic Care (CTC) program in Tessoua, Maradi, Valid International, draft report. February 2006.

²⁴ The ACF survey in Maradi and Tahoua found coverage programs treating severe malnutrition (37% in the agricultural zone, 11% in the agro-pastoral zone and 6% in the pastoral zone)

²⁵ Grobler-Tanner, C. Evaluation of World Vision emergency nutrition program, Maradi and Zinder, Niger. February 2006.

²⁶ UNICEF, Principal results of the response by UNICEF, NGOs and partners to Niger's nutrition crisis (July-December 2005). Monitoring Newsletter, January 2006.

CAUSES OF MALNUTRITION IN NIGER

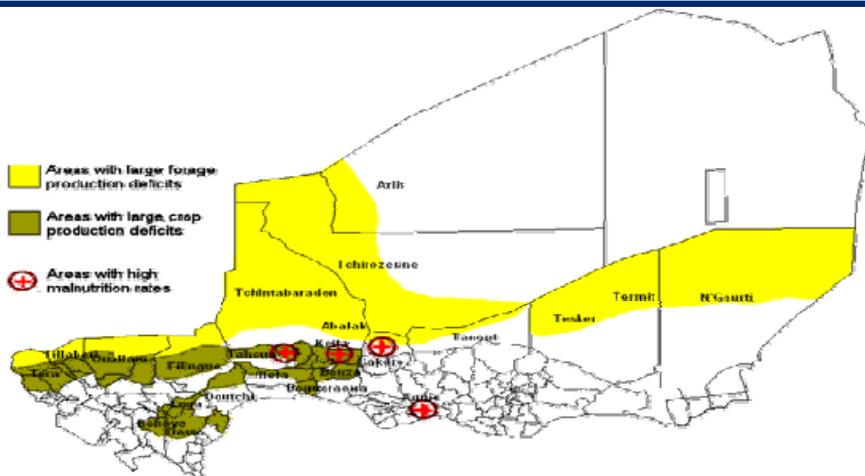
The available evidence suggests a limited intersection among areas with crop production deficits, areas with forage production deficits, and areas with high malnutrition rates (predominantly agro-pastoral areas in the southern regions) (See Figures 3 and 4).

Clearly other factors aside from food production impact on the nutritional status of children. The international emergency response to the most vulnerable areas in southern Niger in 2005 - including nearly \$100 million in food aid - failed to bring malnutrition rates below emergency levels.²⁷ In Niger (as in many countries) the reasons for persistently high rates malnutrition are multi-faceted and multi-causal. The standard reference tool for understanding and analyzing the causes (direct, indirect and underlying) is the causal framework (Annex 2). This framework has generally been adopted by international agencies and should form the basis for nutritional assessments in emergencies.²⁸ The framework cites food intake and disease as the immediate cause of malnutrition with three underlying and overlapping causes (inadequate household food security; inadequate care and feeding practices; and poor public health access and environment). The third tier of causes includes socio-political and economic causes. The framework is recommended for investigation of the relative importance of the different causes of malnutrition and mortality, and thereby prioritization of interventions and coordination of different sectoral responses. There is a general consensus that it is not possible to use nutrition data alone for decision making and that information on the underlying causes of malnutrition is necessary. The following factors need to be considered in any interpretation:

- **underlying causes;**
- **mortality; and**
- **seasonality.**

Putting this together in practice and translating it to action however is complex; data are not always available, analysis is poor and current guidance is unavailable or contradictory. For example there is little guidance on how to analyze malnutrition and mortality together.

Figure 3: Areas of production and forage deficits and areas of high malnutrition, Niger 2005

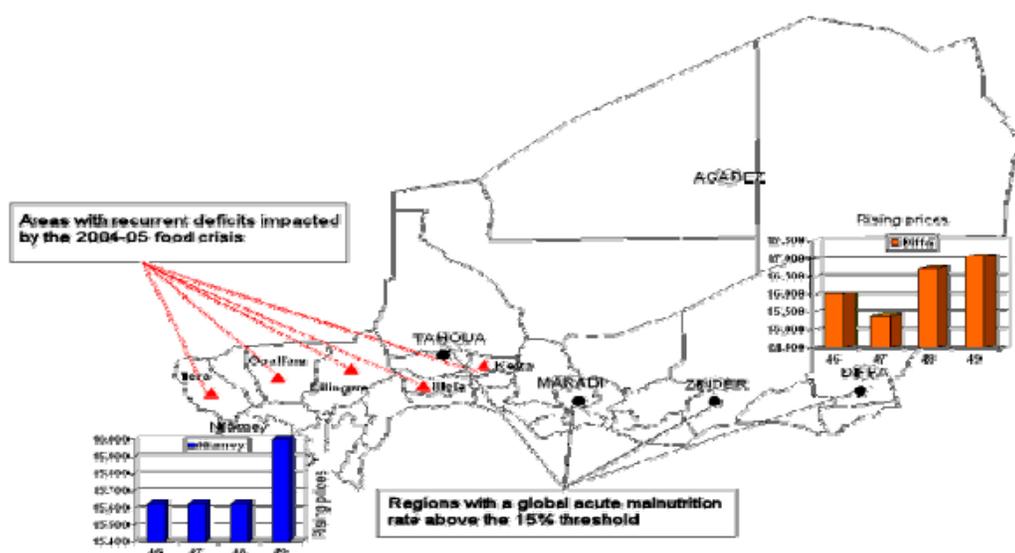


Source: Joint FAO/WFP/CILSS/FEWS NET/Niger Government mission; Graphic by FEWS NET.

²⁷ USAID. Analysis of the 2005 humanitarian crisis in Niger. October 2005

²⁸ WHO, 2000, Sphere Project 2004, WFP 2000

Figure 4: Areas of recurrent deficit and areas of high global acute malnutrition (GAM), Niger 2005



Source: SIMA (Agricultural Market Information System), SAP (National Early Warning System), UNICEF; Graphic by FEWS NET

INADEQUATE HOUSEHOLD FOOD SECURITY

It is highly likely that malnutrition levels in the 2005 increased as a direct result of declines in food availability and household purchasing power due to poor crop yields for the 2003/4 agricultural year and rising food prices in 2004/5. While access to food was a key problem, food availability and consumption patterns are also constraints to food security. From a nutritional (as well as psychological) viewpoint, a monotonous diet is the hallmark of chronic under-nutrition. Increasing poverty tends to be associated with lower dietary diversity. In many cases in Niger, malnutrition in children is not principally caused by poor availability of food in the household. Parents may eat a variety of foods, while children are fed predominantly a millet-based porridge every day with very little dietary diversity. This results in a lack of quantity (energy) and quality (micronutrients) in the diet, which often leads to anorexia (lack of appetite) and concurrent weight loss. Inadequate nutrient intake often precedes weight loss and the anthropometric changes we use to define malnutrition. Thus careful monitoring of food consumption patterns, particularly for mothers and children, is essential. Several surveys have noted that coverage of the general ration distribution was low. The ration in some cases also lacked a blended food suitable for children.²⁹ Thus monitoring of general ration coverage, quality, quantity and use is also important.

INADEQUATE CARE AND FEEDING PRACTICES

The impact of socio-cultural factors including care and feeding practices on malnutrition levels in Niger should not be underestimated. Available data suggest that breastfeeding for up to two years is common (61%), but that exclusive breastfeeding (for children <6 months of age) is extremely rare (<2%). Infants are fed water, herbal tea and cows' milk within a few days of birth. The effects of early mixed feeding have been well documented and include greater risk of infection, particularly diarrhoeal disease and acute respiratory infections (ARI).³⁰ Inadequate introduction of complementary foods (too early, too late, insufficient quantity

²⁹ MSF CH/Epicentre nutrition survey findings, August 2005.

³⁰ Emergency Nutrition Network, Infant feeding in emergencies, Module 1. 2001.

and quality) is thought to affect to 75 percent of infants in Niger.³¹ Prevalence of severe acute malnutrition among infants less than 6 months appears to be high in Niger, although precise data could not be found. Infants under 6 months are not included in nutrition surveys. However MSF reports high admission rates for infants to their inpatient therapeutic feeding centers in Maradi and Zinder. This is particular cause for concern because mortality rates for severely malnourished infants are much higher than severely malnourished older children.³² It is extremely likely that the underlying causes (nutrient deficiencies) leading to stunting and wasting begin shortly after birth. Thus a programmatic focus on the situation of women as primary care givers (pre-natal care including nutrition, prevention of low birth weight, protection and promotion of breastfeeding/complementary feeding) is critical if malnutrition rates are to be reduced.

The lack of empowerment of women and a patriarchal culture further exacerbate this problem. Hausa village women engage in traditional agricultural production (planting and harvesting) as well as child care, but they have little access to family income. Early marriage and early first delivery are common, particularly in Maradi Region where acute malnutrition rates have been very high over time. This cultural tradition contributes to a high fertility rate and as well as to the associated problems of high maternal and child mortality and poor infant and young child feeding. Furthermore educational status and literacy rates are particularly low among women. School attendance is estimated at 27 percent for females and adult literacy for women is less than 15 percent.³³ The correlation between low education and social status of women and the health and nutritional status of children has been well documented.³⁴ Of interest is the frequent anecdotal evidence that relatively well off women (well dressed with gold jewellery) presented at feeding centers with malnourished children during 2005. This suggests that child care practices and access to water and sanitation may play a significant contributory factor in malnutrition.³⁵ Older women (grandmothers) are often primary care givers of children in part due to a very high maternal mortality rate and in part due to the work and duties of younger women in the household. Increased male migration in 2004/5 led to an increase in women headed families with poor access to markets, low cash reserves and a heavy workload for women, resulting in less time for child care.

POOR PUBLIC HEALTH ACCESS AND ENVIRONMENT

Infant mortality is estimated at 152/1,000 live births and has remained high over the past five years. The under five mortality rate (probability of dying between birth and 5 years/1,000 live births) is 259/1,000 live births, ranking third on the global list of the highest under five mortality rates. Thus about 1 in 4 children dies before age five.³⁶ The maternal mortality rate is also high (590/100,000 live births). Ante-natal care coverage is low (41%) and the majority of women in rural areas give birth at home without a trained attendant.³⁷ Frequent illness (diarrhea and acute respiratory infections) among children under five is common. UNICEF surveys conducted in 2000 found 60 percent of children had been ill in the two weeks prior to the survey. Lack of access to clean portable water and poor sanitation is also a major public health problem in Niger. Access to clean water is found in 36 percent and adequate sanitation is found in only 4 percent of rural areas.³⁸ Highly infectious excreta-related diseases such as cholera still affect communities.³⁹ Improvements in safe water supply, and in particular hygiene (including use of soap for hand-washing) could reduce the incidence of diarrhea and the number of deaths due to diarrhea by more than half.⁴⁰ Malaria (in endemic areas of the south) is a leading cause morbidity and death. Prevalence of malaria is estimated at 42 percent among children under five. Surveys conducted in 2000 found only 17 percent of children under- five

³¹ UNICEF Multi cluster indicator survey (MCIS), 2000 and UNICEF global data base 1996-2004.

³² Golden, M. Including infants in nutrition surveys: examples from ACF experience in Kabul. Field Exchange. 2000 (9).

³³ United Nations Educational, Scientific and Cultural Organization (UNESCO), including the Education for All 2000 Assessment.

³⁴ SCN. 5th World report on the world nutrition situation, March 2004.

³⁵ MSF-F, Concern Worldwide, World Vision reported observations from Niger. MSF meeting on community approaches to managing acute malnutrition, MSF, New York, November 1 2005.

³⁶ CIA World Fact Book, 2005.

³⁷ UNICEF population and statistics division, 2004 (revised).

³⁸ Multi Indicator Cluster Survey, 2000.

³⁹ Cholera outbreaks have been reported in Niger. WHO Situation Report September 2005.

⁴⁰ UNICEF Multi-Indicator Cluster Survey, 1996.

were sleeping under any kind of net.⁴¹ This has changed more recently with a national distribution of bed nets associated with the polio immunization campaigns.⁴²

Of note are the very low access (48%) to formal health treatment and the low number seeking treatment even where there is access. The first line consultation for illness and malnutrition is the traditional healer; yet traditional healers are rarely included in health and nutrition programs.⁴³ The health system itself is defunct and under-resourced. More importantly the system operates under the Bamako Initiative (BI) revolving fund which requires people to pay for basic drugs.

The combination of lack of basic drugs, poor access, inadequate distribution systems and payment for primary health care has resulted in a mismanaged dysfunctional health system. Localized outbreaks of meningococcal meningitis and cholera are common, but there were no large scale epidemics during 2005. The situation in 2005 could not be said to be a “health crisis.” Nevertheless the contribution of the poor public health system on the high rates of malnutrition is clear. Not only is this a significant contributory cause to the persistent high rates of malnutrition, but will adversely affect efforts to integrate the treatment of acute malnutrition into the existing primary health care system.⁴⁴

⁴¹ UNICEF Multi Indicator Cluster Survey, 2000

⁴² The World Bank has provided \$35 million to the GoN to strengthen the national health system and to combat malaria

⁴³ Focus group discussion conducted in Maradi with mothers and grandmothers, World Vision, February 2006.

⁴⁴ Most outpatient programs for severely malnourished children without complications (CRENAS) and inpatient centers for those with complications (CRENI) operated in parallel to the existing health system in 2005. Furthermore, most programs did not effectively engage the community. As a result there has been limited building of local capacity to manage acute malnutrition.

INTERPRETING THE DATA AND THE CAUSAL FACTORS

SEASONAL FLUCTUATIONS

There are clear seasonal fluctuations in malnutrition prevalence in Niger with a peak during the lean season (June to September) in the southern regions. In normal years weight would be lost during the lean season resulting in a spike in prevalence rates of acute malnutrition. Prevalence rates in Niger can reduce markedly after the harvest by up to 10 percentage points.⁴⁵ Thus, it is imperative to take seasonal fluctuations into account in interpreting data.⁴⁶ This is clear when looking at data from therapeutic feeding centers. During 2005 hikes in admissions were noted much earlier than the seasonal norm (beginning as early as February instead of June). This is also expected to occur in 2006. MSF anticipates increased admissions starting in April 2006.⁴⁷ Recent surveys conducted after a fairly good harvest still indicated a precarious situation.⁴⁸ Thus this type of data collection and analysis can be critically important in terms of determining the severity of a situation and an appropriate response.

MORTALITY RATES

Under-five mortality rates (U5MR) reported during 2005 were elevated in Maradi (2.2/10,000/day) and Tahoua (2.4/10,000/day).⁴⁹ The emergency threshold for U5MR is 2 deaths per 10,000 people per day, and thus the U5MR in Niger during 2005 indicated a serious crisis. There is no doubt that high levels of acute malnutrition are linked to increased morbidity and mortality; however, interpreting these numbers is somewhat complicated. The prevailing belief is that high mortality can mask deteriorating nutritional status (high number of child deaths results in lower levels of acute malnutrition). However in an emergency context infant and young child deaths are not limited to the severely or moderately malnourished. It is therefore likely that even where rates are very high, for example higher than 10/10,000/day, that there would be a significant effect on the prevalence of acute malnutrition.⁵⁰

The crude mortality rate (CMR) was reported as less than 1/10,000/day (the emergency threshold). The highest CMR was found in Zinder (0.7/10,000/day) which is indicative of excess mortality but not serious crisis levels.⁵¹ (See Annex 3.) Malnutrition and mortality are influenced by a range of conditions including the underlying causal factors (food, care and health). It is also likely that a failure in all groups of causal factors (as in Niger) is far greater than the sum of the individual effects which could account for the increase in mortality associated with deteriorating nutritional status (high prevalence rates) in Niger.⁵²

⁴⁵ Studies in the 1980s among pastoralists found increases in prevalence of acute malnutrition during the lean season. Prevalence of acute malnutrition ranged from 17% in May compared to 7% in November. Loutan, L and Lamotte, J. Seasonal variations in nutrition in Niger. *Lancet* 1984, April 28; 1 (8883): 945-7.

⁴⁶ Duffield, A and Myatt, M. An analysis of Save the Children UK's disaster preparedness and prevention commission nutritional surveillance system data in drought prone areas of Ethiopia. 1995-2001. Seasonal variations may affect the prevalence of malnutrition by as much as 20% in a 3 month period.

⁴⁷ MSF-France projections for 2006. personal communication, February 2006.

⁴⁸ ACF November 2005.

⁴⁹ Government of Niger/UNICEF/CDC. National nutrition and mortality survey, October 2005

⁵⁰ Save the Children U.K. Emergency nutrition assessment. Guidelines for field workers. SC-UK has developed a model showing different possible combinations of malnutrition and mortality and likely causes.

⁵¹ Government of Niger/UNICEF/CDC. National nutrition and mortality survey, October 2005

⁵² Young, H. Nutritional assessment in emergencies: progress and remaining challenges. Unpublished Paper, 2003.

CONCLUSIONS AND BROAD-BASED RECOMMENDATIONS

Warnings about an impending crisis were issued throughout 2004 and 2005, but the overall message suggested that the situation was under control. Donors did not think a large-scale crisis was being indicated until mid-2005. Despite surveys conducted by Helen Keller International (HKI) and WFP in January 2005 pointing to high “off season” acute malnutrition prevalence rates, it was not until the MSF survey results in April/May 2005 and media attention that the severity of the crisis started to be noticed at the international level. As is often the case, the quality and analysis of data were problematic. Initially the response was based on subsidized fodder and food - partly based on the Government strategy to avoid free food distributions. Since a large majority of the population relies on purchasing food during the lean season, highly elevated prices and collapse in the terms of trade for livestock should have triggered an earlier response and questioned a strategy that relied heavily on trying to subsidize food prices particularly when these prices kept rising.

When it became clear in April 2005 that admissions to MSF therapeutic nutrition programs were increasing exponentially, FEWS NET reported the national food security network’s viewpoint that free food distribution would undermine the coping strategies of the local population and the role of the market mechanisms in responding to the problem.⁵³ Part of the reason for this apparent contradiction is that high rates of malnutrition (as noted above) are a relatively “normal occurrence” in Niger. However despite the lack of solid baseline data, it is clear that acute malnutrition rates are persistently high and at unacceptable levels and this in and of itself warrants action. It is also clear that emergency assistance (which for the most part is food focused) is not sufficient to address the problem. It is principally people’s lack of access to a varied diet, not the aggregate supply of food, that leads to malnutrition in Niger. Low dietary diversity often results from poor purchasing power and/or socio-cultural/behavioral/care factors. It is well known that nutritional emergencies can and do occur in countries that produce a surplus. In the early stages of the Niger crisis there was inadequate analysis and interpretation of the big picture, particularly the nutritional data.

It would seem that based on all available data, the Niger situation was not a health crisis, nor was it by classic definition a famine, rather it has been called a ‘crisis of access’ – access not only to sufficient food (quality and quantity) at household level, but also income with which to buy and/or barter for food and importantly lack of access to basic public health services, education and basic rights. The situation in Niger has been referred to as a ‘silent emergency’ with persistent high levels of acute malnutrition (wasting) in “non emergency” times acting as a springboard for a sudden leap in mortality when disaster strikes.⁵⁴

I. APPROPRIATE AND RELEVANT DATA AND INTERPRETATION

- Nutrition survey information should be used to confirm the severity of a crisis. This can be ‘one off’ nutrition surveys, ongoing nutritional surveillance or as part of an early warning system. There is broad agreement regarding the process of gathering and analyzing anthropometric data for estimating prevalence of acute malnutrition. The UNICEF causal framework model has been widely adopted as the basic conceptual framework for nutrition assessments.
- Triangulation of available data and information is critical. This includes food security, mortality and morbidity data, nutrition surveys, information on seasonal prevalence rates and admissions to hospital and clinic nutrition rehabilitation units and feeding centers. There is currently lack of coherence between the causes of malnutrition and the frameworks for decision making on selective feeding programs (i.e. appropriate response). Reliance on these frameworks based on thresholds (frequently quoted in the reports on Niger) often fails to adequately account for seasonal fluctuations, pre-emergency levels, trends and underlying causes.

⁵³ FEWS NET Monthly Food Security Update for the Sahel and West Africa, April 2005.

⁵⁴ Gross, R and Webb, P. Wasted time for wasted children. Undernutrition must be resolved in non-emergency settings

2. COLLECTION, COMPILATION AND INTERPRETATION OF NUTRITION DATA

- UNICEF has a mandate for improving nutrition but does not have the expertise or capacity to plan, coordinate, implement and monitor nutrition surveys and nutrition treatment programs in Niger. There is no clear responsibility as to when a nutrition survey should be conducted. In Niger, UNICEF attempts to provide an overview of the nutritional situation but there are significant gaps in analyzing the quality of the response. Furthermore there are extreme difficulties in accessing and compiling nutrition data from various ad hoc surveys and analysis in Niger has been poor. For example, the reporting on Niger by the central body responsible for compiling and analyzing nutritional data (UN Standing Committee on Nutrition/Nutrition Information in Crisis Situations – or SCN/NICS) is weak, mostly because the NCIS is only as good as the reports it receives. Similarly, most agencies operating nutrition and/or food aid programs will do a nutrition survey for planning (baseline) and to assess impact (end-line) resulting in inequitable distribution of surveys (too many surveys in one location and none in another). In the case of Niger where the severity of a crisis is not clear (or not agreed) it may be necessary to commission regular nutrition and mortality surveys. This suggests the need for a single agency to take the lead in this regard, with inter-agency support and buy-in.

3. MONITORING

Available data suggest that coverage of general food distribution programs was low and quality of the ration varied (particularly at the early stages of the response). Thus monitoring of the quantity and quality of general ration is essential. It is often effective to link the household of the severely malnourished children (index child) with a general food distribution program so they receive a general ration. WFP provided a ‘protective ration’ to the households of severely malnourished children to reduce sharing as well as to improve overall household availability of food particularly for other children in the household through provision of a blended food. This should be better monitored.

- In general household food consumption patterns - including food use, dietary diversity, intra-household food allocation and cultural taboos - should be monitored and documented in Niger. Dietary diversity might be defined as a number of unique foods (selected foods) consumed by the household (or individual) in a specific period of time.⁵⁵ Weekly consumption frequency for the selected foods and two main sources (access strategies) used by the household to acquire the selected foods can be monitored. This can be compared with a reference food consumption indicator to estimate food gaps as a benchmark for household food insecurity. Selected foods should include those suitable for children as well as foods eaten by mothers (particularly breastfeeding mothers).
- UNICEF Niger is responsible for coordinating the overall nutrition program. New protocols have been drafted and put in place.⁵⁶ However there is a need to better monitor and document the seasonal variation in admissions to feeding programs and to include this data in overall analysis of the situation. A significant gap is the monitoring of programs. Program outcome indicators should be compared to SPHERE standards. This should include coverage since this is an important indicator of program access and therefore impact. Coverage is also a good proxy indicator of community involvement in a program. In Niger, where cultural and care practices are a significant causal factor of malnutrition, community engagement in the management and treatment of acute malnutrition is essential.

4. PROGRAMMING

It is beyond the scope of this brief to discuss programming. Suffice to say, that in light of the causal factors of malnutrition there are several key programming areas that should be emphasized. These include:

- Blanket feeding for all children under three for 3 months (June to September) with a take home ration including blended food (such as CSB) and oil.

⁵⁵ WFP. Emergency food security handbook, June 2005.

⁵⁶ MoH Niger and UNICEF. National nutrition protocols (Protocole national de prise en charge de la malnutrition), July 2005.

- Effective community based nutrition programming such as Community Therapeutic Care (CTC) that emphasizes community involvement and good coverage. Health education must include simple practical and feasible messages related to health and hygiene (including the distribution of soap) and nutrition protection and promotion of exclusive breastfeeding for 6 months and appropriate use of available local foods for children.
- Sustained advocacy for, and investments in, the primary health care sector including free ante-natal care (ANC), free treatment for malnourished children, free bed nets, access to and availability of basic drugs (anti-malarial drugs, antibiotics, Vitamin A and ORS) for children under five without payment.
- Support for local production of ready to use therapeutic food with a focus on sustainable distribution mechanisms.
- Increased access to clean portable water including use of simple and effective water purification techniques.
- Increasing household food security through initiatives aimed at women including: community cereal banks managed by women; providing goats to rural mothers; provision of seeds, tools and irrigation to support off-season gardens; and micro-income generating initiatives (and/or direct cash transfers) and provision of loans prior to the lean season.

ANNEX 1: DECISION MAKING FRAMEWORK FOR THE IMPLEMENTATION OF SELECTIVE FEEDING PROGRAMS

Finding	Action required
Food availability at household level <2100kcal/p/day	Unsatisfactory situation: <ul style="list-style-type: none"> Improve general rations until local food availability and access can be made adequate
Malnutrition rate* 15% or more or 10-14% with aggravating factors†	Serious situation: <ul style="list-style-type: none"> General rations (unless situation is limited to vulnerable groups); plus Supplementary feeding generalised for all members of vulnerable groups, especially children and pregnant and lactating women Therapeutic feeding for severely malnourished individuals
Malnutrition rate* 10-14% Or 5-9% with aggravating factors†	Risky situation: <ul style="list-style-type: none"> No general rations; but Supplementary feeding targeted to individuals identified as malnourished in vulnerable groups Therapeutic feeding for severely malnourished individuals
• Malnutrition rate* under 10% with no aggravating factors	Acceptable situation: <ul style="list-style-type: none"> No need for population interventions Attention to malnourished individuals through regular community services

* Malnutrition rate is defined as the percentage of the child population (6 months to 5 years) who are below either the reference median weight for height -2SD or 80% of reference weight-for-height

† Aggravating factors:

- General food ration below mean energy requirement
- Crude mortality rate > 1/10,000/day
- Epidemic of measles or whooping cough

Source: WHO, 2002. The management of nutrition in major emergencies

Problems in using a decision tree framework and thresholds

1. The framework re-enforces the “food first” culture of emergency response. The food based approach remains the dominant humanitarian response despite efforts to broaden the analysis and response to take account of the wider food security, maternal and child care, environment and public health issues.

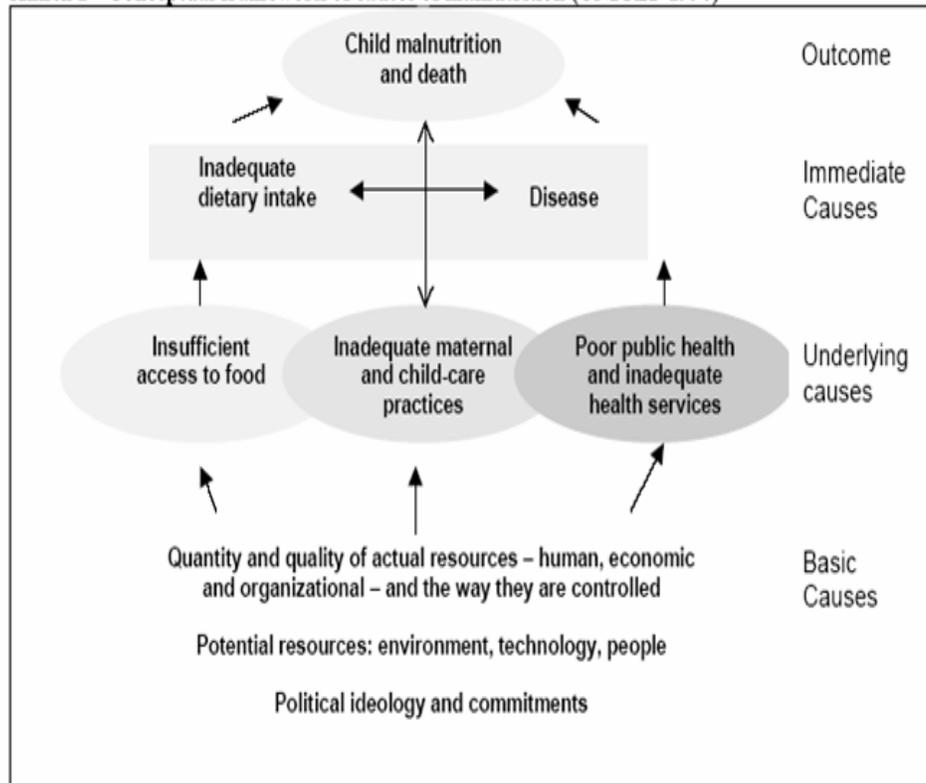
2. The use of two or three ‘aggravating factors’ to interpret the prevalence of malnutrition is not consistent with the use of the conceptual framework which in addition to disease and food intake gives basic and underlying causes which contribute to malnutrition. Maternal and child care as an underlying cause is not covered by many decision making frameworks.

3. There are large global regional differences in levels of acute malnutrition and differences within countries. According to the WHO thresholds above many countries are constantly in a state of crisis.

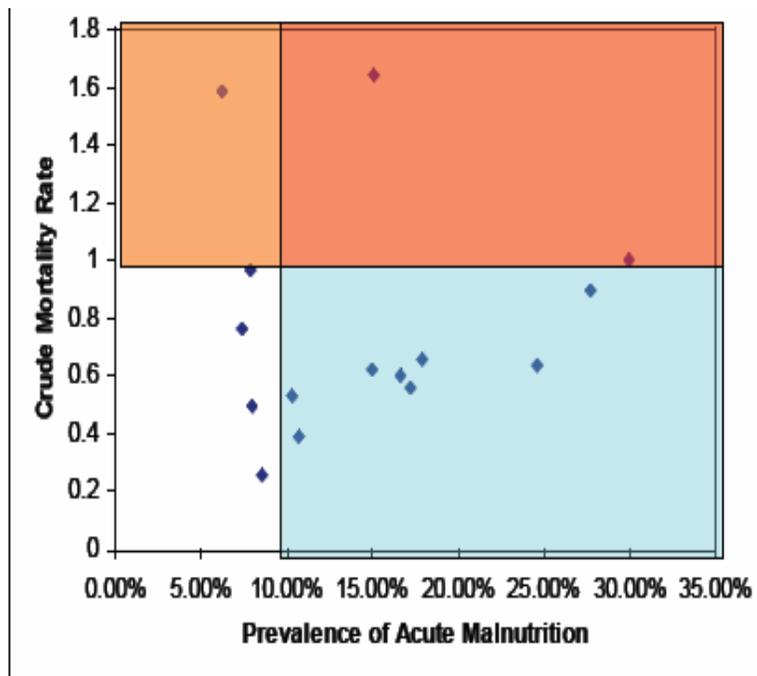
4. Many countries experience normal seasonal changes in nutritional status. Seasonal change can result in a drop in the prevalence of acute malnutrition as large as 20% in the space of a three month period.

ANNEX 2: CONCEPTUAL FRAMEWORK FOR THE CAUSES OF MALNUTRITION

Annex 2 - Conceptual framework of causes of malnutrition (UNICEF 1990)



ANNEX 3: PREVALENCE OF ACUTE MALNUTRITION AND CRUDE MORTALITY RATES FROM 15 SURVEYS IN ETHIOPIA (AUGUST – DECEMBER 2002)



CMR	Prevalence Acute Malnutrition		
	< 10%	>= 10%	Total
<1	4	8	12
>=1	1	2	3
Total	5	10	15

Low malnutrition & high mortality = **'health crises'**
 High malnutrition & low mortality = **'food crises'**
 High mal high mort (emergency threshold) = **'famine that kills'**

Source: Emergency Nutrition Coordination Unit (ENCU): Summarized by WFP VAM

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