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NUTRITION IN EMERGENCY SITUATIONS¹

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1. Objectives of the Paper

The paper will highlight the role of dietitians and nutritionists in emergency situations responding to food insecurity, malnutrition and mortality. The types of responses, the approaches taken and the types of activities necessary will be presented. It is envisaged the specialists in the US military forces would perform their functions as both implementing agents and as coordinators or facilitators of other agencies such as non-governmental organizations (NGOs).

The objective of the paper will be to facilitate the application of fundamental concepts and principles necessary for the **assessment of nutritional problems and the implementation of nutritional programs in emergency situations.**

Three topic areas will be covered with special attention to a) rapid nutrition assessments among populations in emergency situations, b) selective feeding programs for civilian populations, and c) roles of dietitians and/or nutritionists in special circumstances.

The material contained in the paper will be taken from current guidelines from USAID, World Food Program, UNICEF, WHO and selective Non-Governmental Organizations (such as Save the Children Fund and the *Medécins sans Frontières* or *Doctors without Borders*).

2. Introduction

The development of nutrition guidelines for US military forces in response to emergencies other than war is a relatively new concept and practice but not one without precedent. The military are continually in contact with civilian populations whose destiny is often determined by conflict and its resolution. The nutritional well-being of affected populations often drives military action and response. The lack of food, escalating disease and death are both motivations for and the result of military action. The realization that war is both a cause and effect of poverty and food deprivation helps us understand the context in which an emergency response is needed and its likely impact.

The interest in assisting developing countries is long standing policy of the United States and other governments. Disaster preparedness measures and appropriate development policies can play a role in reducing the impact of emergencies. The unfortunate experience is that civil conflict and natural disasters can set the development process back years. What is significant, however, is that appropriate emergency relief together with development assistance can both save lives and enable the rehabilitation and reconstruction to proceed.

Much of what we know about nutrition in emergency situations is drawn from the experiences of the last thirty years in response to slow onset disasters such as drought and protracted conflict. This experience is also driven from the much broader and widely accepted fields of public health and emergency public health. Whereas public health strives to promote health and prevent disease through collective action, emergency public health is the *promotion of health and prevention of disease during emergency situations through the urgent collective efforts of society.*

The focus of an emergency response is on:

- urgency
- scale
- priority

What differentiates an emergency from regular programming? The determination of an emergency situation is often based on a shock that is urgent, of sufficient scale and is a priority for strategic and/or humanitarian reasons. There are many examples where an emergency exists but due to political expediency, it is not declared as such. The opposite situation can occur where donors declare an emergency over the national governments protests. The next section describes different types of emergencies.

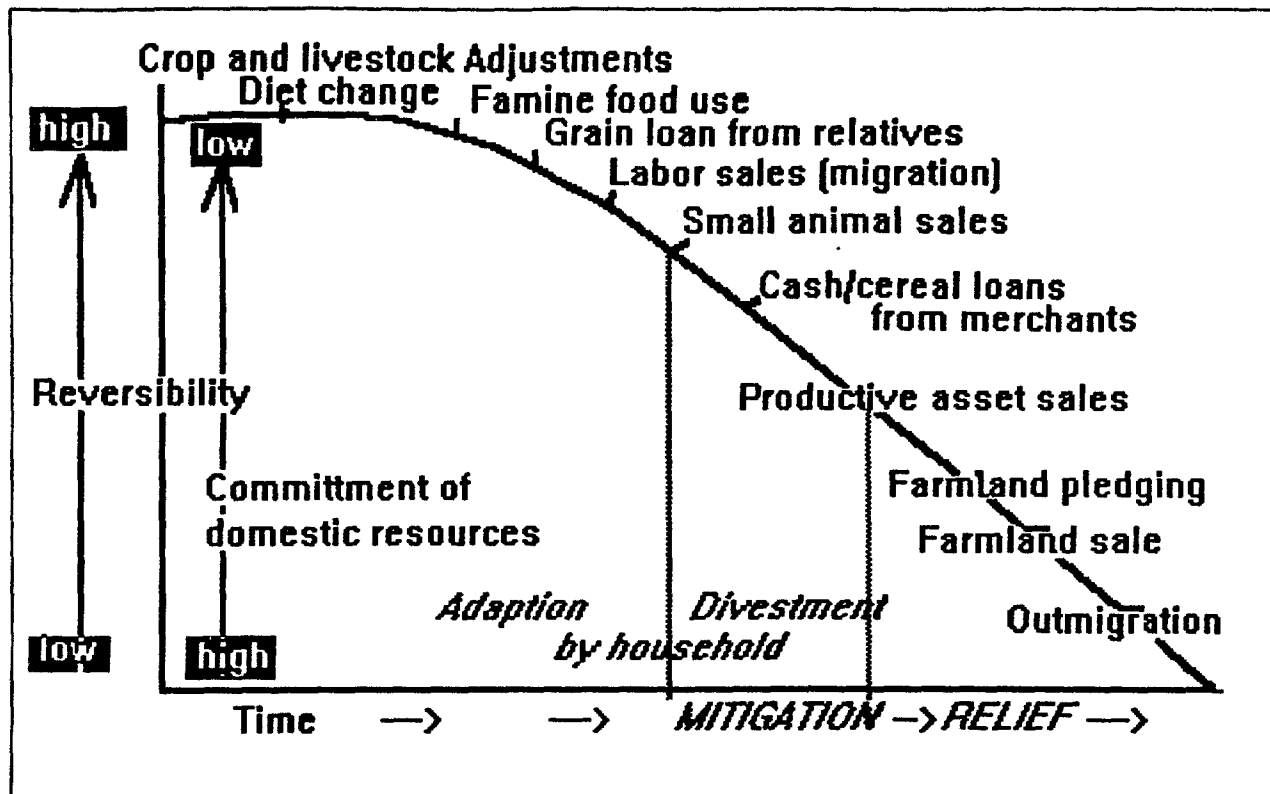
The military has a record of involvement in operations other than war, such as disaster relief and humanitarian assistance. As illustrated in a number of recent disaster situations, the military has provided an essential security element supporting non-governmental organizations (NGOs), the United Nations (UN) and others for much needed and timely support. In addition to security for complex disasters, the military has had a role in direct relief by providing organizational and logistical support to the commencement and on-going efforts of relief organizations.

As the demands on the military increase in disaster situations and the roles are being defined, it is useful to examine what constitutes an emergency and the types of activities undertaken by relief organizations and where the military may or may not have a role. Humanitarian assistance can at times be analogous to battle situations but the complex nature of emergencies makes the types of actions diverse and the assessment of success or failure difficult. The appropriate provision of nutrition and other support in emergency situations can be the difference between success or failure.

3. Characteristics of Emergency Nutrition Situations

The Oxford English Dictionary defines an emergency as a "*...situation, especially of danger or conflict, that arises unexpectedly and requires urgent action...*". The situation is mostly characterized by a worsening food security due to declining access to a livelihood and food with increasing vulnerability to malnutrition and death. The pace of decline can be rapid or move more slowly with households disposing of productive assets, communities being disrupted and the coping mechanisms failing to deal with the many shocks (see Figure 1).

Figure 1: Responses to household food shortages by households and donor response (after CARE USA, University of Arizona, 1991 and Watts, 1983)



While development processes should build on community participation, emergency responses can be detrimental to reestablishing household and community food security especially if they are externally driven. The prevention and mitigation of emergencies will only result from selective inputs to supporting local and regional development. The USAID strategy for assistance links relief to development in the belief that natural, environmental, civil and other shocks will be less frequent and less damaging if the vulnerability of populations is mapped, plans are prepared for responses, and that economic and social development is such the pre-condition status will easily be accomplished.

With the view to supporting local development, the provision of nutrition assistance should be based on:

- Understanding the resource base and socio-economic characteristics of the affected populations;
- The nature of the shock that has caused the emergency;
- The type of emergency that has resulted;
- The effects of the emergencies; and
- The mode of operation of the major intervening bodies including the households, social or community institutions, NGOs, local and regional government, and donors including the UN.

To understand the local characteristics, a situation analysis or assessment is essential to 1) determine the objectives of an intervention, 2) designing the intervention that addresses the basic needs in the short term (referred to as livelihood provisioning by CARE), and 3) self reliance in the long-term (also referred to as livelihood promotion).

The systematic appraisal of a situation is also essential information for the design of pre-emergency actions that reduce the impact of future disasters. Experience has shown that early warning systems, vulnerability mapping and monitoring, emergency preparedness including pre-positioning and other policies effectively reduce the human and economic cost of disasters.

The type of emergency and context will determine the effect, priorities for assistance, scale and urgency of the response. Four types of emergencies have been identified:

1. **Rapid Onset Emergencies** triggered by a natural event such as a flood, earthquake, tidal wave, nuclear disaster, epidemic, high intensity war, an oil spill and a chemical plant explosion.
2. **Slow Onset Emergencies** are also triggered by natural disasters but usually develops more slowly. Examples include a drought or livestock losses from rain failure and lasts several years or growing seasons.
3. **Permanent Emergencies** are the most common and are due to structural problems causing poverty. The response includes transfers of food and income. Examples include the on-going food aid support to Sudan and Ethiopia as well as India where US food assistance is around \$100 million annually.
4. **Complex Political Emergencies** which are a combination of all of the above but with a greater emphasis on civil strife or insecurity that affects both the local population, the displaced, and the groups responding to the emergency such as NGOs, religious organizations, and others. There are many examples of this type of emergency with Somalia, Haiti, Sudan, Bosnia, Angola, Rwanda, and Afghanistan.

One group not included in the above are those groups of people experiencing human rights abuses which may be reflected in an acute emergency (e.g. the Kurds in Iraq) but more typically are over a longer period with small numbers of people that does not rate a large scale response. Examples of the latter include various groups in Southern Sudan, street children in Brazil cities, Native American Indians in some South American countries, and pastoral or nomadic tribes in African countries.

It is clear from the above descriptions that emergencies are not always easily categorized. But as the classification moves from rapid onset to longer-term emergencies, such as war and complex emergencies, the responses are more difficult and the involvement of local groups in responding to the crisis, more limited. In addition, the more complex and long-term the crisis, the greater is the need for political and military solutions or reaction (see Figure 2).

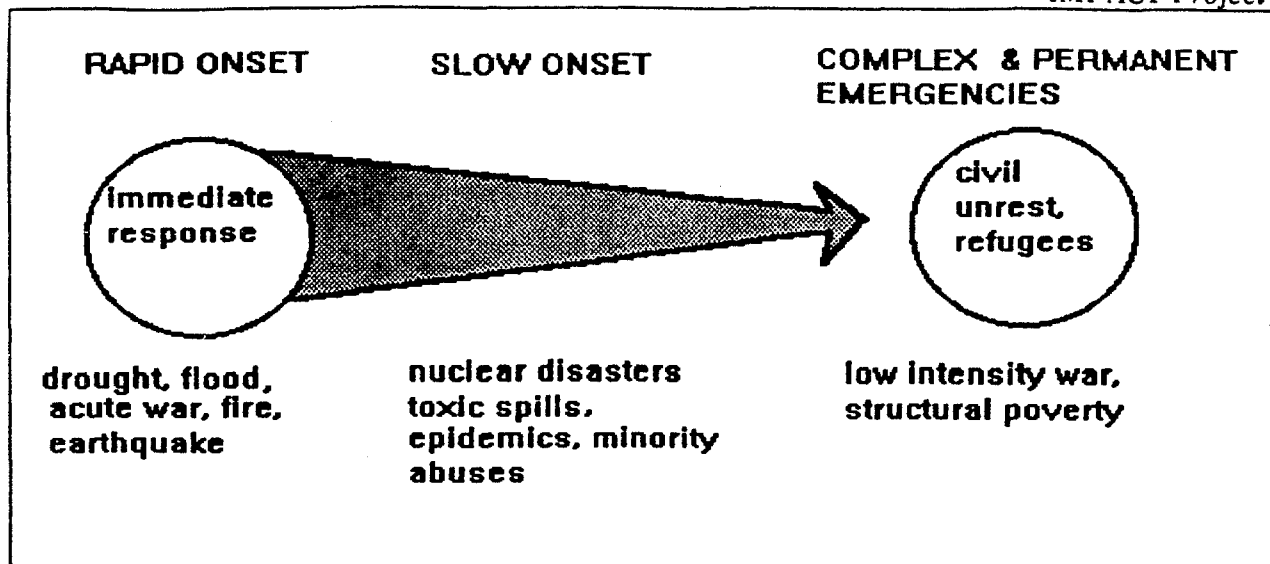


Figure 2: Types of emergencies

The typical humanitarian emergency operation differs from a traditional military operation in its emphasis on a transition to local or internationally supported relief effort³. In practice, however, the distinction between a relief effort and military execution is not always clear cut. Military operational goals and objectives may be established to hand over to a neutral group like the UN whereas most emergency efforts often have relief and military activities occurring simultaneously.

As noted above, emergency responses must simultaneously address the short term needs of the affected population as well as their long-term needs for self reliance. A good needs assessment will identify the characteristics of the target population and point to the types of interventions required. Refugee camps or internally displaced will require different responses that populations living in their home areas. Table 1 summarizes types of actions and mode of operations for the four types of emergencies.

Responsiveness in emergencies require rapid and focused responses to save lives and support social structures as the need may be massive and acute and considerations of costs may be secondary. Responsibility for supporting local, political and social structures may fall on external groups. Sustainability of actions and local capacity building may be secondary to the need for short-term response.

The health and well-being of a country or region is fundamentally the sovereign responsibility of that country. It is a common feature that public health is a public good and that access to health care is viewed as a fundamental human right.

³ Adapted from: Burkle FM, McGrady KAW, Newett SL. **Complex, Humanitarian Emergencies: III. Measures of effectiveness.** Prehospital and Disaster Medicine. Vol. 10, No. 1. January-March 1995.

Table 1: Characteristics, responses and modes of response for four types of emergencies (Adapted from Davis, A. *What is emergency public health?* MSF-Holland, Mimeo draft, March 1995)

Type of emergency	Characteristics	Action	Intervention mode	Organizational capacities
RAPID ONSET e.g. flood, acute warfare, nuclear disaster, epidemic	Predictable in some cases; Can affect stable populations and displaced, mass temporary displacement; Destruction of public utilities and infrastructure;	Meeting basic needs (food, water, shelter, health); Reduce mortality and morbidity; Control health problems; Best by local and government but may need military	Rapid assessment of acute situation; Prioritization of health and nutrition needs; Definition of options for intervention; Support to health services; Establish best possible surveillance system to monitor progress	Seek all available information; Get access to NGOs, local structures, and government sources; Be impartial and identify and work with local experienced staff where possible; Provide logistical capacity, communications, and simple standardized epidemiological procedures; Decentralize power; Provide flexible and short term planning perspective
SLOW ONSET, e.g. drought	Effect is widespread Effect is variable depending on vulnerability; Leads to disposal of assets; Migrations; Increased nutrition and disease burdens on humans and livestock;	Meeting basic needs (food, water, shelter and health); Reduce impact on production and income losses – improve food security; Reestablish livelihood systems including employment based safety nets;	Assessment and response to declining resource base and food insecurity; Use rapid assessment approaches; Prioritize health and nutrition needs, Define options; Establish surveillance to establish needs; Carry out cross-sectional surveys to establish needs;	Seek all available information; Get access to NGOs, local structures, and government sources; Be impartial and identify and work with local experienced staff where possible; Provide logistical capacity, communications, and simple standardized epidemiological procedures; Decentralize power
PERMANENT EMERGENCIES, e.g. Food transfer programs	Structural poverty characterized by hunger, environmental stress and social unrest; Migration to urban areas; High levels of female headed households; Declining food production and high fertility	Basic needs (food, water, shelter, and health); Build livelihood systems including employment based safety nets;	Assessment and response to declining resource base and food insecurity; Use rapid assessment approaches; Prioritize health and nutrition needs, Define options; Establish surveillance ; Carry out cross-sectional surveys to establish need	Seek all available information; Get access to NGOs, local structures, and government sources; Be impartial and identify and work with local experienced staff where possible; Provide logistical capacity, communications, and simple standardized epidemiological procedures; Decentralize power
COMPLEX EMERGENCIES, e.g. chronic or low intensity war	Affects large populations over large areas; Internally displaced and Refugees;	Security; Basic needs (food, water, shelter, and health); Reestablish livelihood systems including employment based safety nets; Human capital development; Community capacity building; Conflict mediation	Assessment of the political and security situation; Define responses; Prioritize health and nutrition responses; Support local health facilities; Carry out surveillance activities of health and nutrition situation; Undertake cross-sectional surveys;	Seek all available information; Get access to NGOs, local structures, and government sources; Be impartial and identify and work with local experienced staff where possible; Provide logistical capacity, communications, and simple standardized epidemiological procedures; Decentralize power

4. The Role of Emergency Nutrition in the Relief to Development Continuum

Hunger remains persistent in the world despite efforts at the international, national and local levels to address the problem. Governments, multilaterals groups, research organizations and others have accomplished much but many complex issues remain such as the level and kinds of actions necessary to increase food production to the magnitude and types of programs needed to improve food consumption and nutrition. Such technical and logistical/programmatic considerations must be seen in the context of a larger social, political and economic environment.

What are some conceptual issues for the determinants of hunger?

Common and dramatic terms such as hunger and famine are easily understood. Acute and chronic forms of malnutrition resulting from endemic deprivation are less clear and is largely unseen but affects over 1 billion people. Over half of the world's poor live in South Asia and another 20 percent can be found in Africa. Consider the three basic elements:

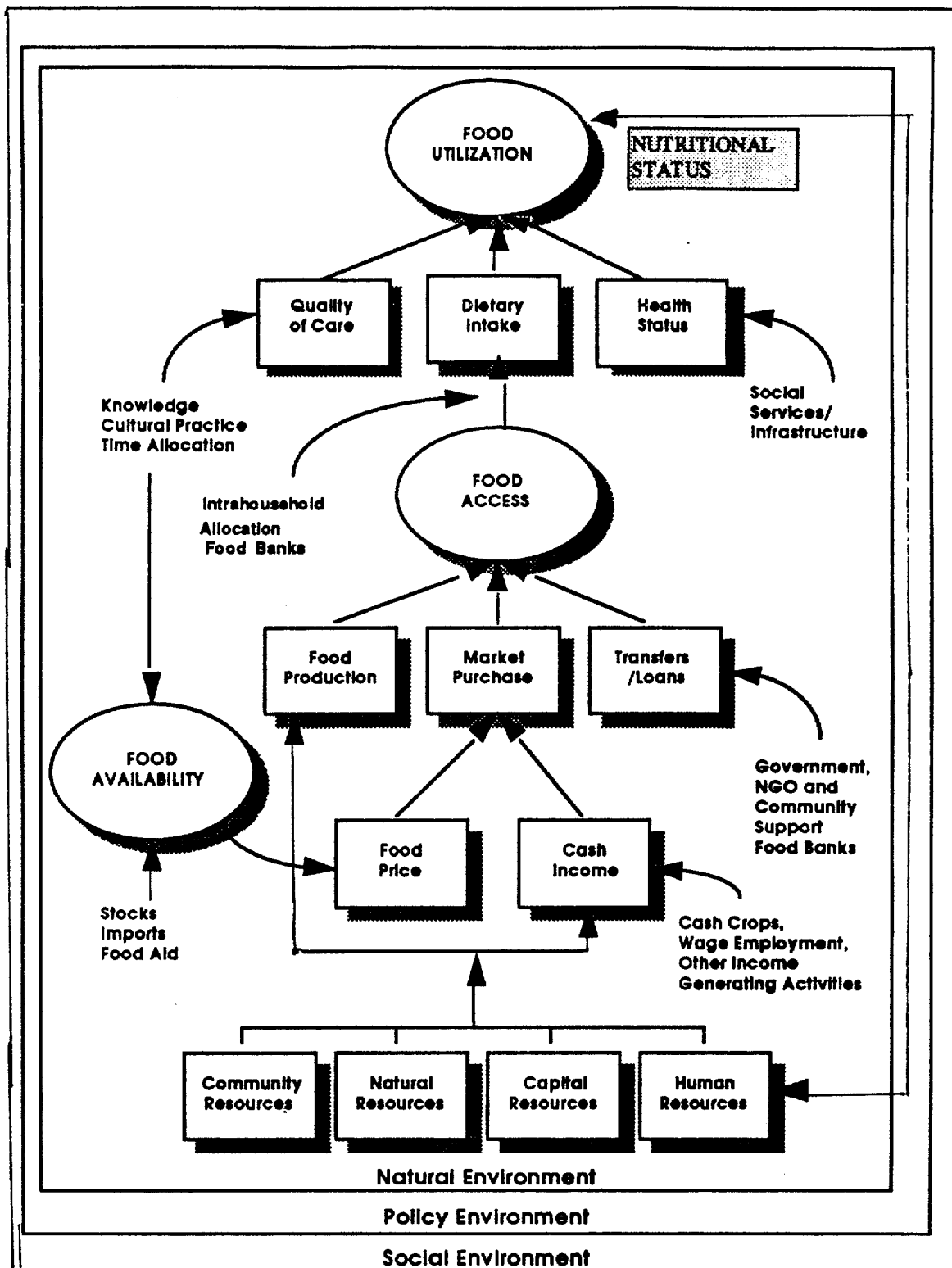
- Starvation
- Chronic hunger or undernutrition related largely to insufficient calories or energy
- Other forms of malnutrition related not only to energy but to other nutrients often in combination with diseases, parasitic infections and lack of knowledge.

How do these concepts compare with the definition of food security as "*...When all people at all times have both physical and economic access to sufficient food to meet their dietary needs for a productive and healthy life.*"? While other definitions exist, they each embody the critical factors or determinants of food, health, and economic resources (Figure 3). The definition of food security can be better understood in terms of the inter-relationships and linkages among the many determinants of nutritional status.

Figure 3: USAID's Food Security definitions

FOOD SECURITY <i>When all people at all times have both physical and economic access to sufficient food to meet their dietary needs for a productive and healthy life</i>		
AVAILABILITY	ACCESS	UTILIZATION
Sufficient quantities of appropriate, necessary types of food from domestic production, commercial imports, or donors are consistently available to the individuals or are in reasonable proximity to them or are within reach	Individuals have adequate incomes or other resources to purchase or barter to obtain levels of appropriate foods needed to maintain consumption of an adequate diet and nutritional level	Food is properly used, proper food processing and storage, adequate knowledge and application of nutrition and child care, and adequate health and sanitation services exist

Figure 4: The causes of malnutrition and food insecurity



What determines nutritional status?

A number of representations of the determinants of nutritional status exist, including UNICEF. The diagram in Figure 4 is a variation on the UNICEF framework to show where food security fits in. UNICEF describes the following and the causes of malnutrition.

- ◆ **basic causes:** potential resources, economic structure, political and ideological structure, and the ways in which those structures influence the control and management of resources;
- ◆ **underlying causes:** food insecurity, inadequate care giving, and inadequate prevention and control of diseases;
- ◆ **immediate causes:** inadequate dietary intake (protein, calories, micronutrients) and disease; and
- ◆ **symptoms and signs:** nutrition related diseases and early death or disability.

Despite the many different models to describe nutrition and survival, one thing is common -- hunger and malnutrition result from multiple factors and food security is a function of availability, access, and utilization while nutrition is a function of food security, health and care.

Why focus on poverty alleviation?

Poverty is the root cause of food insecurity. Transitory economic stress and chronic lack of purchasing power restricts access to food for a healthy and productive life and limits access to health services and hygiene.

There are three basic groups of people categorized by the ability to take advantage of the development process that is useful to consider when thinking of policies and programs to address food insecurity and hunger.

1. The potentially productive and mostly subsistent chronically malnourished landless, rural poor, urban under-employed who typically buy or barter more food than they produce and are continually food insecure.
2. The unemployed in both rural but mostly urban settings who fail to meet energy needs and are susceptible to illnesses which place additional burden on the potential for earning income.
3. The chronically ill and disadvantaged whose ability to work is severely restricted.

The three groups suggest the a response to economic development with the first group being most able to take advantage of incentives. The first group is able to participate while the unemployed are often at the fringe, impeded by poor health, nutrition and a poor environment. The types of economic development at the national level will take longer to impact on the second

group. The linkage between improved food production, for example, will not readily translate into improved nutritional status for the second group. The last group represents the need for direct welfare support and represent the greatest challenge.

How many people are hungry?

The determinants of hunger differ from country and within a country. Yet, the numbers indicate substantial numbers throughout the world. We know that the hungry concentrate among the poor and in certain regions of the world. Various poverty studies show that around 40 percent of the population of Africa is below the a level of income to meet minimum dietary needs. In South Asia, approximately 25 percent and 16 percent in South East Asia are not getting a minimum diet (ACC/SCN, 1993).

Estimates vary but recent data suggests that 800 million were undernourished including over 400 million women of child bearing age. Anemia is estimated to affect 2.1 billion people with 75 percent of these being pregnant women. The trend over the past thirty years is for slight improvements in the rates of malnutrition but the absolute numbers of malnourished continue to climb. The World Bank estimated that in 1990, 1,133 million people were below a poverty line of \$1.00 per day per person.

Hidden hunger is also manifest in the widespread occurrence of iron, folate, iodine and vitamin A deficiencies, just to name a few. These numbers of affected exceed those of the energy deficient.

Why are people hungry?

The reasons for hunger vary with location and context but poverty remains the main cause of hunger combined with this are policy failures and disasters. The direct causes are:

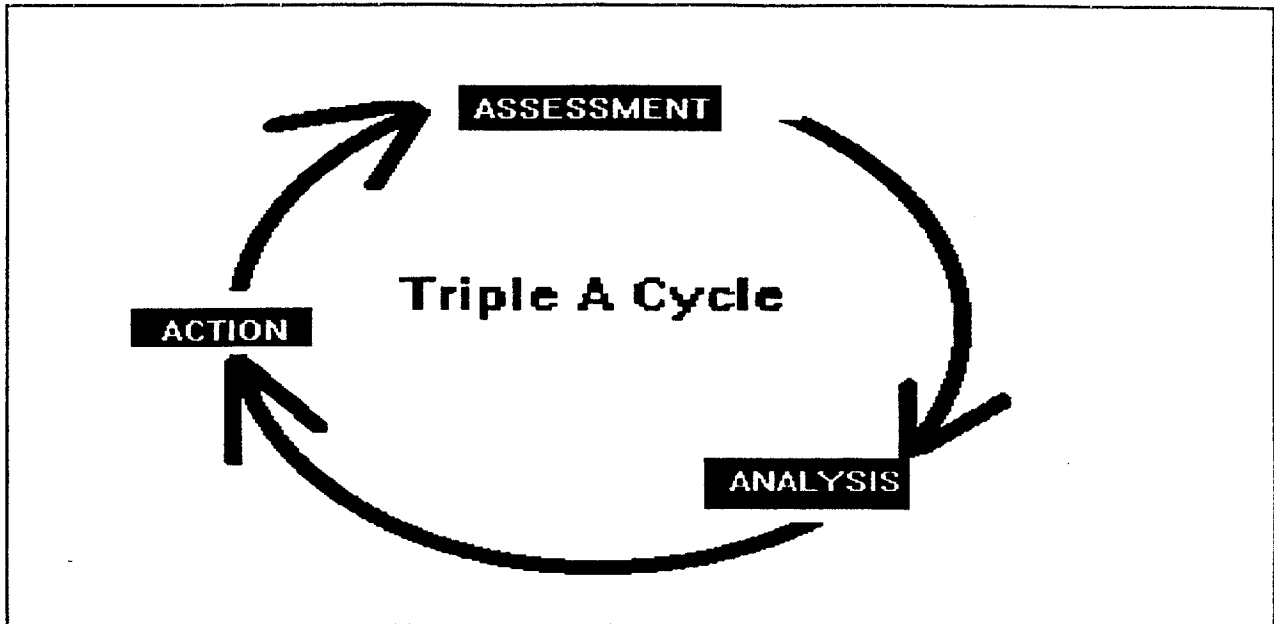
1. lack of assets and resources to produce enough food;
2. lack of income to buy enough food; and
3. lack of specific nutrients

5. Assessing the Situation

5.1 Needs assessment

The first step in an emergency situation is to perform a needs assessment applying the approach of the triple A: **Assessment, Analysis and Action**.

Figure 5: The Triple A cycle



An assessment of the situation will require information on:

General Information

- origin of the problem, e.g. harvest failure;
- the number, ethnicity, characteristics (displaced, etc.), age and sex composition of the affected population;
- geographical coverage, camps versus displaced;
- storage, fuel, cooking and milling facilities;
- weather conditions;
- security conditions;
- available logistical, organizational and implementation resources;
- national and local strategies and sovereignty issues;
- local agricultural and economic cycles;
- shelter and availability of facilities

Basic Health and Nutrition Information

- estimate of nutritional levels;
- culturally acceptable foods including staples, weaning foods;
- activity levels;
- availability and type of food consumed, including program food (in kcals/day);
- types and prevalence of infectious diseases such as diarrhea and measles;
- crude mortality rates;
- water availability, quality and quantity.

5.2 How to get the information

A. Existing Sources

A large amount of information can be found in existing reports by donors, NGOs, governments and others. If possible, visit the capital city or the provincial capital and collect information on relevant health, population, food and agricultural characteristics of the area. Often census data will tell you about the age and sex distribution of the population and will enable you to determine approximate numbers of the affected population. Other sources include the Demographic and Health Surveys (DHS) collected by USAID in most countries, the Living Standards Measurement Surveys (LSMS) collected by the World Bank, and the information contained in various reports by UNICEF and the World Bank. More recently, the World Wide Web and other Internet bulletin boards are providing rapid access to information, for example, the Rwanda Net sponsored by the OFDA of USAID. An additional advantage of contacting national and donor institutions for information is that it establishes a basis for joint programming and sharing.

A recent information source is the **Emergency Nutrition Network (ENN)** from the Department of Community Health & General Practice, Trinity College, 199 Pearse Street, Dublin 2, Ireland. Telephone: 353 1 6082676 / 6081087; Fax 353 1 6705384; Email foreilly@tcd.ie. The ENN aims to improve the effectiveness of emergency food and nutrition interventions by,

- providing a forum for the exchange of field level experiences between staff working in the food and nutrition sector in emergencies;
- strengthening institutional memory amongst humanitarian aid agencies working in this sector;
- helping field staff keep abreast of current research and evaluation findings relevant to their work;
- better informing academics and researchers of current field level experiences, priorities and constraints thereby leading to more appropriate applied research agendas

B. Visits to the Field

Both formal and informal approaches at the site can yield a large amount of information as well as establish links to the affected communities. Work with the local authorities to establish the situation including the urgency, scale and priority of the problem. In addition to the political and civil leaders, opening up communication with local workers, such as nurses, agricultural extensions agents, church workers, school teachers, will provide valuable information as well as access to a potentially important group of specialists for program implementation and withdrawal.

Talk with the affected people by asking structured questions as to who are affected, where they are located and the types and timing for the needed response. Experience in many emergencies strongly suggests that interaction with the beneficiaries can be efficient and empowering.

Observe and measure the characteristics noted above. Mapping, sample surveys and interviewing the population to gauge the extent and type of problems facing the population is extremely useful and, if done correctly, a cost effective first step (see Annex 1-3 of the MSF Nutrition Guidelines).

5.3 The Measurement of Nutrition

The measurement of nutritional status is undertaken for several reasons: baseline surveys for monitoring and evaluation, screening, targeting and for growth monitoring and promotion. **In emergency situations, the reliance on anthropometric surveys is not essential to decisions about program implementation and closure.** But the use of anthropometry can be extremely useful if time and resources are available.

Use of anthropometric survey results must occur in tandem with other information to help interpret the findings. Interpreted alone, anthropometric results can be misleading. For example, infection may cause high rates of wasting malnutrition in situations where food may be readily available. An opposite situation may occur where high mortality occurs or out migration reduces high levels of malnutrition and yet there may be a dramatic need for food.

The World Wide Web on the Internet can be helpful in acquiring information on the use of anthropometry. From you web browser enter: <http://www.odc.com/anthro/tutorial>

The contents of the home page will include the following:

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Problems of bias

Anthropometric surveys can be expensive and time consuming depending on the situation. Camps provide the easiest opportunity for sampling and collection of data. Depending on the need and the available resources, nutritional status assessments can be useful especially if collected with other information on consumption, infection, etc. to guide interventions. Measurements of wasting and growth faltering in young children, especially under the age of two years, can be especially valuable in targeting and for therapeutic feeding programs.

When to conduct a survey

Malnutrition rates can be useful for:

- establishing the degree of the emergency;
- planning complementary interventions;
- a baseline for the monitoring of the situation over time; and
- advocacy or communicating the situation to a wider audience.

Questions as to the resources available, the feasibility of conducting the survey including repeat surveys (access, security, trained personnel, time, equipment), and alternative information sources should be answered before committing to a survey.

What to measure

Commonly used measures of nutrition include height, weight, and arm circumference (see Annex 2 and 3 and pages 41-68 of the MSF Nutrition Guidelines). With a knowledge of age and sex, it is possible to standardize the measure and report the information as an indicator such as:

- **Height for age** or length for age for children 6-24 months (H/A -- stunting) which reflects **chronic malnutrition**;
- **Weight for age** (W/A -- **undernutrition**) which is a composite indicator of both chronic and acute malnutrition depending on the age of the child and should be reported by age category;
- **Weight for height** (W/H -- wasting) which represents **acute malnutrition**;

- **Mid-Upper Arm Circumference (MUAC)** is a rapid short term indicator of wasting but can be difficult to standardize the measurement;
- **Body mass index (BMI -- wasting) for adults and adolescents** reflecting acute or short term malnutrition (weight in kilograms divided by height in meters squared).

Table 2: The cutoff points most commonly used to define **acute malnutrition** for different indicators standardized by the NCHS/WHO reference

Nutritional Status	W/H Z-score	W/H % median	MUAC
MODERATE ACUTE MALNUTRITION	between -3 and -2 standard deviations	between 70% of median and less than 80%	between 110 mm and less than 125 mm
SEVERE ACUTE MALNUTRITION	less than -3 standard deviations or edema	less than 70% of median or edema	less than 110 mm or edema
GLOBAL ACUTE MALNUTRITION	less than -2 standard deviations or edema	less than 80% of median or edema	less than 125 mm or edema

In emergency situations, **weight for height in children under five or under two is the preferred indicator**. Weight for height is preferred over height for age and weight for age as it:

- reflects the current situation;
- is sensitive to changes both positive and negative;
- is closely associated with risk of death;
- relatively age independent or does not have to be standardized by the age of the child;
- it can be used to monitor the situation in the population.

If weight-for-height is difficult to collect, especially the measurement of height, an alternative can be 1) weight loss referred to as **growth faltering**, 2) MUAC and 3) weight-for-age in children less than two years of age but this requires a knowledge of the child's age. While MUAC is relatively age independent, it is subject to errors of measurement and should only be used in situations for screening where the time is limited and the training can ensure standardized measurement.

The commonly used cutoffs and representations (as Z-scores or percent of median) are presented in Table 2. Notice that the presence of edema, an indicator of kwashiorkor, is considered to be serious malnutrition irrespective of the child's weight-for-height and children with edema are automatically included in the malnutrition totals.

The above measures reflect growth failure and weight loss but do not represent the widespread impact of **micronutrient deficiencies**. Specific symptoms from micronutrient

deficiencies include night blindness and corneal scarring for Vitamin A and scurvy for Vitamin C. The level of skill required for most clinical determination of micronutrient deficiencies excludes it from most emergency settings. Populations in camps, however, can be monitored for deficiency signs and rapid relatively low cost equipment is available for hemoglobin assessments. Comprehensive blood spot analysis is under development and will expand the assessment and intervention options. Given the relatively low cost of micronutrient interventions in situations like camps, the argument for supplementation or fortification of foodstuffs is compelling. Any indication of a sub-clinical micronutrient deficiency should motivate a supplementation program.

Other information useful to understanding the context

Depending on the situation, anthropometric survey results should be interpreted based on the migration, mortality rates, sex differentials, infection levels, food availability both as program and local food, and food accessibility (refer to Figure 3 in MSF Guidelines on page 21).

6. Interventions: Ensuring Adequate General Food Availability and Accessibility

Following the assessment of needs and the analysis of the information, the decision to intervene raises a number of important questions as to what the intervention should look like. The first pragmatic step is to save lives (see Box 1). For displaced populations it is essential that potable water followed closely by general food needs is then supported by infection control measures (e.g. immunization) and then sanitation. The provision of shelter and essential non-food items such as water containers, blankets, and fuel sources are also priorities. In the event that starvation is apparent, therapeutic feeding facilities may need to be established. Supplementary feeding of affected populations would only be established following the above activities. Of course, given the urgency, scale and priority given to emergencies, the orderly ranking of actions rarely happens.

What are the policy and program options?

The constraints facing the poor to improve their household food security and nutrition are many. The range of options available to improve access to food and income are known but carry with them the burden of a number of negative factors or trade-off which tarnish an otherwise sound concept. It is our belief that a combination of instruments are necessary to meet both short and long term benefits. The choice of the programs should be based on:

1. what is achievable;
2. cost effective; and
3. sustainable

Box 1: Actions for the Prevention of Excess Mortality and Malnutrition

Lessons learned from the causes of mortality in emergencies and evaluations of disaster assistance programs have shown that emergency situations do not demand extraordinary or unique health services. They require prompt and well organized basic health and nutrition action. The following specific interventions can save lives:

- provide basic food with adequate energy, proteins and essential micronutrients;
- provide adequate clean water and good sanitation;
- prevent specific communicable diseases such as measles through immunization;
- establish an essential drug list and standardized treatment protocols to ensure effective treatment of common illnesses: diarrhea, cholera, respiratory infection, malaria, measles;
- establish a health and nutritional surveillance system to track mortality, nutrition and illness;
- establish an effective outreach program to provide adequate access to health services.
- ensure adequate humanitarian space for groups to function and coordination;
- ensure security of local and implementing agencies

Food aid provided during emergencies and in regular development assistance can improve nutrition and household food security by:

1. **Improved Utilization** -- direct consumption in addition to food already consumed at home (e.g. feeding of pregnant, lactating women, and malnourished children, including disaster relief and refugee situations);
2. **Indirect or Complimentary Inputs to Improve Utilization** -- where the food acts as a magnet or inducement to encourage use of related services that can directly improve nutrition such as immunization, ante-natal care, micronutrient supplementation through health services, education; and
3. **Improved Access** -- indirect consumption by either improving access to other food and inputs that improve nutrition by providing supplementary food or cash.

The most significant shift in food aid being seen as a commodity mostly derived from donor surpluses is the following:

1. Food aid can be monetized in the recipient country and provide much needed local currency for development support;
2. Surpluses of the past have been reduced and with the predictions that GATT will eliminate or reduce surpluses, donors are now viewing food aid as an equivalent resource with foreign assistance funds; and

3. Donors are concerned with demonstrating impact or a nutrition or food security effect of their support and are expecting implementing or Cooperating Sponsors (e.g. NGOs) to establish monitoring and evaluation systems consistent with the expectation that food security will be improved.

The most significant example of this shift from large quantities of coarse grains is vegetable oil which is usually commercially available in most recipient countries, often locally produced, and it is the most welcomed commodity to monetize. The reason is the high value of the commodity, its wide uses, high demand, and relatively ease of transportation.

What is the role of food aid in protecting refugees' nutrition?

In 1993, the world-wide estimates of the number of refugees was around 16.4 million and at least another 25 million were internally displaced. Around 40 per cent of the refugees were living in Africa. The displaced and refugee populations experience high rates of malnutrition and mortality with estimates from Somalia placing the risk of mortality at 80 times more than under pre-emergency situations. The ACC/SCN reports (Refugee Nutrition Information System) that over four weeks in July/August 1994, ten percent of the fleeing Rwandan refugees died, or approximately 50,000. In addition to starvation conditions there exists micronutrient deficiencies, disease outbreaks, either related to or caused by malnutrition.

Given the high rates of acute and chronic malnutrition (including micronutrients), the special needs of refugee populations due to conflict, lack of access to traditional coping mechanisms, the high burden of disease and threats to livelihood, what can food aid expect to accomplish?

The answer to this question represents the head-on collision of nutritional science and politics. There is an on-going and much needed debate about what constitutes a ration; what should it look like with respect to nutrient composition, palatability, ease of transport, storage, preparations and distribution. Targeting is hotly debated. As technical people, our responsibility is to delve into these issues and come up with recommendations to guide policy and practice. At the same time, however, political expediency will continue to drive the classification of emergencies and their handling and resolution.

Unlike food security and poverty alleviation, disaster relief requires immediate action usually by the establishment of feeding centers or distribution points without a great deal of effort directed to sustainable programs that improve the utilization and access to food. At the policy level, research from IFPRI and others, has identified the need to deal with conflict driven famines and to overcome national ambivalence or manipulation. Slow onset disasters require a better response though better collaboration among agencies and integration of country strategies with donor assistance. Better preparation for the mitigation and response to drought includes sound information systems that monitor and predict problems by geographical and functional areas.

What agencies are active in food aid and what does USAID's program look like?

The World Food Program (WFP) is the largest multilateral donor and USAID is the largest bilateral donor. The U.S. Government provides food out of the Public Law 480 (referred to as P.L.480). P.L. 480 consists of three programs referred to as Title I, II and III.

While Title III includes macro economic and economic development projects to address food security, the Title II program more directly influences household food security and will be developed here. In general, however, the majority of the P.L.480 program is used to achieve macroeconomic stabilization, economic policy reform, market development and US foreign policy objectives. Given this reality, how can those programs that influence food security be designed and improved upon?

As can be seen from the breakdown of program type in Table 4, Africa receives the most Title II commodities in terms of dollar value but that the emergency program uses up 42.5 percent of those resources globally. The emergency program in 1993 used 66.3 percent of Africa's Title II resources and the levels of emergency support has increased over the years. The MCH and Food for Work programs were the second most common programs.

Table 5 describes the types of commodities, their amounts and dollar values for the 1993 Title II program. The data shows that while oil accounts for only 8.7%, it uses 24.7% of the dollar value for Title II. The high cost of oil is in contrast to the larger quantities of coarse grains but overall lower cost. For programs that improve household food security and nutrition, it is important to know the contribution of the different types of commodities and what their impact would be if used in MCH, FFW or humanitarian programs.

The focus on micronutrient malnutrition in recent years has provided a much needed impetus for viewing food aid as a vehicle for micronutrient supplementation. Where refugee camps have recently been the site of overt deficiencies, such as scurvy and pellagra, the role of food aid has not been seen as a curative or even preventative. The types of commodities and their storage and preparation difficulties makes it difficult for refugees to minimize risk.

USAID and USDA have routinely fortified or enriched Title II foods since 1966 to prevent micronutrient deficiencies. Using blends (mostly corn and wheat soy blends) fortified with vitamin and mineral premixes (A, B-12, C, D, E, folic acid, niacin, pantothenic acid, pyridoxine, riboflavin, thiamin, calcium, iodine, iron, phosphorous, sodium, and zinc) and processed cereals and soy-fortified cereals enriched with B vitamins, Vitamin A, iron and calcium, the impact of these commodities is unclear. Wheat flour is fortified with vitamin A and calcium while oil, pulses, rice and whole grains are not fortified. The total value of the ingredients was estimated at \$15 million in 1993 with costs of approximately 3 to 5 percent of the value of the product.

Table 3: Description of P.L.480 food aid programs based on 1990 authorizing legislation

<p>TITLE I: Government to government sales of agricultural commodities to developing countries for dollars on credit terms (or for local currencies). Characteristics include: long-term concessional commodity sales program, low interest credit, repayment periods of up to 30 years, and a grace period of up to seven years. Criteria for selection include countries with food shortages, if the country is taking measures to improve food security and promoting economic development and if the country is a potential market for US agricultural commodities. Proceeds from sale of commodities by recipient governments have to contribute to mutually agreed development objectives. In FY94, Title I had over \$200 million and 1 million tonnes of food. The program is managed by US Dept. of Agriculture. Title I resources are also used for Food for Progress activities but for no more than 500,000 MT per year (and up to \$30 million for transport and delivery). For countries that have made commitments to introduce or expand free enterprise elements in their agricultural economies. Commodities include corn, vegetable oil, wheat, rice, cotton, and soybeans.</p>
<p>TITLE II: Supports both emergency and sustainable development agricultural commodity-assisted program implemented by cooperative development organizations, Private Voluntary Organizations (PVOs) and international relief organizations, including the WFP. Distributed directly to beneficiaries during emergency and disaster assistance and often in combination with other health, education, and economic development elements. Title II food can be monetized (17% in FY94) to provide local currencies for logistic and technical support to programs including support for improved household food security by improved food production. Food for Work is a common Title II program along with targeted child and women feeding, school feeding, MCH activities and emergency feeding programs. Title II accounted for over \$850 million in FY94 and close to 2 million tonnes, the majority of which is for emergency programs (55%). Approximately 60% of the tonnage was received by PVOs for distribution in 38 countries. Commodities include corn, wheat vegetable oil, corn soy blend, wheat soy blend, bulgar wheat, rice, beans, lentils, peas, and sorghum. Commodity mix is based on U.S. agricultural production.</p>
<p>TITLE III: A multi-year all-grant mechanism for food assistance to use food aid to identify key policy constraints that prevent food security and then to propose and negotiate policy conditionalities designed to remove that constraint. Impediments to domestic food production (e.g. land tenure), domestic marketing systems, export constraints, and budgetary and related policies are the types of programs to be targeted by Title III. Reform agendas are often integrated with sectoral and macroeconomic policy activities supported by dollar resources. Title III accounted for over \$200 million in FY94 and in excess of 1 million metric tons of food. Commodities include wheat, sorghum, rice, corn and tallow.</p>

Table 4: Distribution of P.L.480 commodities by region and by program type in 1993 (by percentage of total value)

REGION	MCH	SF	FFW	EMERG- ENCY	MONET- IZED	OTHER	TOTAL	TOTAL Ml\$
Africa	6.9	6.5	4.4	66.3	11.6	4.3	100	193.0
Asia	57.0	7.7	17.6	11.7	1.0	5.0	100	139.0
Latin America	22.4	9.8	27.7	9.4	17.7	19.4	100	107.0
Near East	15.9	12.3	2.3	68.3	0.0	2.2	100	15.3
Europe	0	0	0	96.5	3.5	0	100	54.8
Total	23.6	7.0	12.5	42.5	8.7	5.7	100	510.8

MCH - Maternal and Child Health, SF - Supplementary feeding, FFW - Food for work, Other - other child and regular feeding. Adapted from page 6: Anon. *Micronutrient fortification and enrichment of P.L.480 Title II commodities: Recommendations for improvement*. OMNI Project, JSI, Washington DC Technical Review Paper, November, 1994

Table 5: Distribution of P.L.480 Title II commodities by type of commodity in 1993 (by percentage of total quantity and total value)

Commodity	% of Total Quantity	% of Total Value
Blends	15.8	16.2
Soy-fortified cereals	4.5	3.9
Vegetable Oil	8.7	24.7
Processed grains	32.2	29.8
Whole grains	32.8	15.6
Other	6.5	9.7
Total	1,996,400 MT	\$510,800,000

Adapted from page 7: Anon. *Micronutrient fortification and enrichment of PL480 Title II commodities: Recommendations for improvement*. OMNI Project, JSI, Washington DC Technical Review Paper, November, 1994

What is the contribution of these micronutrients from food aid to the diet of a young child or pregnant woman who is eating a cereal based diet (e.g. maize or rice in Africa) where the food aid supplement accounts for 25% of her total energy requirement?

For a supplement with vegetable oil and corn-soy-blend, the OMNI project estimated that most vitamin and mineral requirements would be met with few exceptions. Deficiencies in iron, riboflavin and zinc would occur.

In situations where the Title II food aid supplies all the energy needed for refugees and the displaced, the Title II ration was deficient in several vitamins and minerals; notably, calcium, iron, vitamin C, vitamin B-12 and riboflavin.

Any analysis of adequacy of these commodities to prevent micronutrient deficiency assumes that account is taken of storage and preparation losses and the conditions of the recipients has not elevated or changed the requirements.

It should be stressed that in most situations of food aid provisioning, breast feeding should be encouraged at all times even in the situation where the mother is hungry and the child is ill. There are some special circumstances where breast milk substitutes are necessary but the importance of promoting the breastfeeding of the child cannot be overstated.

In contrast to food aid used for development assistance, in **emergency situations, three broad types of provisioning can take place:**

1. **Therapeutic Feeding Program (TFP)** is a complete regimen and targeted to provide a carefully balanced and intensively managed dietary regimen accompanied by a medical intervention to rehabilitate a severely malnourished child;

2. **Supplementary Feeding Program (SFP)** aims to add additional foods and nutrients to an existing diet. The program may be non-targeted or targeted to vulnerable and special groups such as women and children or workers; and

3. **General Food Ration** which provides a complete ration of energy, protein and micronutrients to all members of a population;

Severely malnourished children benefit more from a TFP but in an emergency situation, the numbers of mild and moderately malnourished are usually far greater. In a rapidly unfolding emergency situation, priority should be given to SFP over the TFP. For children experiencing mild and moderate malnutrition, a lack of food can easily precipitate further wasting and given the high level of resources needed for TFP, these facilities can be easily overwhelmed. What are some selection criteria for participation in feeding programs?

6.1 Selection Criteria for Participation in Feeding Programs

As noted above, results of **anthropometric surveys** coupled with additional data should be used to determine the need for a supplementary feeding program. Such trigger points as a level of acute wasting malnutrition at around 15% for under-fives is indicative of serious problems so as to justify a supplementary feeding program. While cut-off points and trigger points are not "set in stone", the decision to intervene should be made based on the urgency, scale, and priority associated with the crisis.

Admission criteria depends on the objectives of the program and the available resources to respond. Rather than setting strict cut-off for inclusion, it is often the case the cut-off is established based on the ability of the agency etc. to respond. Criteria are available to target the severely malnourished for Therapeutic Feeding Programs, such as a weight for height below 70% of median (or below -3 standard deviations) and the presence of edema (see MSF Guidelines, page 75).

For purposes of targeting for Supplementary Feeding Programs (SFP), the criteria can be based on targeting the most vulnerable usually established by 1) location, 2) age (and in some cases, sex), 3) nutritional, 4) food intake, and 5) health criteria. **Pregnant** (especially last trimester) and **lactating women** (for first six months of child's life) and **children under the age of two years** should be considered of utmost importance. Other special groups include the elderly, disabled, twins, and special medical cases such as people with TB and AIDS should also be included. There is inadequate information to exclude other age groups such as school age children from a SFP. Indeed, the increased nutritional needs of adults for activities associated with livelihood provisioning, especially in non-camp situations (e.g. wild food, water and fuel collection, land preparation, and income generation) should not be underestimated. While the focus is on young children and pregnant and lactating women, SFP design should consider the special needs of each emergency.

In most developing countries, approximately 20% of the population are under five years of age (10% under 2) and approximately 3.4% of women are in the last trimester or lactating. In a emergency situation affecting 100,000 people, 20,000 would under five years of age and 3,400 would be last trimester pregnant or lactating. Assuming 15% of under-fives experiencing acute malnutrition, the first-level number vulnerable people would be 3,000 malnourished under-fives and 3,400 women requiring special attention. Of course, in refugee situations where civil unrest has occurred, it is not unusual to have much higher numbers of women and children in the population.

If the magnitude of the food deficit is high, the population is consuming less than 1,750 kcals per person, or the numbers of recipients are high or fluctuating, then there is a justification for supplementary feeding.

It is necessary to establish a targeting approach that is **flexible** given the circumstances such as the special needs of working adults, micronutrient malnutrition, disease environments, infrastructure and agency resources.

6.2 Treatment in a Therapeutic Feeding Center

Guidelines for children admitted to a therapeutic feeding center are detailed in the MSF Nutrition Guidelines (pages 78-88). As noted above, **the admission to a TFP is for those children experiencing severe malnutrition (less than 70% W/H) and where the resources are available to combine nutritional and medical components.** In an emergency situation with rapidly changing factors, priority would normally be given to supplementary feeding. In more complex emergency situations or regular health services, a TFP is more common.

A TFP will differ according to the circumstances and the type of response will partly be determined by the accompanying infection, but two phases can be described:

- Phase 1: Rehydration
 Commencement of medical treatment
 Initiation of nutritional treatment
- Phase 2: Continuation of medical treatment
 Nutritional rehabilitation
 Transition to social environment.

The single most significant difference between emergency TFP and more regular feeding programs is 1) the reliance on the **mother as primary caregiver** to the child, and 2) the importance of continuation or re initiation of **breastfeeding** of infants (see below).

Medical treatment needs to address the basic causes of death with severe malnutrition:

- Dehydration with Oral Rehydration Therapy (ORT)
- Infection
- Hypothermia
- Hypoglycemia
- Cardiac failure
- Severe anemia

Treatments for **infection** is required for typical infections including respiratory tract infections, urinary tract infections, measles, gastrointestinal infections, parasitic diseases such as malaria and worms, skin infections, and septicemia. The use of Micronutrient supplements is encouraged including iron, folate, Vitamin A, Vitamin C, and other common nutrients (Vitamin B1 for beriberi, B6 or niacin for pellagra, D for rickets and iodine for goiter and cretinism).

The guidelines for **nutritional therapy** specify the composition and frequency of feeding (page 82, MSF Nutrition Guidelines). During the early phase of **rehabilitation**, a child should stay for one week on a diet providing just enough energy and protein for maintenance: **100 kcals/kg of body weight/day and not more than 3 grams protein/kg/day**.

After one week of the above level, the child should move quickly to a **high energy milk (HEM)** with an energy density of 1 kcal/ml. Various formulations exist for HEM but the aim is to provide about 100 ml of HEM/kg body weight/day (see Table 6). By providing regular small feeds, the child's ability to handle the supplement improves. A minimum of 6 feeds per day are required with one feed at night. Even during diarrhea, milk feeds are essential and wherever possible, breastfeeding should be maintained.

Table 6: Sample composition of High Energy Milk (HEM) for therapeutic feeding

	grams per liter	protein (g)	kcal
Dried Skim Milk	80	28.8	285
Vegetable Oil	60		530
Sugar	50		200
Total*	1 liter	28.8	1,015

* Water is added to the dry ingredients to make one liter of HEM (approx. 900 mls)

The recommendation is that during the intensive first phase where the child (and caregiver) are under constant observation, the length of stay should not exceed 7 days as the 100 kcal/kg/day ration is not enough for recovery.

During the second or **recovery phase**, the child is recovering her appetite and the need for medical inputs are reduced. The emphasis has shifted from treatment of acute infection and the control of metabolic functions to one of nutritional rehabilitation. The child can be seen as an out-patient with supervised feeds for 2 or more occasions during the day. The quantity of food is increased with a minimum of **200 kcals/kg body weight/day** of which 10% of the calories are from protein. The child should be **fed on demand** and can consume up to 300 kcals/kg/day.

Malnourished children have a reduced capacity for large amounts of food at any one sitting. The small stomach means that frequent feeds are necessary. Planning should ensure that children have access to frequent feeds.

The **HEM** while providing the protein, energy and fat is **often lacking in other nutrients** and can be made or alternated with other ingredients such as porridge and locally available cereals and fruits. Recipes for porridges are available and should be kept for use as the supply of the commodities is often variable.

6.3 Breast Feeding in Emergencies⁴

It is well established that **breastmilk has benefits to the child, mother and society**. The use of breast milk substitutes in poverty situations results in increased mortality, greater morbidity and impaired physical and intellectual development. With the onset of an emergency, those situations where bottle feeding is more common can become life threatening to the bottle fed infant. **A crisis situation can result in higher infection loads, contamination of water supplies, lack of fuel for formula preparation and disruption to the supplies of commercial formula products**. The results are increased infection, malnutrition and even death.

Growth of infants exclusively breastfed for the first 4-6 months of life in developing countries is mostly normal. During emergencies, breastfeeding is particularly important because of the **bonding, warmth and care between the mother and child**. Women's competence, self esteem, stress reduction, and empowerment improves with breastfeeding. Breastfeeding will aid in the re-establishment of household food security by improving child health and conserving scarce resources.

A number of misconceptions have arisen about breast feeding in emergencies. Evidence from a number of sources concludes that **women can breastfeed under stressful conditions**. The production of breastmilk is adequate under stress. But it is necessary to ensure that field workers know how to assist mothers to breast feed. It is not enough to rely on a general promotion of breastfeeding to ensure women can cope. The need for relief agencies to focus on the **emotional, social and technical support for breastfeeding women in emergency situations** is only beginning to be recognized.

During stress, milk release is affected but not production as different hormones are affected. The treatment for poor milk release is suckling which stimulates the release of oxytocin. Women who lactate are less prone to stress. **Malnourished women produce enough milk -- quality and quantity are not affected**. "Insufficient milk syndrome" affects both poor and well nourished women. Less than 1 percent of nursing mothers have milk insufficiency and the treatment is increased suckling frequency and duration. If the infant is breastfed, then the infant is buffered during maternal malnutrition. It is necessary, therefore, to **supplement the mother not the infant**. Supplementing the infant decreases suckling and milk production.

Guidelines for optimal feeding practices in emergencies suggest the following:

- Initiation of breastfeeding within one hour of birth;
- Frequent, on-demand feeding including night feeds;
- Exclusive breastfeeding until 6 months of age;
- Complementation of breast milk with appropriate weaning foods at about 6 months of age;
- Sustained breastfeeding well into the second year of life;

⁴ Refer to Kelly M. *Infant feeding in emergencies*. Disasters (Vol 17. No. 2), 1993. Additional information can be obtained from LINKAGES: Breastfeeding and Related Complementary Feeding and Maternal Nutrition Program. Academy for Educational Development, 1255 23 rd St., Suite 400, Washington DC 20037. Tel: (202) 884 8871, Fax (202) 884 8701, Email: JWALSH@AED.ORG

- Increased breastfeeding frequency and continued feeding during illness and for catch-up.
- Even women at risk of HIV infection should breastfeed;
- Breastfeeding women need help to ensure optimal breastfeeding;
- Ensure that relief policies and services do not undermine optimal feeding e.g. infant feeding bottles and teats used for oral rehydration therapy;
- Training and support for relief workers with specific feeding guidelines;
- Breastfeeding counselors;
- Supplement the lactating mother and address fears of breastmilk insufficiency due to diet quality or quantity.

In most developing countries, exclusive breastfeeding is almost universal in the first four months of the infant's life. There are countries and regions, however, where the use of breast milk substitutes (BMS) are common. In the former Soviet Union, some urban areas and middle income countries where bottle feeding is more widespread, emergency situations can precipitate an infant feeding crisis. Donors and implementing partners should be sensitive to the prevailing situation and a **needs assessment** should identify the requirements. All steps should be taken to promote breastfeeding. For those mothers of infants under six months of age who are unwilling to attempt relactation, or where the mothers are absent or dead, arrangements for **wet nursing or milk banking** should be explored. The use of breast milk facilitators and community based supporters is necessary as well as the support from local health workers.

Appropriate breast milk substitutes can be used following guidelines established by WHO, UNHCR and others. Infant formula reconstituted with clean water in clean bottles is appropriate but sweetened condensed milk and dried skim milk are not BMS. Care should be exercised so as the emergency is not a basis for formula manufacturers to open up new markets. In addition, adequate supplies of formula need to be secured for a fixed time and stored and used in a hygienic and appropriate manner.

Breast milk substitutes can be:

- Limited to special circumstances such as orphans;
- Guaranteed for the life of the emergency;
- Not used as a sales inducement;
- Limited target group for the formula (e.g. 0-6 months);
- Used under controlled conditions such as on-site therapeutic feeding and never as general distribution;
- Accompanied by additional health care, water, fuel and diarrhea treatment (ORT);
- Plan for the re-establishment of optimal feeding.

An emergency changes the risks associated with bottle-feeding and the ability of a woman to breastfeed is unchanged. Use the crisis as an **opportunity to move to positive feeding practices** for the affected community and its neighbors. The promotion of breastfeeding contributes to **sustainable development and food security and empowers the mother.**

6.4 Supplementary Feeding Guidelines

Supplementary feeding programs (SFP) can take two forms:

1. **Wet rations** which are prepared and/or cooked on-site once or twice a day and either consumed on-site (most common) or taken home for consumption.
2. **Dry rations** which are distributed for consumption off-site, usually at home. The frequency is usually weekly or longer although it can be daily.

Much controversy exists over the choice of the above two forms of feeding. The situation will govern the choice of approach although the tendency has been to favor dry, take-home rations due to lower cost including opportunity cost for the mothers, ability to reach larger numbers, and supports the families to remain in their homes rather than dispersment. The preference for on-site consumption with wet rations is simply the ability to ensure the target individual actually consumes the supplement and the ease of providing complementary services such as health care and monitoring. Women carrying dry rations or more powerful factions controlling distribution of dry rations means that wet rations are slightly better in times of insecurity.

The difficulty with wet rations becomes apparent when the supplement merely displaces food that would have been consumed from the family pot. In addition, the staff and logistical requirements for on-site feeding are much greater. This can be partly offset by the smaller quantities of food required due to the higher level of targeting.

In non-camp situations, the management and organization of the provision of rations is more complex. The choice of mechanisms for transportation, storage, distribution and monitoring is important. The overriding principle in emergency situations, especially in areas with food infrastructure, is to **keep it simple**. The desire to target the most vulnerable may have to be offset by the lack of resources to do so. It may be necessary to sacrifice a high level of targeting in the early stages of an emergency with the distribution of food targeted on the basis of location or ethnic group or some other simple criteria. As the emergency stabilizes, more conventional targeting systems can be established.

What are the nutrient needs of the beneficiaries?

The nutrient and commodity composition of rations for individuals in different situations is readily available. Although much debate has followed the recommended allowances, a consensus has emerged on what is needed in emergency situations. Experience suggests that the fate of victims will not be determined by whether or not the requirement was 1,900 kcals per day or 2,200 kcals per day but by the ability of governments and the communities to respond in an appropriate and timely manner. Let us begin with estimating the total nutrient requirement.

Using guidelines issued by the USAID's Bureau for Humanitarian Relief (BHR), Table 7 shows how the age and sex distribution of a target population should be used to estimate the needs for an average person. Clearly, a group with largely women and children will require different quantities of food.

Table 7: How to estimate ration size in Kcals/person (From: *Supplement on Emergency Rations: Commodity Reference Guide*. Draft. USAID BHR, March 1995.)

Age (years)	Male		Female		Total Kcal/day for 100 people
	% population	Energy needs (kcal/day)	% population	Energy needs (kcal/day)	

Program for Normal Population (Moderate Activity)

Average Daily Needs = 2,200 kcals/day

0-4	10.0	1,200	10.0	1,200	24,000
5-15	17.0	2,200	17.0	2,000	71,400
15+	23.0	3,000	23.0	2,200	119,600

Program for mostly Women and Children

Average Daily Needs = 1,900 kcals/day

0-4	12.0	1,200	12.0	1,200	28,800
5-15	13.5	2,200	23.4	2,000	76,500
15+	3.2	3,000	35.9	2,200	88,500

Program for mostly Adult Males

Average Daily Needs = 2,435 kcals/day

0-4	6.5	1,200	6.8	1,200	3,960
5-15	15.4	2,200	8.7	2,000	51,280
15+	50.3	3,000	12.3	2,200	177,960

A full ration is expected to supply **2,200 kcals per person per day**. This amount should be increased by 200-300 kcals if heavy physical activity is involved or that the population has experienced food stress and catch-up growth is required. **Protein levels** should approximate about **8 to 12 percent of calories** or about **45 to 60 grams** for a diet of 2,200 calories. For malnourished populations, an additional 8 to 10 grams should be added. The quality of the protein is important and levels will vary. **Fats and oils** should account for **10 to 15 percent of a ration's energy** with children receiving about 15 percent from fats and oils. This translates into approximately 24 grams of fat per person per day.

When a full ration continues for more than one month as a sole source of food, it is essential to supplement the diet with other nutrients including minerals. This can be done by purchasing locally available fruits and vegetables, providing relishes and by providing supplements. Examples of different types of rations for short and extended feeding are provided in the *Supplement on Emergency Rations: Commodity Reference Guide*. USAID BHR, March 1995 as well as Annex 5, 6, 7 and 16 of the MSF Nutrition Guidelines.

Ration size in supplementary feeding

A number of advocates are recommending that the focus on emergency feeding should be on a full ration containing all known nutrients. The belief that special preparations used in supplementary feeding miss the target group and that micronutrient deficiencies persist as the hidden emergency. While commendable as a goal for relief efforts, the **existing constraints to the procurement of complete rations**, including local purchase of fruits and vegetables, are considerable. The lack of clear management, logistic issues, and the sheer quantities involved would hinder a timely and appropriate response. In the meantime, the need is to develop approaches to the timely provision of supplementary feeding to meet the needs of vulnerable groups.

Supplementary feeding programs (SFP) are meant to supplement or address a defective family diet and to allow for catch up growth. Target amounts should be around **500-700 kcals and 15-25 grams of protein per day**. For children under 12 months of age, the small stomach size means that the supplement will have to be provided in a number of sessions. Remember, supplementing infants should be done with breastfeeding and not to its detriment. SFPs that rely on take home rations, whether wet or dry, should increase the ration for the beneficiary as the food is likely to be consumed by other family members.

A supplementary meal should provide a balanced, high concentration of energy and protein with at least 1 kcal per ml and 10-15% of the energy from protein. Essential micronutrients should be included. The ration should be based on a cereal or blended food which can be prepared as a porridge which can have varying consistencies depending on the age of the consumer. Energy density is important and the use of oils can greatly boost that density as does sugar which can also improve palatability. The recipe for the food can be varied including the preparation methods depending on what foods are available and the tastes and preferences of the target population. Many societies partially ferment the gruel increasing its nutritional worth to the toddler. Refer to the MSF Nutrition Guideline (Annex 16) for examples of recipes.

Special foods have been developed for emergency situations, and in some cases, are produced in Africa and Asia. One such example is UNICEF's PREMIX which is a milk based preparation, readily soluble and containing a mix of important micronutrients. **High protein/high energy biscuits or cookies** have been developed by donors are often available with short notice. The relatively high cost (about \$2 per pound plus shipping), high leakage to markets and marginal additional energy levels over commercially available cookies, makes these products less desirable. Although these preparations are typically costly, they are provided by the large donors and can be pre-positioned in strategic locations.

Medical care in supplementary feeding programs

The feeding center is an excellent opportunity for the monitoring and provision of preventative and curative health care. The emphasis should be on emergency public health with the provision of medical treatment of infections such as malaria, diarrhea and dysentery with oral rehydration, and the treatment of specific vitamin (especially Vitamin A) and mineral deficiencies. Children should be immunized against measles and the emergency can also be used to update the immunization status of women and children.

6.5 Decisions as to when to open or close a program

Much of the above information assumes that the decision has been made on the type and coverage of the nutrition program in an emergency. In some cases, the needs assessment will be pointing to an obvious course of action as in the case of catastrophic situations with little or no food available. The decision to distribute a general ration or to conduct a supplementary feeding program (SFP) with a therapeutic program must be based on the political and resource pressures. Just as the needs assessment suggests the types of response, recurring assessments or monitoring of the situation will also suggest shifts in the program and the appropriate time for withdrawal. There are no set rules for any of the above decisions.

The decision to close a program should be based on the ability of the affected population to provide for their own livelihood and food security. But any closure criteria based on information about stabilizing nutrition levels, the resumption of seasonal patterns of agriculture and income generation should be flexible. Some suggestions that mortality in excess of 1 person per 10,000 inhabitants per day is indicative of an emergency. Whatever criteria are chosen, the decision should be supported by information collected from the community and in consultation with the local authorities for the continuation of key elements of the program.

The following criteria have been suggested by MSF:

- General food distributions are reliable and adequate;
- Effective public health and disease control measures are in place;
- No seasonal deterioration of nutritional status is anticipated;
- Mortality rate is low;
- The population is stable.

The importance of a return to civil society and a level of security is also essential.

7. Conclusion

At the field level, there are a number of important lessons to revisit:

- Supplementary feeding during emergencies must be accompanied by emergency public health measures;
- The choice of infrastructure and staff will determine the rate and level of health inputs that can be provided: keep it simple. Also take into account the type of distribution system for food and other services will determine the type of complimentary services that can be provided;
- Planning and implementation of feeding programs should also consider the ordering, storage and delivery of essential drugs that will address current and future medical problems in the population including the need to immunize;

- Whether the choice is for general ration or targeted supplementary feeding either as a wet ration or take home dry ration, it is important to realistically define the needs of the population, communicate and listen to the beneficiaries, and monitor the response to the identified needs;
- The provision of good coordination and security reflected in terms such as humanitarian space and the determination of roles of various organizations is essential in the response to emergencies;
- The provision of security for beneficiaries and implementing bodies is essential for emergencies derived from civil strife and even natural disasters.

Further Reading on Nutrition Guidelines

ACIF (1993) *Prevenir la Denutrition dans les Populations a Risque*. Module iv, January 1993, Paris.

Bureau for Humanitarian Response. *Supplement on Emergency Rations: Commodity Reference Guide*. Draft. USAID BHR, March 1995. Washington DC.

ICRC (1986) International Committee for the Red Cross. *Policies in Emergency Situations*, Geneva.

Kelly M. *Infant feeding in emergencies*. Disasters (Vol. 17. No. 2), 1993.

Lusty T and Diskette P (1984) *Selective Feeding Programmes*. Oxfam Practical Health Guide No 1, Oxford, United Kingdom.

Medécins sans Frontières MSF (1995) *Nutrition Guidelines*. Coordinated by M Boerlart, A Davis, B Lelin, M J Michelet, K Ritmeijer, S van der Kam and F Vautier. 1st. Edition. Paris, France.

SCF (1987) *Drought Relief in Ethiopia*. Compiled by J Appleton with the SCF Ethiopian Team, London. United Kingdom.

Shoham, J. *Emergency supplementary feeding programmes*. Relief and Rehabilitation Network. Good Practice Review No. 2. ODI, London, United Kingdom. December 1994.

UNHCR (1982) *United Nations High Commissioner for Refugees Handbook for Emergencies*. Geneva, December 1982.

UNICEF *Nutrition in emergencies: A training module*. UNICEF ESARO Nairobi, Kenya. 1993.

LINKAGES: Breastfeeding and Related Complementary Feeding and Maternal Nutrition Program. USAID Project managed by the Academy for Education Development, 1255 23 rd St. NW, Suite 400, Washington DC 20037⁵. Tel: 202-884 8871, Fax: 202-884 8701, Email: JWALSH@AED.ORG

WHO (1995 in mimeo) *The Management of Nutritional Emergencies in Large Populations*, Geneva.

Young H (1992) *Food Security and Famine*. Oxfam Practical Health Guide No 7, Oxford, United Kingdom.

SEMINAR PARTICIPANT QUESTIONNAIRE

NUTRITION IN EMERGENCY SITUATIONS

IMPACT Project, January 27, 1997

Department of the Army, Brooke Army Medical Center (AMSC) shortcourse on
"Nutrition Support for Combat Casualties and Humanitarian Missions"
January 26-31, 1997, San Antonio, Texas

1. *What were your personal goals or expectations from the seminar?*

2. *To what extent were your goals achieved and your expectations realized? What areas would you have liked to see emphasized more? Circle one and please explain.*

<i>1 = not achieved</i>	<i>2 = barely achieved</i>	<i>3 = okay</i>	<i>4 = better than average</i>	<i>5 = excellent</i>
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3. *Was the presentation style and materials (slides, handout) clear? Comments for improvement. Circle one and please explain.*

<i>1 = not clear</i>	<i>2 = barely clear</i>	<i>3 = okay</i>	<i>4 = better than average</i>	<i>5 = excellent</i>
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4. *What areas would you have liked to hear more about?*

5. *The seminar covered definitions of emergencies, nutrition, food security, program areas of food aid, and emergency feeding guidelines, what did you find the most interesting? Which were most useful to your future work? Least useful?*

6. *Please provide any specific comments and feedback you might have. Thank you.*