

Nutrition in Times of Disaster

Report of an International Conference
Held at the World Health Organization Headquarters,
Geneva, September 27-30, 1988

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dedication

to the late Dr. Martin J. Forman

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EXECUTIVE SUMMARY

An **International Conference on Nutrition in Times of Disaster** was held in Geneva on September 27-30, 1988. Participants were experts and interested professionals from both economically advanced and developing countries, as well as representatives from United Nations organizations and other multilateral and bilateral agencies. Discussion papers and review comments presented at plenaries served as a basis for group discussions on five critical issues: preparedness and early warning, assessment and monitoring, food rations, logistics and distribution, and the transition from emergency to development.

Preparedness for and response to emergencies is primarily a political process. Governments of the affected countries, donor agencies, and inter-governmental (IGOs) and non-governmental organizations (NGOs), have a concrete role to play in improving preparedness and response where the political will exists. Technical inputs from nutritionists are needed to influence the allocation of scarce resources to the poorest groups, who are the most vulnerable to disaster.

Nutrition issues particularly relevant to disaster situations are: establishment of **early warning** systems that focus on response and are supported by appropriate information; targeting of food aid in such a way that the right food is given to the right people at the right time and in the right way; the interface between famine relief and food security, including pre-disaster planning; and training of personnel in the nutritional aspects of disaster relief. The affected people themselves, who have traditional response mechanisms to emergencies, are key in preparedness for early response. Food and nutrition surveillance systems, when properly implemented, may facilitate early warning and improve preparedness and timely response to emergencies.

Assessment and monitoring in a disaster situation must start by defining the objectives, the users of the results, the time frame for data collection and use, and the type of population being helped. Existing data should be used as much as possible, particularly when surveillance systems are in place, so that only new information critical for decision-making has to be collected. Assessment should be made by a national organization with political authority, financial means, and jurisdictional ability to coordinate multiple institutions and deliver information to all decision-making levels.

Although the choice of indicators should consider each specific context, both biological data (food intake, anthropometry, demography, morbidity, mortality) and socioeconomic data (income levels, food supplies and access, shelter status, resources available, traditional coping mechanisms) are usually needed. Appropriate monitoring and follow-up evaluation, covering both process and outcome, are as important as the initial assessment. Additional research is needed on the design and interpretation of rapid assessment techniques, and on the usefulness of certain anthropometric and socioeconomic indicators.

Food rations in emergencies should be established in such a way that recipients have access to nutritionally adequate and culturally acceptable foods, in terms of both quantity and nutritional balance (for example, a protein-energy ratio of at least 12 percent). Unfortunately, the quantity of food aid provided by the international community has not been sufficient to meet the actual needs of emergency-affected populations. Available guidelines for rations and targets for food intake are not, however, widely accepted. Long-term maintenance, rather

than just survival, should be ensured through the rations provided. It may be desirable to adjust the standard ration to allow for catch-up growth for children and adults who suffer from mild to moderate malnutrition, using desirable weight-for-height as a basis.

Under conditions of gross food shortage, foods should be distributed equally between individuals and families, with preference given to those with objective signs of starvation. The food ration should include adequate quantities of essential micro-nutrients, especially in long-term feeding programs. Under certain circumstances, individual trading of emergency relief food may improve the quality of the diet and should be permitted.

Logistical and distribution problems are significant constraints on adequate nutritional care in times of disaster. Breakdowns in the logistics and food distribution chain often interfere with getting rations to the site in need and may affect the composition of the received rations. After initial needs assessment in an emergency, the normal chain of events to be carefully planned and provided for includes resource mobilization, procurement, shipment and delivery of commodities to port, transportation to affected locations, distribution to beneficiaries, and monitoring and reporting of the distribution.

Cooperation between several organizations providing different inputs needs to be coordinated, preferably by the recipient government. Local procurement and exchange agreements may ensure the suitability of food products, reduce logistic needs (storage, transportation), encourage local food production, and save foreign currency. Logisticians and nutritionists should work together in a complementary way. Logistic problems cannot be solved in time of crisis; thus governments, IGOs, and NGOs must jointly establish a logistical structure before a crisis strikes.

Transition from a state of emergency to longer-term development should be included in planning responses to disasters. Relief activities must be complemented by rehabilitation and development activities early in the process to promote recovery and self-sufficiency in the long term. Community participation, income protection, investment in infrastructure, human resources development (adult education and training), transfer and use of appropriate technology, the integration of primary health care, environmental rehabilitation, agricultural development, and the establishment of appropriate information systems for assessment, monitoring, and evaluation -- all are vital elements. Providing services to the people in their own homes facilitates the incorporation of long-range development activities.

I. INTRODUCTION

The International Conference on Nutrition in Times of Disaster was organized by the Office of Emergency Preparedness and Response of the World Health Organization (EPR/WHO) and the Office of the High Commissioner for Refugees of the United Nations (UNHCR), under the auspices of the UN Administrative Committee for Coordination, Sub-Committee on Nutrition (ACC-SCN) and the International Nutrition Planners' Forum (INPF). It was held at the WHO Headquarters in Geneva on September 27-30, 1988. The conference was conducted in English, with simultaneous translation into and from French. Over 140 participants from 50 countries attended, under the sponsorship of various multilateral and bilateral agencies. A list of participants and their affiliations is included in Annex 1.

This report summarizes the proceedings and conclusions of the conference. It is published in English, French and Spanish. A second publication, containing the original conference papers and full recommendations, will be produced in late 1989.

The conference was an initiative of USAID and the ACC-SCN Working Group on Food Aid, which was chaired by the late Dr. Martin Forman. He led the early stages and conceptualization of the conference, and coordinated the selection of topics and presenters and the preparation of the background papers. Over the two years preceding the conference, several meetings involving multilateral and bilateral agencies, non-governmental organizations (NGOs), and representatives of the INPF were held to define the purpose and content of the conference and to identify participants from developing countries who should be invited, resource persons, and institutions that could contribute to or benefit from the conference.

A. Background

There was widespread agreement on the need for such a conference. Throughout the world the number of victims of natural disaster or civil conflict has increased. The numbers who require assistance in meeting their nutritional needs are accentuated by disaster situations in a

world where a chronic crisis in food security already exists. Through multilateral and bilateral food aid programs, efforts to prevent death and starvation in disaster situations have been largely successful. But the situation is precarious: present food stocks in Western countries have been adequate to meet the increasing demand for emergency food aid. If major disasters should occur in countries with large populations (such as China and Bangladesh) simultaneously, however, global surplus food stocks would fall below minimal safe levels, as assessed by the Food and Agriculture Organization of the UN (FAO). The 1988 drought in the United States is a reminder that the supply side of the global food security equation is also precarious.

Human solidarity has been crucial in bringing about successful efforts to address recent emergencies. Although there are shortcomings in emergency response, a system is in place and can be improved. A wealth of experience and knowledge can be exploited to better the response to emergencies. Resolutions are needed on technical nutritional issues as well as non-technical constraints that derive essentially from administrative, political and even ideological factors. To achieve this consensus, it is important for all parties to bear in mind the ideal goal of response: to provide the target populations with a nutritious diet compatible with local food habits. The populations affected, especially the neediest, must be reached; food must be adequate in quantity and quality; and food supplies must be delivered on time and distributed equitably. Successful identification of the target beneficiary group and a correct assessment of its food requirements is critical.

The achievement of this basic goal has been limited by problems in identifying target populations and their food requirements as well as in delivering nutritionally adequate and culturally acceptable foods. Lack of preparedness contributes to these problems.

Much of the emergency response tends to focus on immediate relief. This is important, but longer-term action to address the root causes of the situation needs to be incorporated into a feasible and sustainable development strategy that will reduce the impact of future

emergencies, particularly those with natural causes. The conference agenda was set to address these issues.

B. Objective

The objective of the conference was to provide a forum for discussing and coordinating technical issues, and for compiling practical recommendations regarding the assessment of nutritional emergencies -- primarily famine, food shortages, and displacement of persons -- and the technical management of the response. Disasters include longer-maturing emergencies attributable to natural causes (such as droughts), those attributable to man-made causes (such as war, structural economic adjustments or budgetary reform, and other forms of political, economic, or social instability), as well as those with sudden onset (such as earthquakes, floods, and the like).

C. Topics and Agenda

The following topics were addressed in the presentations, discussions, and working groups:

- o Preparedness and early warning
- o Assessment and monitoring, including the use of nutrition and socioeconomic indicators
- o Rations: requirements and program planning
- o Logistics and distribution constraints
- o Transition and phasing out of emergency assistance.

Eight technical papers covering these five topics were commissioned and presented by experts (see Annex 2). Comments prepared by national representatives from disaster-prone countries were also presented, followed by a plenary discussion that was followed by discussions in smaller working groups. Reports and recommendations on the above topics were prepared by the working groups and presented and discussed in the plenaries. All participants discussed preparedness in working groups on the first day. To allow more time for discussions, groups were subsequently

reorganized to focus entirely on assessment, rations, logistics, and transition. Participants themselves decided which group to join. The conference agenda is shown in Annex 3.

II. PREPAREDNESS AND EARLY WARNING

Two papers on preparedness were presented. The first, by Dr. Peter Cutler, of the CDR Resource Group in London, U.K., was on preparation for early response to disasters. Dr. Ignatius Tarwotjo from the Directorate of Community Nutrition, Ministry of Health, Indonesia, presented a case study focusing on the development of food and nutrition surveillance in his country. Mr. Melaku Ayalew, Acting Head of the Early Warning and Planning Services of Ethiopia, commented on Dr. Cutler's paper, and Dr. John B. Mason of the ACC-SCN made brief comments on the Indonesian case study.

A. Preparation for Early Response

Dr. Cutler pointed out that over the past three decades there has been a steady increase in the number of disasters and in the total population affected. Floods, storms, earthquakes, droughts and famines, civil strife and environmental accidents have risen significantly since the 1960s. The majority of disasters occur in poor countries, particularly in tropical areas where some of the poorest segments of the populations live. Ecological, social, and demographic factors combine to produce vulnerability to disasters in certain regions. Floods and droughts, the most common causes of natural disasters, mainly affect populations highly dependent on agriculture and prone to deforestation and associated land degradation. Thus it is not difficult to identify which regions, or even sub-districts, are likely to experience disasters.

The response to disasters is often extremely inadequate during the early stages. The organization of response and its initiation is a political process involving the interplay of institutional, national, and international interests. The key issues for effective preparedness and response programs concern which organizations can and should initiate the response and where they obtain the necessary resources.

1. Role of Disaster Relief Organizations

Four types of organizations are usually involved in responding to disasters:

a. Governmental Organizations

The primary responsibility for initiating response to disasters lies with the government of the affected country, which should quickly mobilize available domestic resources and make international appeals as necessary. In some cases the government may not wish to publicize the disaster, or its claims may be ignored by donor nations with which it does not enjoy friendly external relations. In these cases, work through non-aligned NGOs is more effective, although sometimes these organizations may have to pursue "quiet diplomacy" to avoid risks.

In implementing the response, it is important that a clear mandate be given to an appropriate administrative entity that will actually plan and administer relief, with other institutions playing a support role. Relief cells or units are not always effective. Governments must ensure that relief priorities are considered at the heart of the decision-making machinery of the government. Foreign support is frequently needed to cover the costs of preparation for disaster relief.

b. Donor Agencies

Policies of donor agencies reflect national interests; they usually donate according to existing and potential political alliances. Aid -- particularly food aid during famines -- is viewed as a strategic resource that is often allocated according to geopolitical priorities. Therefore, an adequate response to disaster depends on the perceived interests of both the host government and powerful donor nations. During major emergencies, such as widespread famines receiving international media attention, many nations are likely to donate food supplies and other aid materials. The great majority of the aid comes from only a few countries. Often, it is earmarked for specific use in specific areas, and is channeled through inter-governmental organizations (IGOs) or NGOs to ensure its appropriate use.

c. Inter-Governmental Organizations

IGOs might be expected to have a key role in relief planning and programming, although this is not often the case because of their institutional mandate, primarily development. Among the UN agencies, both the United Nations Development Programme (UNDP) and United Nations Disaster Relief Organization (UNDRO) have mandates to coordinate the response to disasters. The UN system tends not to act in a coordinated fashion; each agency pursues its own objectives, thus undermining co-operation. The special Offices for Relief Operations that have been set up in New York, Khartoum, and Addis Ababa are particularly useful as information clearinghouses and for discussion of relief priorities, although they have neither the financial nor the executive power to control the relief operations. The authority of the IGO relief coordinator should be strengthened, and information sharing improved.

d. Non-Governmental Organizations

NGOs have an influence that is disproportionate to their size. They may have particular expertise and a stable administrative infrastructure to offer to governments, donors, and IGOs in disaster-relief regions. They can respond quickly and usually enjoy good relations with host governments. Although NGOs are competitive with each other during disasters, they may be able to co-operate in field implementation, information sharing, and raising public funds.

NGOs should not be encouraged to develop their own autonomous administrations in the host countries. In the relief region, expatriate NGO staff should be progressively replaced with indigenous staff, but some degree of expatriate involvement may be required in the interest of accountability. It is likely that NGOs will continue to play an important role in logistical support; thus they will need to improve their technical expertise in disaster relief.

2. The Role of Nutrition in Disaster Relief

Nutrition concerns are of central importance in providing disaster relief, particularly in

preparedness and appropriate response. Specific nutrition issues are early warning, targeting of relief aid, the interface between food aid and food security, and training.

a. Early Warning

There has been a renewal of interest in both the technical and the institutional components of early disaster warning systems. Attention is now focused on the integration of socioeconomic data into existing information systems based on agricultural and nutritional data, and on further institutionalization of data collection and processing for better disaster prediction, especially for famines. As a result of this process, there is a plethora of systems requiring further coordination. Each system is designed to suit the informational needs of its sponsor, and often reports directly to the sponsoring agency and only incidentally to the host government. This has led to confusion about risk assessments, with the potential danger of providing an escape route for donors who may argue that there is not enough information for them to respond. Agencies should be seeking to identify disaster risk and high-risk areas and populations, rather than to produce a set of perfect indicators.

Food and nutrition surveillance systems may play an important role in famine warning. The focus has shifted from nutritional surveillance through anthropometry only to linking various information sources, such as crop conditions, and socioeconomic indicators, with anthropometric data. Disasters most frequently occur in certain well-defined vulnerable groups. Therefore, to improve the focus of early warning, data bases and analyses of conditions in the most vulnerable regions need to be improved. Nutritionists can develop "risk mapping" and "vulnerable area profiles," which document and explain the linkages between proximate causes of disaster.

b. Targeting Relief Aid

The targeting of aid is often primarily a political process directed by the geopolitical interests of donors and hosts. Although some degree of political or cultural bias is inevitable when resources are scarce and needs extreme, targeting should have a more scientific basis.

Considerations of equity, humanitarian norms, and economic rehabilitation should also be properly balanced. Introducing open information systems may be useful for this purpose. Rapid Rural Appraisal (RRA) methods for assessment of disaster relief areas should be refined and more frequently used than they are at present.

c. Famine Relief or Food Security?

A major problem with conventional early warning systems is that they divert attention from longer-term, institutionalized responses to emergencies. Instead of seeking to predict mass destitution or starvation, it would be more appropriate to develop an information system that could monitor trends and automatically allow appropriate interventions. Such systems have been developed successfully in South and East Asia. The role of agencies -- whether bilateral, multilateral, or non-governmental -- would be to help plan, fund, and administer food security systems that initially concentrate on the most vulnerable populations in the most vulnerable regions.

Nutritionists should be able to identify such populations, list their characteristics, and explain the components of their vulnerability. In doing so, they should address the causes rather than merely the consequences of malnutrition, and advocacy for the poor should be for them a critical issue. Interventions should be implemented using local advice and established structures.

d. Training

Training in disaster relief is popular with funding agencies because it helps to divert attention from key political issues and can be used to support the notion of institution building. Training is better undertaken, however, in partnership with the host government and local academic institutions, thus avoiding its being used to subsidize the donor institutions. There is a tendency, however, for expatriate experts to predominate in setting the agendas for discussing the scope and character of nutrition interventions.

Nutritionists should not restrict themselves to issues directly related to the physical provision

of food and its consumption, but should address issues with a broader perspective: e.g., analyzing the linkages between proximate causes of disasters and their effects on the vulnerable poor. Nutrition has increasingly developed from a pure, quantitative science to a social science, with growing emphasis on the analysis of urban and rural poverty. Nutritional training will improve disaster preparedness if focused on improving early warning systems, identifying vulnerable groups, establishing basic standards and guidelines, and defining appropriate responses to emergencies.

In summary, preparedness for and response to disasters is primarily a political process. All four types of institutions (governments, donors, IGOs and NGOs) can contribute to improving preparedness and response where the political will exists. Nutritionists can use their technical tools as strategic weapons to influence allocation of scarce resources toward the poorest groups most vulnerable to disaster.

e. Discussion

The following major points were raised by Mr. Ayalew in his comments on Dr. Cutler's paper.

Although the role of institutions in the early response to disaster is properly described, the role of the people themselves is neglected. In most cases the affected people have their own traditional response mechanisms to emergencies. Often the least affected respond more vigorously to benefit from relief aid than do the real victims. Without knowing the traditional response of the people, it will be difficult to set priorities and direct aid promptly to the target groups. Involving the people will lead to better preparation for early response.

When NGOs develop autonomous administrations, the mandated, indigenous institution is reduced to an observer, and the effort to build the national capability to handle disasters is thus discouraged. Expatriate staff are expensive and may demand a big share of the relief budget. They require time to adjust to the host country, leading to inefficiency in responding to the emergency in a way that meets the cultural and basic needs of the victims and the government. Furthermore,

fielding many expatriate staff may increase the political suspicions of host governments.

In Ethiopia, duplication of information systems in different agencies not only created confusion, but delayed response and led to unwise use of resources. In "Rapid Rural Assessments," anthropometric measurements are late indicators of food shortage. They are, however, useful in deciding the type of intervention and to select the target groups.

Dr. Cutler was asked to clarify his point that lack of early warning is sometimes used as an escape route for lack of response, since many donors have set up early warning systems. His opinion was that resources invested in early warning systems were used to deflect criticism. A major problem is duplication of systems. He urged that information systems be brought under one sponsorship so that consensus could be reached about the system. This does not necessarily mean that information should be collected by only one organization; if there is broad consensus about what to collect, each organization can complement the others by concentrating on the kinds of information to which it has best access. Another advantage to having multiple sources of information is that poor and politically biased data can be better detected. One participant, a USAID officer, agreed that food is a political issue but felt that Dr. Cutler had overstated the political influences on response, since humanitarian grounds justify a response. To back up his point, Cutler gave two examples from Sudan and Ethiopia in which geopolitical influences overrode humanitarian concerns.

The need to link early warning to response was stressed. This is key in preparedness but is not adequately addressed in operational early warning systems.

C. Case Study: Development of Food and Nutritional Surveillance in Indonesia

The paper by Dr. Soekirman and others describes the background and development of a Food and Nutrition Surveillance System (FNSS) in Indonesia. The food and nutrition policy of Indonesia assigned first priority to the development of an early warning system to prevent the epidemics of malnutrition

associated with food crises, that periodically occurred in several areas of the country.

A pilot study was carried out to design an operational system, establish a feasible methodology, and identify suitable indicators of impending food crises to be used in a Timely Warning and Intervention System (TWIS). The local government would use these indicators to take immediate action. Thus the TWIS was developed both to be easily applicable by local people, without additional burden to the existing administrative systems and to the budget of the local government, and to comply with scientific principles.

A Nutritional Status Monitoring System was also developed. To complement the socioeconomic data periodically collected by the Central Bureau of Statistics, anthropometric data for children under five years old were incorporated in the survey beginning in 1985/86. With this integration, for the first time Indonesia has had national anthropometric data for children by province that are available for detailed analysis. The nutritional status monitoring system was developed in pilot provinces. The system was found to be technically feasible but costly; thus, monitoring at the sub-district and village levels is now based on the ongoing monthly weighing program, which is widely practiced in most villages as part of the integrated rural health services organized by the communities themselves.

The TWIS was developed in a sequence of steps. First, areas for TWIS were selected (food crises occurred only in certain areas of the country). Second, predictive and observational indicators for TWIS were identified. The former captured changes in food consumption, based on the routine agricultural reports (rainfall, area planted, area harvested, yields); the latter captured changes in food consumption observed at the household level (based primarily on local food patterns and how they change from time to time, and chosen after a study of the agricultural and employment calendar.) Sensitivity and specificity analyses were carried out to test the appropriateness of each set of indicators.

Third, the indicators were refined and the system organized. Indicator selection was done

in two stages: a central interdisciplinary team identified indicators and then reviewed them with the local team. Finally, indicators were applied at the local level to test their validity and appropriateness for the local conditions, so that local people and laymen could understand them and use them for immediate intervention. The main user of the system is the local government, primarily at the sub-district and district levels.

The experience in developing TWIS in pilot areas is being replicated and adapted to 12 provinces, so that eventually a national FNSS can be developed in accordance with local needs. Current constraints are the lack of trained manpower for data management at the district and sub-district levels, the low quality of available data, and the irregular motivation and interest on the usefulness of the FNSS among the heads of districts.

Dr. John Mason made the following comments on preparedness.

Information is less of a problem than response. The main problem is to get the right food to the right people at the right time and, as suggested later, in the right way. Decentralization of decision making is important for response but is difficult to institute, and the reasons for this difficulty need to be understood. In Indonesia, decision making occurs at different levels, and this allows the preplanning and positioning of resources for response, which is triggered by the information from the Indonesian early warning system.

Several questions deserve discussion: Are people authorized to accept provisional information to initiate response? Can food be distributed through markets rather than concessioned food distribution systems? If food distribution is to be based on other considerations, are calculating rations and the number of people affected still key issues?

To contain malnutrition, food must be kept on the market at a reasonable price, and people must have the means to purchase the food. Income generation through public works and other employment programs is therefore very important. Experience from Botswana and

Indonesia shows that this strategy works. A key issue is how to overcome constraints to get such programs going.

D. Recommendations of Working Groups

Different types of disaster require different types of preparedness. For example, earthquakes are difficult to predict, but being prepared is possible; drought and subsequent famines can be predicted and prevented to varying degrees. Preparedness should be sufficiently flexible to allow appropriate intervention before the various disasters occur. By definition, preparedness must precede the situations it is intended to prevent or alleviate. The main recommendations made by the working groups can be divided into those which concern information and response, and organization.

1. Information and Response

When developing early warning systems, the focus should be on response, supported by the necessary information. Different types of information, including traditionally used information and routinely collected data, should be integrated in the early warning system. Therefore, all concerned parties -- government, donors, international agencies -- should agree on the types of information to be collected, on "trigger" levels, and on the type and scheduling of the response that corresponds to the extent of the catastrophe.

Information -- and, subsequently, decision making and resources allocation -- should be decentralized, both at the regional and in-country levels. Identification of disaster-prone areas and populations as well as risk mapping should be part of preparedness. Lack of precise or full information or ignorance should not be used as a justification for not responding or for inadequate response. A workshop approach may be used as a means to establish consensus and credibility if the available information is questionable.

Relevant information of various types, including routinely available data, should be integrated into an early warning system.

Preparedness should anticipate the severity and duration of hunger, malnutrition and food shortages; the nutritional needs and sociocultural attitudes; the potential extent of disruption of infrastructure, essential services, and food distribution systems; and the possibilities for public works as support to income.

2. Organization

Appropriate pre-disaster planning and during-disaster response structures should be established both at the national (governmental) level and at the international (donor) levels. Pre-disaster planning should be an integral part of overall development planning. Training (in advance) for indigenous workers at different administrative levels is an essential aspect of preparedness. Donors and international agencies should assist national governments with adequate resources for preparedness.

III. ASSESSMENT AND MONITORING

Dr. Philip Nieburg, from the Division of Nutrition of the U.S. Centers for Disease Control in Atlanta, Georgia, presented a paper on the assessment of food and nutrition among refugees and famine victims. Comments were made by Dr. Stephen N. Kiroti, from the Kenya Medical Research Institute, and Dr. Eduardo Kertesz, Director of the National Institute of Nutrition in Brazil. Dr. J. Shoham, from the U.K. Relief and Development Institute, presented a paper co-authored by Dr. Clay on the role of socioeconomic data in the assessment and monitoring of food needs. Dr. William Bertrand, from Tulane University (New Orleans, Louisiana), commented on this paper.

A. Assessment of Food and Nutrition among Refugees and Famine Victims

Dr. Nieburg's paper reviewed the methodology of food and nutrition assessments in nutritional emergencies. An objective assessment of the extent, magnitude, or severity of a potential nutrition emergency can determine if intervention is needed and the most feasible ways to intervene. The primary goal of data collection is to facilitate a timely relief effort. One additional goal is the anticipation, and thus forestalling, of preventable problems. The sequence of events that should occur during data collection and use is illustrated in the "surveillance arc" concept: once a current or anticipated problem has been identified, data are collected to evaluate its magnitude and other characteristics, and an intervention program is designed and implemented on this basis. Finally, the problem is reassessed after the intervention. The surveillance arc is a continuous cycle of examination and solution until the problem is resolved.

1. Stages of Emergency

A common sequence in the stages of famine begins with inadequate rainfall or weather aberration that leads to crop failure and to decreased family food supply and income, migration, starvation, and increased mortality. The primary objective of every food and nutrition assessment should be to determine the state of a potential nutritional emergency, how

quickly events are progressing, and what external resources are needed for an effective intervention. Some intervention decisions can be made without data collection if the issues have been extensively studied in other settings and the appropriate responses are clear (for example, measles immunization and vitamin A supplementation).

Nutrition indicators may be categorized in three groups: leading indicators, which change before the onset of decreased access to food (for example, shortage of rainfall); concurrent indicators, which occur at the same time as decreased access to food (for example, low household food supplies); and trailing indicators, which occur after decreased access to food (for example, weight loss and changes in anthropometry). Their usefulness is related to the timing of the intervention: the earlier an intervention is applied, the more effective and efficient it will be in minimizing and solving the problem.

For a nutritional emergency, relevant data should be used to answer questions about the existence, magnitude, and characteristics of a problem; the number, location, and other characteristics of the population affected; the number and quality of resources available to resolve the problem; and so forth. Data should not be collected if they are already available or are not needed for important decisions or important operational questions. For prevention, focus on leading indicators; if no data are available, this should be indicated. Collected data should be disseminated to all persons or agencies for which program impact is likely.

2. Steps in Assessment

There are four basic options for data collection that may be implemented singly or in combination: first, use preexisting data for analysis; second, create a new surveillance system; third, carry out a survey; and fourth, set up a screening system to identify high-risk individuals. The food and nutrition assessment team should include an experienced and well-trained field nutritionist and epidemiologist. A logistics expert will also be a helpful member.

The steps to take in the assessment of the food and nutrition situation are: decide on purposes

and specific data needs; examine available data; decide on indicators; select a sample; draft data collection forms; train teams; test and modify collection forms; collect and analyze data; summarize results including recommendations and alternatives; take appropriate action; re-evaluate the situation after action.

Selection of a sample requires decisions about sample size and the number of clusters and children per cluster. Twenty-four to thirty survey clusters have been estimated to provide the optimal mix of simplicity and precision. Sample size must be determined directly for each location for which valid estimates are desired. For pastoral populations, the random selection of indigenous sites, such as villages, has been suggested. A random sample of the area of concern may not be the initial best choice; going directly to the affected village may be better for confirming the existence of a problem, and a subsequent random sample might then be appropriate for determining the extent of the problem.

3. Role of Mortality Data in Food and Nutrition Assessment

A common definition of nutritional emergency is food shortage plus an elevated mortality rate; collection of mortality data and identifying changes within these data are crucial for this definition and for directly evaluating famine and refugee relief programs. If relief efforts are successful, mortality rates should fall quickly and steadily.

The relationship of food shortage and mortality has been examined in several ways. Increasing risks of child mortality have been found to be associated with increasing degrees of malnutrition among children. In a nutritional emergency, anthropometry (in the absence of mortality data) may provide a falsely optimistic picture of the situation because of "replacement malnutrition," which occurs when previously well-nourished children become malnourished and replace those who die. The linkage of mortality and malnutrition is important because high child malnutrition rates by themselves do not seem to capture public attention as effectively as the associated mortality rates. Optimally, not only overall mortality rates should be available, but also age-specific and

cause-specific mortality figures, which allow better targeting of the intervention efforts. Mortality data may be collected in an initial survey and then become an essential element of any prospective surveillance system. A complete ascertainment of all deaths should be made whenever possible.

4. Choice of Indicators

Criteria for the selection of useful nutritional indicators in famine assessments are: the problem must be important, serious, and preventable with available technology; some baseline or other comparison data must be available; the indicator must be useful in the field (that is, it must be quick, technically simple, and objectively measurable). Sensitivity (the ability to identify problems where they exist), specificity (the capacity to discard problems when they do not exist), timeliness, and credibility are additional requirements. Concurrent use of indicators that measure the same phenomenon may be a luxury.

Indicators should be chosen to provide information on the following characteristics of the population considered to be potentially at risk: demographic profile (population size, age, and sex distribution); anthropometric or clinical status; current food supply; estimated future food supplies; morbidity and morbidity-prevention (for example, immunizations coverage, vitamin A distribution) data; logistic issues; water availability; shelter status; relief-effort staffing (number and quality); anthropological aspects of feeding (for example, knowledge and practices of, and attitudes toward, infant feeding; traditional weaning foods; patterns of intra-household food distribution; and the like.)

Weight-for-height may be the preferred anthropometric indicator in nutritional emergencies; it is age independent and reflects recent or current dietary intake and energy deficit. Arm circumference is an acceptable alternative; it is simpler than weight-for-height yet is useful for screening (mortality among children with low arm circumference is as high as among those with low weight-for-height.) Edema is the single most useful clinical indicator of malnutrition that can be used together with weight-for-height or arm

circumference. There are no optimal indicators for vitamin A deficiency in nutritional emergencies, although vitamin A supplementation is often needed.

The WHO International Growth Reference is the most appropriate to use for evaluating anthropometric data collected in surveys. The most common age group for assessment is children under five years old. Either standard deviations (Z-scores) or percentages of the median reference values could be used to express anthropometric indicators. Similarly, either the percentage of the population under a given cut-off point or the mean percentage or Z-score could be used as indicators of the extent of malnutrition. Composite nutritional scoring systems may also be developed from a mix of demographic, social, economic, and nutritional indicators.

Assessment of currently available food supplies is an integral part of a food and nutrition assessment. Aspects to be assessed are the quantity of the daily ration in kilocalories and grams per person, the quality of individual commodities, the amount of fat (which is critical for energy content), and the amount of protein and various micro-nutrients in the ration. Surveillance for micro-nutrient deficiencies and other adverse effects of feeding programs is an important component of ration assessment. Clinical beriberi and xerophthalmia have been precipitated among chronically energy-deficient populations by provision of energy-dense rations without adequate amounts of vitamins.

5. Evaluation

Follow-up evaluation is as important as the initial assessment. Less effort should be needed for primary data collection in a follow-up evaluation, although greater precision may be expected. Follow-up evaluations should look at the functioning of new programs and their outcomes. In simple terms, evaluation asks how well a program is reaching the target population and whether it has had an impact on morbidity and mortality. Evaluation can be approached from two slightly different directions: process evaluation examines the functioning of a system designed to provide an intervention, whereas outcome evaluation looks

at the results of the intervention program. The follow-up evaluation should contain information on at least the following topics: food availability, mortality, child energy-protein malnutrition (anthropometry, edema), other nutritional deficiencies, measles vaccine coverage, and, eventually, vitamin A distribution data.

Data from initial assessment or evaluation are analyzed to answer several questions: Are current malnutrition rates in excess of the expected rates in that population? Is there any seasonal trend? To what extent have the program goals and objectives been met? Data should be made available to all agencies and decision-makers whose programs could be influenced by the data, such as program managers, political leaders of the community, and local representatives of the Ministry of Health. The ultimate goal of the data collection is to improve the efficiency of the relief effort. Finally, there is a clear need for operational research in emergency settings to document and improve the effectiveness of currently accepted and new interventions that have been tested only in non-emergency situations.

B. Discussion

Dr. Kinoti emphasized the need for an ongoing surveillance and monitoring system for forecasting an impending disaster and its likely effects on food security, the nutritional status of the most vulnerable populations and the social disruption that might follow. Information from such systems can help identify points for intervention.

Disasters vary in type, form, and severity; similarly, responses also vary according to the country's level of development. Severe droughts may cause only minor economic disruption in some countries, whereas in others they may significantly increase severe malnutrition, morbidity and mortality. As much as possible, local personnel should be responsible for both initial assessments, monitoring and process and outcome evaluations. It is important, especially when dealing with behavior and mortality, to recognize the role of indigenous people in data collection and the relief effort. It is not

uncommon to see investigators get lost in their operational research objectives, to the detriment of the relief effort. Operational research should be conducted by local personnel during their training in food and nutrition disaster management. These people may eventually become politically influential in shaping economic policies that could lead to better disaster preparedness and food security.

In his comments, Dr. Kertesz wondered whether the current situation of extremely high infant mortality in many regions of the world (for example, northeastern Brazil) should not be seen as an emergency even though it is not the result of sudden catastrophes. On the basis of food production, the current situation of Brazil cannot be considered as a disaster -- Brazil is the fifth largest food producer in the world. Most of the food produced, however, is exported or consumed by minority privileged groups, and Brazilian infant mortality figures are among the highest in the world.

Despite the significant decline in U.S. grain production as a result of the recent drought, total world food production would be more than enough to feed the world's population. Even with food donations, two-thirds of the 140 million Brazilian population do not consume an adequate diet, and about 100 million lack the minimum essential elements to ensure a decent life and the development of their genetic potential. Nutritional interventions have been ineffective. What is to be done under these circumstances? Revise the indicators? Use more sophisticated evaluation techniques? Worry about the relatively small and localized, acute disasters and food emergencies and ignore the dramatic larger and permanent crisis?

Although immediate nutritional interventions are needed, this should not distract us from dealing with the basic problem of world hunger during a time of advanced and sophisticated technological developments. Usually nutrition experts meet to discuss only the most sophisticated and effective intervention techniques to tackle isolated, specific problems. But nutrition scientists must also mobilize public opinion against world hunger. As ecologists have sensitized people to protect nature, so should nutritionists sensitize them to protect mankind.

C. The Role of Socioeconomic Data in Assessing and Monitoring Food Needs

Dr. Shoham's presentation drew on several case studies of agency interventions in African emergency programs. Many of these agencies utilized socioeconomic data in needs assessments. Methodologies for collection and utilization of these data for program decisions varied as did the types of socioeconomic indicators used. Furthermore, agencies varied in the type of complementary (such as anthropometric) data used and the significance attached to these data.

Unlike anthropometric assessment, socioeconomic assessment in emergency situations is a new subject area with little past experience beyond that during recent emergency programs in Africa. The methodologies used in these case studies reflect the explicit or implicit adoption of different models of the processes of, and responses to, food crises by the agencies concerned. The model that relies on food production and nutritional data would imply a food deficit "biological model" whereby shortfalls at the macro level manifest themselves in undernutrition at the micro level. This model provides "snapshots" of the crisis, indicating the scale of resources required to remedy the problem and the groups at greatest risk and need. Use of socioeconomic data would imply a "model of behavioral responses and coping mechanisms" in a food crisis and the effect of such responses. Indicators that fit into this model are: quantity of stored grain, income earning opportunities, livestock holdings and sales, food staples, cash crop and livestock prices, use of wild foods, number of displaced people in a population, type of persons displaced, and homogeneity of families.

If interventions are to go beyond a response to the immediate needs of affected population groups, then indicators that reflect social processes of adaptation and response have a potentially important role. Such indicators in turn will allow decisions about which responses should be encouraged or discouraged. Where resources permit, socioeconomic indicators should be used in conjunction with anthropometric data for needs assessments in crisis situations. Anthropometric data alone tell little about the scale of the intervention

required, whereas complementary socioeconomic data can allow some quantification of the resources needed in a community. Similarly, data on nutritional status alone cannot provide unambiguous evidence of the need for food aid, since such data can be confounded by many factors such as disease caused by overcrowding or poor water supplies. Furthermore, certain types of socioeconomic data may be collected without the need for rigorous and costly sampling techniques. This may be an important advantage when census or sample frame data may be impossible to obtain, or when agency resources may be better spent in administering relief.

The advantages of anthropometric data over socioeconomic data can also be claimed. The most important is the emotive power and apparently objective evidence of the magnitude of malnutrition, which is more likely to elicit donor responses and public sympathy than information on prices or subsistence resources. Anthropometry traditionally focuses attention on children as the most vulnerable group. When properly performed, anthropometric surveys are less likely to involve inter-observer variability than socioeconomic surveys. Given the respective advantages claimed for the two types of indicators, where resources permit both should be collected. The priority given to each type of indicator in resource-scarce situations, however, is one of the questions to be addressed on a case-by-case basis.

In socioeconomic assessments the choices in survey design and sampling should be carefully based on an estimate of the time and human resources required and how these can be used to strengthen other aspects of the emergency operation. Critical considerations are the size of the area and the geographical distribution of the population to be covered. Any potential bias from improper or compromised sampling procedures can be reduced by stratified non-random features of survey design.

Initial surveying should try to determine whether some socioeconomic food-related activities may contribute little to overall food consumption or may vary marginally in scale, in which case mean values from a few locations within a large area may be safely applied to smaller sub-population groups within these

areas, thereby obviating further data collection on these variables. Similarly, if specific indicators are identified that are unlikely to vary greatly in value within small subpopulation units, then the data collected could be restricted to a few respondents or to consensus at village meetings. Where there is initially very limited qualified information on population characteristics and nutritional status, a sequential approach -- involving pilot studies that draw on the qualitative knowledge of agro-economy and the socioeconomic situation -- will be the most cost-effective approach to survey design.

D. Discussion

Dr. Bertrand commented on the paper by Drs. Shoham and Clay, pointing out that it could serve as a catalyst to stimulate productive discussion because it uses a realistic experiential base as its point of departure. Clear conclusions, however, have not been drawn from the results of this experience. A precise set of recommendations about the need for and nature of socioeconomic indicators in assessing food needs should be the result of this analysis. There are some perceived shortcomings in the use of nutritional data for targeting food aid, and there has been a shift at the central level of NGOs and among certain of the academicians. In practical terms, however, information gaps noted in the field are so enormous that the majority of NGOs still rely heavily on measures of nutritional status.

Although the discussion of biological versus social models provides insight for those knowledgeable about their implications, it would be important for action-oriented professionals to understand why models are useful and needed, and how an underlying model may help one to judge the utility of the indicators. Relief agencies work under operational pressure and political constraints, but after many years they should have more explicit and well-specified models for action.

In the paper, socioeconomic indicators, as opposed to indicators of nutritional status, are painted as reflecting social processes of adaptation and response. But, if a longitudinal approach is taken in looking at populations at risk, poor nutritional status in the past is a very

good predictor of future risk. In practice there is a high degree of correlation between nutritional history and all the socioeconomic indicators. This inter-correlation varies according to the overall socioeconomic status of the population, and in some cases nutritional status serves as a surrogate for socioeconomic status. Thus, by presenting the issue as an either-or argument, we are simplifying the issue and are inviting greater confusion. Indeed, there is no clear superiority of one set of indicators over another: both have advantages and disadvantages.

The fundamental issue in estimating nutritional needs is actual population size. Population data are often the most difficult to get and suffer from tremendous lack of specificity and large errors. Thus, no matter how good the numerator figures are, the ambiguity of the denominator remains. While it is possible to use "windshield" methods with great effect to measure socioeconomic status, there is much potential for error when the correlations of various levels of actual need with socioeconomic indicators are not known. It may be concluded that socioeconomic indicators are extremely important but should be one among other tools to be used with the proper protocols and guidelines.

There is a clear need for a major coordinated effort to provide basic tools and sound technical guidelines to field agencies. There is a scarcity of field personnel who are knowledgeable about sampling needs and techniques, and limited information on population characteristics and the nutritional situation. A sequential set of operations research study plans is always a first priority. Field micro-computer technology and new analytical methods are now available that can be used for rapid assessment purposes.

Finally, even in good years there are significant parts of the famine belt where chronic food shortages take place. Therefore, some form of monitoring and management system is needed on a more permanent basis. We should move away from the either-or framework toward an integrated, information-system approach to food security.

Other points were raised during the general discussion.

Anthropometric assessment needs to be accompanied by clinical assessment. Arm circumference is an easier measure to use and to train people to use properly. Errors in measuring height from overestimation or underestimation, can be great. Arm circumference is useful for screening whereas weight-for-height is useful for surveys. Questions were raised about where to set the cut-off for arm circumference and how to determine this. Some reported on difficulties in using WHO guidelines for adjusting for weight for height.

Distinctions between leading, concurrent, and trailing indicators were thought to be useful. Vitamin A deficiency was given as an example: vitamin A levels in the ration are a leading indicator; xerophthalmia is a concurrent indicator; and blindness is a trailing indicator.

Anthropometry was regarded as a terminal indicator by some, but its use as an early warning indicator was not overruled. On a practical level, when there is food shortage, people cut down on food intake and consequently lose weight. This reflects the situation in an emerging crisis. The question is not so much whether an indicator is leading or trailing, but how quickly information flows to initiate response.

One participant pointed out that mortality is always high when there is malnutrition, no matter what indicator is used. Guidelines are needed on how to accurately identify those children who will fall below threshold: that is, what is the best predictor of mortality risk?

There was agreement on the need to focus more attention on micro-nutrients, primarily in the assessment of problems and approaches to alleviate them. There was some discussion about zinc and the reasons for the attention given to it. The point was not to advocate field assessment of zinc levels but to measure zinc content of the ration to ensure that the ration contains adequate amounts. It was pointed out that opportunities for studying the functional consequences of micro-nutrient deficiencies on a large scale exist in refugee camps.

Some concern was expressed about the separation of nutrition and socioeconomic data and the dichotomy between assessment and monitoring in the presentations. The presenters of the papers pointed out that it was not their intention to advocate dichotomy. Their presentations merely reflect current practice. In response to a call for the development of assessment models that bring together socio-economic, nutrition, process, and outcome indicators that involve the community, it was pointed out that a model already exists and can be found in a book entitled Nutritional Anthropology¹ by Jerome, Peltó and others.

Finally, it was agreed that more work is needed to learn about traditional coping mechanisms. Attention to the before-crisis stage is important, but a plan for follow-through is also necessary.

E. Recommendations of Working Groups

Discussions in working groups produced recommendations relating to conceptual issues, organization, indicators and areas for future research.

1. Conceptual Issues

Any assessment in a disaster situation must start by defining the objectives of the assessment, the beneficiaries of the assessment (who will use the results?), the time frame for the assessment and its use, and the key characteristics of the population under assessment (is it community-based, displaced, or in a camp situation?).

When conducting an assessment, whenever possible, preexisting data should be used before new data collection efforts are begun. In the ideal case, a famine prone country should be carrying out a permanent monitoring of food security conditions in the form of an early warning and monitoring system. This time-series monitoring approach is preferable to "one-shot" assessments in time of need and should be encouraged wherever possible.

1 Jerome, N.W., R.S. Kenbel and H. Peltó. **Nutritional Anthropology**. Contemporary Approaches to Diet and Culture. Redgrave Publishing Company, New York, New York, 1980.

2. Organization

For such a system to function well, there needs to be a national organization with the following characteristics:

- o The political mandate and financial means to undertake the assessment or information system development
- o The authority and means to coordinate multiple donors, government participants, and others concerned in food security system operations
- o The ability to channel, receive, and provide appropriate technical equipment and expertise to guarantee the viability of such a system.

To ensure the credibility of the information that is to be collected, donors and other interested parties should contribute to financing such systems and should conduct periodic internal and external reviews and evaluations at all levels of the food security and early warning systems. Data from such systems should be made freely available to all interested parties. There should be an effort to report the results of these information systems at all levels of decision making from the community to national and international levels, as quickly as possible.

3. Indicators to Be Used

With little dissent, the debate over indicators concluded that all indicators need to be considered within the context in which they are collected. A pressing need to standardize the methodology for definition and collection of indicators was expressed throughout the discussion. The need for more research, and the dissemination of its results, was also cited for each indicator considered.

a. Anthropometry

Measures of nutritional status are important because they are widely accepted as useful and important for assessment purposes. Their use should, however, be considered within the

context of each situation and in combination with other indicators, notably those for socioeconomic status.

The common measures are weight, height or length, age, and arm circumference. These give indices such as weight-for-height/length and weight-for-age. Setting cut-off points (for example, 80 percent of weight-for-height/length) allows:

- o For individual children, assessment at one time (for screening and diagnosis) or monitoring of progress (for treatment)
- o Population assessment or monitoring, by the proportion of children (or prevalence) below the cut-off point (this distinction between individual- and population-level use of data is important.)

Clear evidence is lacking for many aspects of how anthropometric indicators reflect specific mortality or food-shortage situations. Nonetheless, sharply deteriorating trends are clearly a warning sign, and some knowledge of "usual" levels will greatly aid interpretation of one-time assessment data.

For various uses, the following guidelines were put forward:

- o For population surveys in the initial phases of an emergency, and for population monitoring, weight-for-height/length, or arm circumference (or both) are generally the most used, expressed as prevalences below cut-offs.
- o For screening or other one-time individual assessments (for example, rapid case finding), arm circumference is the most commonly used measure; weight-for-height or length is an alternative.
- o For monitoring progress of an individual (for example in treatment), weight-for-age, or weight changes over time is the most usual.

Prevalence levels of child malnutrition indicative of a disaster cannot be defined in

isolation or as a general rule. Evidence of food shortages, no matter how measured, is sufficient to demand intervention and should not be contingent on evidence of "malnutrition" measured by anthropometry. Combining anthropometric indicators (for example, population level) with socioeconomic indicators (see below) should be encouraged.

Distinction was made between classification of results and their interpretation for action. Classification of individual nutritional status is thought to be useful and well-established in practice, particularly for weight-for-height/length. Classification of individual nutritional status by arm circumference was felt to be less well-established.

An example was provided to illustrate the distinction between classification and interpretation for action: A child with 75 percent weight-for-height may be classified as moderately malnourished, but under limited resources the entry criterion for a supplementary feeding program might be lower than 70 percent weight-for-height.

Donors felt that more guidance on the meaning of statistics on nutritional status would be helpful (for example, when 20 percent of children are moderately malnourished, as measured by percentage weight-for-height, is this a situation requiring emergency attention?). Some participants felt it undesirable to set official standards for nutritional status because these might be misused as guidelines for action rather than as simple classifications. Whether anthropometric or socioeconomic measures are used, guidelines classifying a situation as "serious" suggest that assessment is easy, only one indicator is necessary, and action may not be taken until that undesirably serious level is reached. Emphasis was given throughout discussions on combining the use of different indicators.

b. Mortality

It was emphasized that more research into the implications for mortality of specific anthropometric levels in various situations should be conducted along the lines of the work reported by Dr. Neiburg. Comprehensive, field-oriented training guidelines were also

considered an absolute requirement if measures of nutritional status were to have utility in longer-term comparisons or monitoring.

Mortality data were considered not to be a priority for monitoring and assessment except in camp situations and in the evaluation of feeding programs.

e. Socioeconomic Indicators

It was resolved that socioeconomic indicators that reflect access to food or food entitlement are important measures of food emergency situations and should always be included in early warning, monitoring, and assessment as a complement to nutrition indicators.

There is a need to specify methodologies that quickly clarify the use of such indicators in different circumstances. As the knowledge base improves, it is possible to concentrate on one type of socioeconomic indicator, such as the price of a staple food. It is also appropriate to consider the utility of these indicators as direct reflections of specific potential interventions, and to use them earlier than nutritional status, with smaller samples, and at reduced cost.

A different approach to the usual sample-survey methodology may be appropriate in the use of socioeconomic indicators, allowing faster assessment. As sentinel sites for an area may be used to collect both anthropometric and socioeconomic indicators, so "sentinel" people (for example, group leaders, the elderly, and others) may be used collecting socioeconomic data.

The importance of food supply (production) and agro-meteorological information in a national monitoring system was noted. More research into appropriate methods for rapid assessment and constructing interpretative frameworks is vital. Workshops for sharing the field experiences of agencies already working with such an approach were proposed.

d. Demographic Data

Population or "denominator" figures were cited as being always needed in an assessment or monitoring system.

e. Dietary Assessment (vitamins, minerals, and micronutrients)

Donors felt that little was being done in the area of fortification of relief foods with vitamins. Fortification was felt to be preferable to drug distribution, given the constraints in war zones. Donors proposed that if there was no evidence of harmful effects of overdose, the aid community should exhort them to fortify their relief supplies. Given a background knowledge of deficiencies in the usual diet, no assessment of the relief diet was considered necessary at the onset of assistance. If populations were subsisting on a long-term relief diet, however, with or without other sources of food, an assessment of the diet would be needed and action taken if vitamin inadequacies were found.

f. Morbidity

Information on morbidity was cited as useful in specific situations, but was thought to be of marginal value for general monitoring purposes unless it was already being collected.

There was complete agreement that the entire issue of indicators should be taken up in a series of specific training and field guidelines directed toward field personnel. The need was expressed for a group of experts that would take the responsibility for developing this standardized set of guidelines and ensuring their field testing and distribution.

4. Areas for Research

The problems of research priorities and of integrating operations research into practice were considered. As a general rule, a group strongly supported the idea of operations research at all levels of the food security community, with particular attention given to including local practitioners in the research activity.

Important areas for research were cited:

- o The relationship of all indicators to mortality in acute disasters or food-emergency situations -- for adults as well children in all age groups
- o Appropriate anthropometric indicators for older children and adults (for example, body mass index)
- o Methods for, and interpretation and feasibility of, anthropometric and socio-economic indicators, including research into the rapid collection, processing, and presentation of results at community, national, and international levels
- o Population-based studies on the impact of micronutrient deficiencies
- o Research into the issues of traditional assessment of nutritional problems and coping mechanisms.

It was again reinforced that standardization through common development of guidelines, which are made available to all potential actors, is needed. These guidelines should be developed and distributed throughout the entire food security community, with periodic updates as needed. The formation of a network of nutritionists could facilitate this effort.

IV. RATIONS

Dr. John Rivers, from the London School of Hygiene and Tropical Medicine, and Dr. John Seaman, from Save the Children Fund (U.K.) in London, presented a paper on the nutritional aspects of food aid, which was followed by comments by Dr. B. Torun, from the Institute of Nutrition for Central America and Panama (INCAP) in Guatemala.

A. Nutritional Aspects of Emergency Food Aid

The 1978 UN guidelines for emergency feeding (currently being revised) recommend three types of food distribution: general rations, supplementary rations, and therapeutic feeding. The suggested general ration of 1,800 kilocalories per person per day is less than the 1974 FAO/WHO recommended intake. The recommended dietary allocations of vitamins A, B, and C and iron also follow the 1974 recommendations. These guidelines are not accepted or followed by all operational agencies.

Methods for allocating food to emergency-affected areas are obscure; presumably, ration levels vary with factors such as food availability, cost, and nutritional considerations. Recent examples of food allocated to refugee populations in Honduras, Zaire, Cameroon, and Pakistan show considerable variation between the nutritional composition of the rations provided and the admission criteria used. The energy level ranged from 1,987 to 2,423 kilocalories per person per day; protein level ranged from 45 to 71 grams per person per day. In general, the quantity and quality of food actually supplied are inadequate. This may be the result of a failure of prediction, difficulties with transport, and other problems. Whatever the reasons, the shortfall is often marked.

Current UN guidelines cited are concerned only with the situation in which a population is entirely dependent on the food distributed. The authors' experience is that this situation is comparatively rare. The affected population often has some food, so that the distributed food is a supplement or is exchanged for other foods -- thus altering, and often improving, the quality and quantity of the diet.

The paper by Drs. Rivers and Seaman addresses two questions:

What is a reasonable target for the quantity and quality of food that should be provided to an emergency-affected population?

What strategy should be adopted where the food supplied falls below this level?

1. Energy Requirements

For practical reasons, the authors described two scales of rationing -- one for long term maintenance, and another called the survival ration -- stressing that, as far as possible, the former should be used. This issue proved controversial. Using standard methods of calculation, the authors estimated that the per capita ration for long-term maintenance would be 1,900 kilocalories per person per day, and 1,500 for survival. These requirements should be increased to account for the effects of environmental exposure and to provide for catch-up growth in emergency situations, since existing methods do not take these two critical factors into consideration.

a. Environmental Exposure

If the disaster-stricken population is exposed to the elements, the requirement should be increased by 1 percent per degree of temperature below 20 Celsius; in windy conditions, the effect of wind chill can be calculated by reducing apparent temperature by 5 degrees Celsius. This allowance is arbitrary, but the authors felt compelled to provide some guidance for a matter that cannot be ignored. They recognized that provision of blankets and outdoor clothing was clearly preferable, and these should be priority items of assistance in such circumstances.

b. Catch-up Growth

Additional energy to provide for the costs of catch-up growth needs to be included for relief operations where the affected population of all age groups are suffering from various degrees of protein-energy malnutrition. According to expert consultation, approximately 5,000 kilocalories above the maintenance ration are

needed to gain a kilogram of weight. For young children, the additional energy for catch-up growth is usually provided by therapeutic feeding under medical supervision, therefore no general allowances need to be made. It may be desirable to adjust the general ration to allow for catch-up growth for older children and adults suffering from mild to moderate protein-energy malnutrition, using ideal or standard weight-for-height as a base. The authors do not believe this poses a risk of overfeeding in an emergency situation. Underestimation of energy needs for catch-up growth was more likely than overestimation. Therefore, this would form a conservative level of feeding if rehabilitation was envisaged.

Possible sources of error that might exaggerate the estimation of energy requirements are overestimation of basal metabolic rate, and the lower limits of body weight may be set at too high a level.

2. Protein and Other Nutrients

There are no specific indications for high-protein diets in food emergencies. Even in supplementary rations for catch-up growth, the additional protein required is best provided by diets of a normal protein-energy ratio fed in large amounts. A protein-energy ratio of 12.5 percent was suggested. For vitamins A, B-complex, and C and iron, the diet should meet internationally recommended levels.

The problem of relief-food distribution is not to design a nutritionally adequate ration but to ensure that the population has access to it. Two types of data useful for this are, first, information to indicate the potential access of the population to different and additional food supplies (such as the existence and size of markets, terms of trade between resources available to population and food on sale, household stocks, and food production by the affected population) and, second, information to monitor the nutritional outcome, to ensure that the population is in fact adequately fed (such as anthropometric nutritional status and nutrient deficiencies.)

3. Food Distribution under Conditions of Shortage

When rations fall short of targets, it is necessary to adopt a feeding strategy that minimizes the damage (morbidity and mortality) caused. Such situations are common, and guidance is of great importance for the field worker. Various suggestions have been made, and the authors commented on their validity.

The current model does not quantify degrees of inadequacy and, therefore, does not give a basis for a distribution strategy when supplies are inadequate. If this model is applied where food supplies are deficient in a given nutrient, the implication is that, to maximize the number of individuals who are certainly consuming their requirement of that nutrient, rations should be distributed to as many people as food supplies permit. The distribution level should be at least approximately 1.5 standard deviations above the mean requirement. Such a strategy is not acceptable.

The alternatives for selective distribution of food under conditions of gross energy shortage are limited. They are:

- o To distribute available food equally between individuals or families
- o To discriminate in favor of a defined group of individuals who have objective signs of starvation
- o To combine these two strategies.

When a selective strategy is applied, food is usually distributed in a cooked form from feeding centers to control the food intake of the defined group. The usual criterion for selecting children under five years old for feeding is weight-for-height; that is, when their weight-for-height falls below a threshold of, say, 80 percent of reference values. Children below the 70 percent mark are often classified as severely malnourished and are fed more intensively to maximize their speed of recovery. These procedures are purely pragmatic and their scientific validity has never been fully addressed.

Objective markers of an individual's intake compared with the requirement are needed to guide the development of a rational strategy for feeding under conditions of shortage. Anthropometric indicators provide a proxy for intake in that they are a measure of the cumulative extent to which an individual has been underfed. Some information is available on the relationship between anthropometric indicators and mortality; however, this information is based only on data for children under five years old. Three studies -- from Bangladesh², Papua New Guinea³ and Zaire⁴ -- show that below the normal range the anthropometric indices become progressively more powerful measures of the extent of nutritional deprivation. These studies show that the relationship between weight-for-height and mortality is non-linear; there is increased risk when weight-for-height falls below the range of 75-85 percent of the median of the Harvard standard for weight-for-height.

Where food supply is highly restricted, there are powerful arguments for basing all food distribution on anthropometric assessment. Evidence supports current selective feeding approaches to target children under five years of age, but there is urgent need for more information on anthropometric nutritional status and risk in older children and adults to see if such strategies can be usefully extended to a wider population.

4. Deficiencies of Other Nutrients

When populations are wholly dependent on a diet of only cereals, oil, and dried skimmed milk, deficiencies of vitamin A, B-complex, and C, iron, and folic acid develop. The provision of high-dose vitamin A supplement to children under five years old is a common and widely accepted practice. Epidemics of scurvy associated with low dietary vitamin C have occurred recently in refugee populations in Sudan and Somalia. Attempts to manage the problem through distribution of vitamin C tablets and use of limes have not been successful because of problems in distribution, compliance, and procurement.

The obvious solution is either to provide a nutritionally full and adequate ration or to permit trade that will allow aid recipients to

obtain other foods to make up an adequate ration. Trading for spices and condiments should be permitted to break the monotony of the diet and to improve the palatability of donated foods. The authors see no reason to resort to distribution of nutrients in medicinal form, except for vitamin A. There are no technological constraints to nutrient fortification of relief commodities, and fortification should be considered for populations entirely dependent on distributed foods.

B. Discussion

Dr. B. Torun called for a further distinction between people entirely dependent on rations and those with access to some other foods during disasters with a prolonged effect. The survival ration discussed by Rivers and Seaman may be suitable for short-term disasters and for situations in which people have access to other foods. Otherwise a larger ration that permits long-term maintenance will be required. Where edematous malnutrition is common, protein should be of good quality or the protein levels in the ration should be increased.

2. Chen, L.C. et al. Anthropometric assessment of energy-protein malnutrition and subsequent risk of mortality among preschool aged children. American Journal of Clinical Nutrition, 33:1836-1845 (1980).

3. Heywood, P. The functional significance of malnutrition: Growth and prospective risk of death in the highlands of Papua-New Guinea. Journal of Food & Nutrition, 39(1):13-19 (1982).

4. Kasongo Project Team. Anthropometric assessment of young children's nutritional status as an indicator of subsequent risk of dying. Journal of Tropical Pediatrics, 29:69-75 (1983).

Dr. Torun felt that the method suggested for calculating additional requirements for catch-up growth may not be sufficient. Alternative suggestions are needed. Allowances for increased needs due to infection and for food not eaten should be included. Working groups discussed the multiplier for basal metabolic rate to use for estimating rations. Dr. Torun agreed that it was preferable to err by excess than by deficit when estimating requirements for nutrients that are harmless if taken in excess.

Alternative strategies for the selective distribution of food need to be found because anthropometric data are difficult to collect in disorganized situations. Concern was expressed about the strategy to provide just enough food to maintain weight above the safety threshold in times of food shortage. Other ethically acceptable strategies are needed.

The form of the distributed food can have a profound effect on intake. Cooked foods require more organization for distribution but ensure that the right beneficiaries consume the food. Care needs to be taken, however, that the relief food is not used as a substitute for other foods available locally. Micronutrient fortification of commodities is technically feasible and preferable to medicinal supplementation.

Other questions raised concerned survival rations, which were considered to be too small. It was pointed out that the concern is not simply to keep people alive but also to improve their quality of life. The authors agreed, emphasizing that the goal is to achieve overall adequacy and that deficiencies for only several days are less of an issue than deficiencies occurring continuously over a longer period. This is a pragmatic point and is relevant for strategies to overcome micronutrient deficiencies. For example, large doses of vitamin C given less frequently could help to resolve some distribution and compliance problems. Permission to trade distributed foods for other foods, especially fresh foods, can also help to alleviate the vitamin C problem. Problems with vitamin C loss during cooking were brought up as a disadvantage in fortifying distributed foods. Not enough attention is given to the cultural acceptability of donated foods, a factor donors tend to ignore.

C. Recommendations of Working Groups

The international community has a commitment to ensure that recipients of emergency food aid have access to nutritionally adequate and acceptable foods, in terms of both quantity and nutritional balance. Recent experience has demonstrated that the quantity of food aid provided by the international community has not been sufficient to meet the actual needs of emergency-affected populations.

It is recognized that a major impediment to such provision is the ambiguity of relationships and responsibilities among donors, international agencies, and recipient governments. Efforts should be accelerated to formalize these responsibilities within the international community. To reduce some of the present institutional constraints within the affected country that hamper the effectiveness of relief work, standardized policies at different levels as well as a coordinating body should be established. Standard forms should be used for project formulation, reporting on utilization, and evaluation. It is recommended that a UN agency act as the coordinating body. A nodal point should be identified at each of the donor, national, and international levels.

1. Ration Levels

Rations should be provided at a level that will ensure that minimum mean per capita energy and protein intakes for the target population conform with the 1985 FAO/WHO/United Nations University energy and protein requirements. Although the mean per capita daily energy and protein requirement for any target population can be more accurately calculated by applying age-specific values for energy and protein requirements to the demographic age and sex structure of the target population, a practical working figure for the minimum energy requirement should be 1,900 kilocalories per person per day for a sedentary population. It is recognized that, in some situations, a portion of the energy requirement may be obtained by the affected population itself. When the population is totally dependent on external food aid, however, the entire energy requirement should be supplied in the standard ration.

Whatever the source of the rations, and whether the rations are provided to meet the immediate food needs of a sudden emergency or to meet food requirements on a longer-term basis (as in long-term refugee camps), rations should be supplied at a level to ensure that the total guaranteed mean per capita energy intake is at least 1,900 kilocalories daily. In addition, the food provided should be culturally acceptable and in a consumable and digestible form. It has been observed that recipient communities are not familiar with much of the grain provided by donors. These grains may need milling, but equipment is often not in place in the early phases of emergency programs. When whole grains are provided, milling equipment must be provided from the onset of the relief program. The special needs of certain cultural groups -- for example, pastoralists -- should also be recognized and met by relief agencies.

The minimal energy requirement defined above assumes a normal demographic composition of the affected population. Adjustments are needed if the age and sex distribution of the population are unusual. The energy requirements need to be adjusted upward for populations exposed to cold climatic conditions, by an amount of 5 percent per every 5 degrees Celsius when the temperature is lower than 20 degrees Celsius, until adequate shelter and blankets are provided.

In addition to the basic requirement calculated from the minimal per capita energy needs, an extra amount of food is required to provide selective feeding to "at risk" groups. This amount will depend on the initial assessment (and in chronic situations, on revised assessments) of the proportion of the population identified by anthropometry or other means as being at risk. The provision of food for selective feeding, when indicated, should be seen a priority on equal footing with the provision of a general ration, since selective feeding programs provide opportunities for additional activities that promote the well-being of the affected population (for example, measles immunization, nutrition monitoring, prenatal care, and rehydration.) Recipient government agencies and other implementing agencies should agree on which groups should be targeted for selective programs.

The above energy requirements refer to the actual amounts that should be consumed by individual recipients; therefore, aggregations of food for planning should compensate for losses in transport and local distribution. It has been suggested that this adjustment should be 5 percent for transport within countries with ports and 10 percent for land-locked countries. In addition, losses from distribution at the recipient site and losses from milling of whole grains should be estimated as part of the assessment process and should then be added to the planning aggregate.

There is no advantage in specifying an alternative, lower figure for energy intake as being sufficient for short-term survival. Substantial consequences from not providing the above energy requirements have been demonstrated in numerous situations. The further mean per capita energy intakes fall below the minimum level, the higher will be the rates of malnutrition, morbidity, and eventually mortality -- particularly in infants and young children.

2. Selection of Commodities

When food aid is provided, the ways in which it is supplied should be carefully considered, taking into account such factors as cost effectiveness, speed of delivery, and the appropriateness of the food for the affected population. The planning and management of international and national food reserves and the provision of food aid by donors should take into account the actual and predicted requirements of emergency-affected populations, using the guidelines outlined above.

When rations -- whether providing all or part of the recipient diet -- are initially provided to a target population in a nutritional emergency, the immediate priority for the choice of commodities is to ensure an adequate intake of energy and protein. Whatever the commodities chosen, it is recommended that the protein-energy ratio of the total basket should not fall below 12 percent. If necessary, this may be the priority criterion for commodity selection during the first month.

Where rations are provided to the target population for more than one month, it is

essential to ensure that the ration provides minimum requirement levels of vitamin A, thiamine, riboflavin, vitamin C, iron and folic acid. The level of fat intake should also provide at least 10 percent of the dietary intake of energy.

Individual trading of emergency relief food among recipients, under circumstances in which certain essential items are not available in the standard ration, is recognized as a desirable practice and should be permitted by the donor governments. Commodity exchange, by agreement between donor and recipient governments, should be an acceptable practice as long as the donated commodity is locally marketable and the locally exchanged commodity is nutritionally appropriate. When sales or trading take place, careful monitoring and evaluation should be done to avoid any disincentive effects on local agricultural production and marketing, to ensure that the affected population receives an adequate nutritional intake, and to see that nutritional status is not adversely affected. If a nutritionally adequate, balanced, and acceptable ration is not supplied by donors, and trading of food items is therefore expected to supply the deficient item(s), then careful monitoring of the local availability of the deficient item(s) should be performed regularly by the government, donor, and implementing relief agencies or their appointed representatives. In addition, these agencies should monitor actual trading practices to identify needs for education and guidance in the affected population.

Vehicles for providing essential micronutrients include locally procured or traded foodstuffs that contain the micronutrients and foods fortified locally or externally with the micronutrients. As a last resort, pharmaceutical supplements of the micronutrients might be distributed. This issue needs to be researched further to determine the feasibility of distribution and the impact on the population.

Information on the technical details of fortification should be assembled by appropriate experts and be made readily available to donor, international, and recipient government agencies as promptly as possible. Successful examples of fortification include oil and sugar (with Vitamin A), and salt (with iron or iodine).

3. Supplementary Feeding

In nutritional emergencies or disasters there may be a need for special weaning and supplementary foods for vulnerable groups. It is essential that both such foods be energy dense and contain adequate essential micronutrients.

When the general ration does not contain a digestible cereal, adequate oil, and a separate protein source (such as lentils or other pulses), processed foods (such as corn soy milk) may be necessary in the general ration and may also be useful for selective feeding. These processed foods are expensive, however, and locally mixed supplementary foods can be provided if the raw ingredients are available. In the early phase of an emergency a balanced ration may not be available, and adequate milling facilities for whole grains may not be present. In these circumstances, such processed foods may be of great value.

Where actual food supplies are insufficient to provide the minimum energy requirements, field workers will face certain painful decisions regarding distribution. That there was no agreement among the working groups about the correct approach to this dilemma illustrates the undesirability of the situation. Responsible agencies must strive to avoid situations in which food supplies are inadequate for the survival of populations. In reality, however, such situations arise, and field workers may have to choose one of the following options, unsatisfactory as each of them is:

- o If the community and family structure is still intact and community representatives can be identified, then the community should decide how such limited food shall be distributed; the potential problems associated with this approach are recognized.
- o If community structures have been disrupted, then field workers should distribute food selectively to those at highest risk of mortality (children less than five years old who are identified by anthropometry as at risk and their mothers and siblings; clinically malnourished older children and

adults;and pregnant and lactating women); such selective feeding should continue for the shortest time possible until overall food supplies are adequate.

- o Food should be equitably distributed to all members of the affected population without selection of particularly vulnerable members of that population.

V. LOGISTICS

Mr. B. Szynalski, from World Food Programme (WFP) in Rome, presented a paper assessing distribution and logistics as constraints on adequate nutrition in times of disaster. The presentation was based on a paper (with the same title) prepared by Rob Stephenson, Carol Williams, Nick Russell, and Michael Day Thompson. The preparation of the paper was coordinated by the Relief and Development Institute, London, at the WFP's request. Dr. B. N. Okigbo, from the International Institute for Tropical Agriculture in Ibadan, Nigeria, delivered comments on the paper prepared by Dr. Michael Mispelaar, from CARE/Mozambique.

A. Distribution and Logistics as Constraints on Adequate Nutrition in Times of Disaster

The paper by Stephenson and others draws on experience in Africa to examine the consequences of breakdowns in the logistics and distribution chain for the quantitative and qualitative value of the emergency food ration and for emergency feeding programs. It covers the following:

- o Logistical problems that interfere with getting rations to the site in need
- o Logistical constraints affecting different types of disaster
- o The ways in which logistical constraints can shape the composition of the received ration
- o The struggle for precise distribution systems
- o The roles and responsibilities of actors in the logistical operation
- o The definition of logistical goals for relief, rehabilitation and development
- o The benefits of a joint approach to nutrition and logistics.

The following points were highlighted in the presentation.

1. Response

When an emergency occurs, the normal chain of events would include assessment of need, resource mobilization, procurement, shipment and delivery to port, transportation to affected locations, distribution to beneficiaries, and monitoring and reporting on the distribution of food. The chain of events is basically the same for all emergencies, but the action taken will depend on the type of emergency. Differences lie in the kinds of resources needed (food, water, medicines) and the timing of the response. Sudden natural disasters require immediate response, whereas slowly evolving emergencies usually allow more time to assess needs and plan a response. In man-made emergencies, security considerations may hinder or even prevent the distribution of food to affected populations. No two disasters are alike. Therefore, the logistics and distribution for each must be planned on the basis of the initial assessment of needs, with subsequent adjustments to reflect changes in needs and to accommodate other problems.

2. Ration Quality

The adequacy and quality of the ration depends on several factors: proper assessment of needs, local availability of complementary foods to beneficiaries, donors' willingness to provide what is needed, and the ultimate success of the operational mechanism put in place to respond to the disaster. There will inevitably be gaps in knowledge of the above factors, so that preparation of the response will fall short of the ideal. These deficiencies must be taken into consideration; hence ration levels set at the minimum necessary to maintain life are not acceptable and should not be used to guide planning of food commitments. In the field, when food supplies break down, these minimum ration levels can be used to guide the distribution of food. Supplementary feeding for those most at risk is another alternative when supplies fall short. This strategy, however, is expensive and does not adequately address the issue of chronic malnutrition. A better design of the distribution system can partially alleviate the problem of insufficient

rations. Limiting distribution to short intervals of about ten days, establishing firm control of commodity handling and accounting, and use of a well-designed process to identify and verify beneficiaries (such as photo identity cards, fingerprints) were suggested.

3. Constraints on Implementation

The WFP supports the authors' recommendations, but there are certain constraints preventing implementation:

- o Emergency relief relies too much on ad-hoc reaction of the international community. This results in inappropriate commodity baskets, insufficient food or cash resources, and unsatisfactory quality of the emergency food ration.
- o Disaster relief always involves many partners -- recipient governments have to agree, accept, and administer relief programs; cooperation among many organizations that provide different inputs (food, water, transport, and so on) needs to be coordinated, preferably by the recipient government.
- o The inadequacy of the food ration and food basket provided in disaster situations needs to be recognized, especially in long-term situations. A more liberal policy, with strict control mechanisms if necessary, is needed to permit, at individual and program levels, the sale of food items to generate funds for local purchase of supplementary foods or fuel.
- o Local procurement, purchases, and exchange agreements can help to close some logistical gaps and to ensure the suitability of food products, encourage local food production, and save foreign currency.
- o Recipient countries can also help to ease the logistical gaps by allowing the use of their own security stocks (against guarantees of reimbursement) to meet emergency needs -- opening up local purchase when private trade exists,

cooperating in the management of the emergency, and recognizing that the international community's insistence on controls is not a manifestation of distrust but a genuine need for accountability back home.

- o There is a need to plan consciously for development when addressing a disaster situation. Where food is delivered for any length of time, opportunities to develop useful projects that can be funded with food aid should be explored. This reduces dependency on hand-outs and contributes to the development of permanent or semi-permanent structures for securing a better economic base for the future.

The conclusions called for donors to match responses to need, to co-ordinate assistance programs so as to avoid duplication of supplies, to incorporate local solutions, and to design a good distribution system. Other issues not raised in the paper but considered important by Mr. Szynalski concern the role of the media in mobilizing support, standardization of supplies and stock handling, prepositioning of commodities, and the role of the International Committee for the Red Cross (ICRC) and other organizations in strife situations.

B. Discussion

Dr. Mispelaar pointed out that opportunities for improvement exist even if constraints engender disruptions. Logisticians are not solely responsible for logistical problems; hence the resolution of such problems requires inputs from others. Nutritionists and logisticians need to work together with policy makers to ensure that adequate institutional structures are created or strengthened. This alone will not guarantee goal accomplishment, but the operational integration and active participation of nutritionists in these structures will help.

The conditions that have characterized recent disaster situations need to be understood before opportunities to deal with them can be found. The multiplicity of organizations involved in responding to disasters leads to duplication, overlap, and compartmentalization of activities. Information flow breaks down both within

organizations and between organizations and sectors. The creation of a structure to facilitate coordination and information flow can be useful. This was found to be so in Mozambique -- it ensured coordination, unity of command, and control over the collection and dissemination of information. Both nutritionists and logisticians can contribute and need specific information that will support the common goal of delivering an appropriate basket of foods to every affected person. The kinds of information that nutritionists can provide are food requirements, availability of local foods, tonnage capacities to service area or population, food production in the area, deliveries made to the area, and the like. Logisticians need information on nutritional status, problems, and the appropriate balance for the food basket.

Other points raised in the general discussion were as follows.

Disputes over the exact size of the affected population should not affect the quality of the ration. Current ration levels provided are around 1,500 kilocalories per day; an increase to 1,900 kilocalories would be desirable.

Trilateral operations using local purchases have been successfully tried in some countries (Mozambique). In Sudan, however, local purchases of dura led to a more expensive and slower operation. A key question in such situations relates to getting suppliers to honor commitments and to deliver goods on time.

The concept of prepositioning food relief supplies has not attracted much support from donors, perhaps because of competition for resources between future and more immediate needs.

Questions and discussions surrounding an organization's responsibility and obligation to provide a complete ration were raised by several participants. The WFP indicated that it had moral, not legal, obligations to do so and uses this argument to support attempts to get better commodities. WFP tries to give the best quality ration possible but is limited by what donors provide. The willingness of donors to give what is really needed was questioned. It was felt that a public statement to inform the public of donor countries about the reality of

the situation was needed to muster support for increases and improvements in the food donated.

Better assessment of need will be necessary because donors often do not have confidence in estimates. When registration and distribution systems are inaccurate, donors lose face and are forced to reduce donations. More research is needed to develop satisfactory assessment systems. A "quick and dirty" assessment of needs might suffice to get the process started. The reality of the situation is that the available food is usually inadequate for immediate needs; one can choose to blunder into disaster relief or plan for it.

Concern was expressed about the preoccupation with donors' logistical problems. It was pointed out that the donors' problems cannot be dissociated from the local infrastructure. An example from India was given to illustrate how the response to the 1987 drought was organized for a dispersed population. Public distribution systems were first strengthened to support the distribution of food and fuel to the affected populations on a continuing basis. Employment was provided. Well-defined actions helped to contain negative effects. The existence of an appropriate structure facilitated the implementation of these actions. Logistical problems cannot be solved in times of crisis; the structure needs to be developed before the crisis. Governments, NGOs, and others must work together to assist this development.

C. Recommendations of Working Groups

Logistics is one of the keys to the success of any emergency operation. Food that does not reach the intended beneficiaries has no value. Logistics must therefore be of concern to nutritionists, who must work closely with logisticians.

1. Importance of Registration

A viable system to identify and register beneficiaries is essential to ensure an equitable distribution of adequate rations. It is better to start with at least some registration system than to wait for a perfect system to evolve. Systems can then be refined as the operation becomes established. Regular re-validation and re-

registration must be envisaged, and nutritional assessment should be built into the registration-distribution system. In most situations, especially camp situations, the issuing of ration cards on a family basis, specifying the individual family members, is considered essential. In some situations, notably scattered populations "in situ" (especially pastoralist communities), the issuing and use of ration cards may be unnecessary or impossible.

2. Standardization of Vehicles

Standardization of vehicle or truck fleets facilitates logistic operations and helps to ensure a regular flow of relief supplies. Where fleets cannot be completely standardized, they should at least be restricted -- to facilitate repairs and obtain spare parts -- to types that are already in general use in the country. To achieve maximum standardization, it is vital that appropriate specifications are supplied to the donors as early as possible and that the recipient governments effectively coordinate the offers and inputs from the donor community.

3. Distribution Frequency

The frequency of distributions has to take account of the logistical constraints of both the distributing agency and the beneficiary. For concentrated populations, intervals of less than one week are administratively cumbersome for the distributing agency; for the beneficiaries, intervals of more than two weeks may involve more food than the beneficiary can carry or ration out to his family. In these situations, an interval of one to two weeks would seem to be reasonable. Scattered populations pose special problems for both distributor and beneficiary; monthly distributions may be the only solution. Because beneficiaries must frequently travel long distances, it is particularly important that distributions follow a fixed pattern.

Distributions must be planned to ensure that a balanced diet is available to all households over a monthly period. Whereas bulk commodities, notably cereals, may need to be distributed at short intervals, other commodities may be included less frequently if this significantly reduces distribution problems.

Fresh foods are valuable sources of micronutrients. Perishable goods should not be excluded just because they must be distributed more frequently than regular rations. The selection of perishable items such as vegetables depends on their nutrient content per unit cost, on shelf life, and on local acceptability.

4. Choice and Provision of Commodities

Donors and international organizations have made considerable efforts in recent years to provide appropriate commodities that match local food habits as closely as possible and are suitable for preparation. These efforts must be continued.

Flexibility is needed. Donors, in agreement with recipient governments, should maximize opportunities to exchange donor commodities for more suitable, locally produced items. This may include "swap" arrangements, but sales (in urban areas) of donated commodities to generate cash, which is then used to purchase local items, are generally more efficient, quicker, and therefore preferable. Recipient governments should facilitate such operations by ensuring that all necessary administrative and other procedures are expedited so that the local commodities reach the beneficiaries quickly and in good condition. The possibilities for the constructive use of such arrangements should be explored as part of the initial assessment.

To be sure, compromises are often necessary between what would be ideal and what is possible. For food items to be distributed directly to beneficiaries, second-choice cereals may be acceptable. The substitution of noncomparable items (for example, dried skim milk for legumes) is not. Recipient governments and operational agencies should carefully examine the donations offered and decline items that are neither appropriate for direct use by the beneficiaries nor suitable for sale or exchange at the national level. All donations should be reviewed for quality, suitability, production/expiry date, packing, shelf life, and special handling requirements.

When whole grains are supplied -- as is preferable in most long-term emergency feeding operations -- the recipient government,

donors, and operational agencies must ensure that the necessary milling and grinding facilities are available. Wherever possible, small-scale grinding facilities at the camp or community level are preferable to bulk milling and distribution of flour.

5. Packaging and Labeling

Consumer protection is as important for a drought victim as for households in donor countries, and recipient governments are becoming increasingly strict with regard to the quality of imports. Donors must ensure that the commodities provided are of good quality and meet normal public health standards. A "labeling code," to which both donor and recipient governments subscribe and contribute, should be established that would indicate on individual packages such things as ingredients, date of production/expiry, storage requirements, weight in kilograms, nutritional content per 100 grams, and specific cultural prohibitions and approvals (for example, halal). Packaging of locally provided items and imported donations must withstand the extensive handling typical in most emergency operations.

6. Speed of Delivery of International Food Aid

To speed the delivery of international food-aid commodities, donor countries should examine all possible ways of reducing delays. In particular, they should consider allowing rapid access to their available food reserves (including national food security stocks, surpluses, and the like), for immediate access (by WFP, for instance) in response to emergency situations.

7. Internal Transport and Distribution

Recipient governments must take all possible measures to expedite the receipt, handling, and transport of food supplies provided for emergency operations. Priority should explicitly be given to the movements of food aid to the affected regions. Administrative delays should be minimized. In transport operations, particular attention is given to questions of spare parts and repair facilities. Donors and operational agencies must consider the means necessary to ensure the delivery of

commodities to the intended beneficiaries and, where necessary, include appropriate assistance in their total aid packages. Possibilities for mobilizing the affected communities to participate and assist in the transport and distribution of commodities at the end of the supply chain may be explored and exploited.

Governments, with the assistance of donors and NGOs where necessary, should build up the physical and management capacity to handle the food aid and other supplies and services required in emergency operations. This capacity should include storage facilities and contingency stocks at various levels (including necessary arrangements to rotate those stocks). The establishment of inter-country agreements to facilitate the co-ordination and, when necessary, rapid borrowing or exchange of national stocks may be encouraged.

Recipient governments could allow representatives of international organizations and donor agencies the greatest access to the affected communities, so they may observe needs and monitor the distribution and use of international assistance. This is essential for mutual credibility: to enable these organizations to account to their own contributors, and to ensure for the recipient the continued flow of contributions.

VI. TRANSITION FROM RELIEF TO DEVELOPMENT

Two case studies from Africa were presented to illustrate the transition from relief to long-term development. Mr. Ato Seifu Welde Abraham, from the U.S. Save the Children Federation (SCF), presented an example from Ethiopia. Mrs. Tswelopele C. Moremi, from the Ministry of Finance and Development Planning, Botswana, presented an example from her country. There were no discussants for these papers.

A. Case Study: Yifatna Timuga District, Shoa Region, Ethiopia

Mr. Abraham's paper described relief, rehabilitation, and development activities carried out by Save the Children Federation USA in the Yifatna Timuga District, Northern Shoa, Ethiopia, since January 1985. Yifatna Timuga has a population of 390,949 living in 186 localities. The main crops are teff, barley, and sorghum. Only about 10 percent of the total land is used for agriculture.

Drought and famine are common occurrences in Ethiopia, mainly affecting the northern part of the country. The 1972-74 and 1984-85 famines affected large populations and drew a huge international response once they were publicized. The 1984-85 drought affected 7.9 million people, and its consequences continue to be felt in 1988.

I. Assessments and Relief Activities

SCF conducted nutritional assessments in 1985 in Yifatna Timuga and found that 250,000 people (72 percent of the population) were in need of food assistance. Retrospective mortality surveys revealed massive deaths from famine, and diseases such as diarrhea and measles had occurred. Instead of setting up camps or feeding centers, SCF decided to take food and vital medical services to the people in their own villages. Local people were drawn in to assist in enrolling the affected population, teach primary health care, carry out nutritional monitoring and follow-up surveillance, and to develop agricultural activities. Families were registered in a house-to-house survey, carried out every four months. Information on death

in the past seven to thirty days, as well as weights and heights of children under five years old was collected. Food was distributed to every member of the village who came for weighing. Teams returned monthly to give a ration of 2,000 kilocalories per day to each member of families with one member under 80 percent weight-for-height. Later, everyone received 1,800 kilocalories per day regardless of the nutritional status of the family.

In the first year an average of 150,000 received food, 49,500 children received vitamin A tablets, and SCF worked with the Ministry of Health to vaccinate children against measles, polio, whooping cough, tetanus, diphtheria, and tuberculosis.

2. Transition from Relief to Development

With a good rainy season in 1985, food production was satisfactory, so that emergency food distribution was considerably reduced and targeted for those still in need. From 1986, more focus on institutionalization of development programs became possible. Agriculture, water development, education, human resources development, and health programs were developed and implemented in collaboration with party, government, and community organizations, mainly in the impact zones. An "impact zone" has about 80,000 people -- the idea is to concentrate development programs in a limited area and then expand them to the whole district when enough resources become available.

Agricultural activities began with seed and tool distribution and soil conservation. Extension education and household and crop pest control have been added. Water and soil conservation activities, road construction and maintenance, and tree planting are now carried out through a food-for-work program. Community and school vegetable gardens provide fresh produce for consumption and generate income. A 6-hectare seed multiplication farm has been established by the community.

Springs are protected, and 27 wells have been fitted with mono-pumps to bring clean water as close to homes as possible. The community provides local materials and labor, and SCF

provides cement, mono-pumps, and trained manpower.

Community-based orphan homes for children who were either abandoned or orphaned during the crisis have been set up to keep these children within their original communities, so that they remain in contact with their traditional culture and way of life. Traditionally, communities used to support orphans for adoption, but the desperate poverty resulting from the famine has led to a breakdown of this support system. By helping communities to keep their orphans, SCF is helping to revive and rebuild this traditional support system.

Health activities focus on developing and strengthening community primary health care services, training, nutritional surveillance, and health information development. Each kebele (village) has a health committee to guide health activities and to ensure that community health aides (CHAs) and traditional birth attendants (TBAs) get adequate support to function properly. Basic training is given to CHAs and TBAs in collaboration with the District Health Management Office. Each month, CHAs and TBAs meet to report on activities, discuss problems, pick up drug supplies, and attend refresher courses. The district health program has become a training area for the Ministry of Health's District Health Manager trainees. Nutritional surveillance resumed in October 1987 when the rains expected in July to September did not come. More than 200,000 people are now on emergency food assistance while the development activities continue. Even if the 1988 harvest is satisfactory, there will not be sufficient food. Nutritional levels are, however, satisfactory for the time being.

SCF plans and executes all activities in collaboration with the Ministry of Health. The working relationship is good, and both parties meet regularly to assess progress and discuss problems.

3. Conclusions

The SCF's experience supports the notion that relief activities should be complemented by rehabilitation and development activities early on to promote recovery and self-sufficiency in

the long term. Providing services to people in their own homes does not disrupt their social and cultural life. It facilitates the incorporation of a broad range of long-term rehabilitation and development activities, which also build in measures to prevent or cope with disaster. Community participation, adult education, use of appropriate technology; the integration of primary health care, environmental rehabilitation, agricultural development; and the development of an appropriate information system to provide data for assessment, monitoring, and evaluation of programs -- all are vital elements.

B. Case Study: Botswana

About 82 percent of Botswana's 1.2 million people live in rural areas; most are dependent on agriculture -- mainly livestock raising, arable farming, and hunting and gathering. A high proportion of men work abroad. Therefore, there are many households, especially in rural areas, headed by women.

Recurrent droughts first reduce harvests and threaten rural households' food supplies. The impact on livestock is more gradual, and those with small herds suffer greater losses because they do not have the resources to protect their herds. Poor farmers usually lose their draft power, which makes them unable to resume farming when the rains do come.

The 1961-66 and 1981-87 droughts provided the scenario for the development of Botswana's capability to respond. The 1961-66 drought occurred after a long period of relatively good rains, so that the government was not prepared to handle such an emergency. Delays in declaring the country to be drought stricken led to late response, which did not start until 1965. Consequently, one-fifth of the population became dependent on food aid, and about 400,000 cattle were lost.

Between 1968 and 1979, more droughts of short duration occurred. The government response was quicker, mainly through supplementary feeding. The Ministry of Agriculture commissioned consultancies to develop long-term contingency plans for caring for livestock during drought. The report emphasized the need for government preparedness to protect

both livestock and the human population. Internal government discussions were hastened by a symposium on drought organized by the Botswana Society, but little was done to improve and consolidate the human relief aspects of the aid program that had been set up.

1. Preparations for Response

When drought occurred again in 1981, the government was better prepared. It had commissioned consultants in 1980 to evaluate the 1978-79 Drought Relief Programme and to prepare recommendations. This report provided important inputs to the development of drought policy. On the basis of the consultants' recommendations, the following decisions were taken early in 1982.

- o A Food Resources Department was created as a permanent food management and distribution agency to replace the Institutional Feeding Programme. The Department's responsibilities include procurement and distribution of food supplies and co-ordination of other human relief measures.
- o The Inter-ministerial Drought Committee (IMDC) was reactivated. The IMDC is responsible for collecting and analyzing information related to drought and for developing recommendations and programs for government approval. It also co-ordinates the implementation of the approved program, reporting on its progress to the Cabinet. It provides recommendations on priorities for resources allocation, and organizes research related to drought. The IMDC is located in the Ministry of Finance and Rural Development, meets six to eight times a year, and makes its recommendations to the Rural Development Council. It has a membership of 23 -- large, but a number that allows for speedy decision-making. The District Drought Relief Committees ensure that action can be taken quickly. At every meeting the Early Warning Technical Committee,

which collates information from all participating departments and surveillance systems, reports to the IMDC.

2. Impact of the 1981-87 Drought on the Rural Economy

Women, children, and the poorest of the population were the most vulnerable to the 1981-87 food emergency. The number of underweight preschool children brought to clinics rose from 25 percent to 30 percent. Rates in remote parts of the country were higher. Severe malnutrition was found among 1 percent of preschool children.

Small farmers were not able to produce enough food and lost other means of earning income because of reduced employment opportunities. Households with small herds did not have the resources to seek alternative sources of feed and water for their cattle, leading to increased cattle mortality.

People in the sandveld areas who depended on hunting and gathering tended to be heavily stressed nutritionally because of the reduction in the availability of wild fruits and nuts and meat from wildlife.

3. Traditional Responses to Drought

Traditionally, pastoralists would move with herds in search of water and grazing, but this option has become limited with the rapid increase in livestock populations and in boreholes and fencing. With population growth and regulations on access to wildlife, hunters and gatherers have restricted access to veld foods.

Tribes used to act collectively to put aside a portion of the crop in good years for storage and redistribution to needy households in bad years. This tradition has disappeared.

4. Relief Program

A four-part relief program was implemented with the following objectives:

- o Supplementation of food supplies to reduce the incidence of, or forestall rises in, malnutrition among groups at risk
- o Supplementation of rural incomes to compensate partially for production lost to the drought, through providing short-term income-earning opportunities.

The Supplementary Feeding Programme has two components. Children under five years old, pregnant and lactating women, and tuberculosis patients qualify as medically selected beneficiaries. Under the Emergency Feeding Programme the same beneficiaries, plus children aged six to ten not at school and destitutes (permanent and temporary), are provided with increased rations. Children below 80 percent of weight-for-age are given double rations. The rationale for providing rations to children not at school was that such families must be falling through the government's safety net and should be helped. This approach was controversial, and this category is eliminated as soon as a district passes to the Drought Recovery Phase. There is recognition that not all households in greatest need are reached by these criteria.

Under the Labour-Based Relief Programme, able-bodied men and women are employed at a daily stipend on village improvement projects selected by Village Development Committees. The stipend was left deliberately low to discourage those who are able to find work elsewhere and to ensure work for the poor. This stipend is intended to supplement and not substitute for the household's efforts at self-preservation. An estimated 90,000 people participated, receiving 94 pula (US\$48) for work during the agricultural slack season. The activities undertaken in these projects include construction of dams for livestock watering, bunds for flood recession, drift fences, woodlots, conservation projects, and school gardens. All of these contribute to long-term infrastructural development and productive employment creation in rural areas.

Under the Water Relief Programme, funds were made available to District Council Water Units to increase repairs to existing water systems and to transport water to settlements with affected normal supply, emergency drilling of boreholes in hardest hit areas, and water reticulation.

Agricultural relief measures for livestock are intended to reduce herd mortality and to protect range land. Vaccination of cattle against botulism was intensified, and stock feed was highly subsidized. Through the Cattle Purchase Scheme, old and weak cattle were purchased to reduce pressure on the range. Free distribution of seeds to all farmers, cash grants for clearing and preparation of more land, and a 90 percent cash subsidy for draught power resulted in increases in the hectareage planted for grazing in the last four years.

In total, 32.4 million pula were spent in 1987-88 for water and agricultural relief programs. The government has spent 177.6 million pula in the last 6 years; donor contribution for the same period has been 6.82 percent of the total cost. Contribution of food aid has been worth about US\$20 million.

5. Problems in Implementation

There were complaints about low stipends, especially in villages near urban centers. Productivity was low because workers were either uninterested or feeble. Existing staff capacities were stretched. Better training of technical staff to provide technical assistance to district staff to ensure that projects are viable and technically sound is needed to establish credibility and persuade supervisors that continuing with slow-moving activities is worthwhile. The targeting of livestock programs to help small farmers buy, collect, and transport stock feed could be improved. The government was able to respond quickly on the basis of a partially effective monitoring system, but the capability to assess crop production needs improvement, and the Nutritional Surveillance System needs to speed its reporting.

6. Recovery Phase

The objectives of the program are to provide short-term stimulus to bring production and incomes back to pre-drought levels and to continue to assist those who are still suffering from the effects of drought. Supplementary feeding has been reduced for destitutes and school children, but underweight children and those with a proven medical need continue to receive rations. A National Food Security Programme, which includes a National Food Strategy and development of a Strategic Grain Reserve, is being implemented.

7. Conclusions

The uneven occurrence of drought makes it difficult for poor rural households to prepare for and withstand drought and for the government to plan its response. However, years of experience have helped Botswana to develop an institutional framework that is the foundation for future policy on drought coordination and management. Drought is now accepted as a recurrent phenomenon and is factored into national and district development planning. There is a need to ensure that the drought program can be implemented at any time, but the cost of maintaining this infrastructure in the interim needs to be kept at a minimum.

A crucial element of the relief program was the cash-for-work projects that the government initiated and supported. These provided assistance and opportunities for income generation that allowed people to stay on the land, to remain personally responsible for their own welfare, and to resume normal activities once the drought broke. The combination of supplementary feeding and income protection were instrumental in containing malnutrition during the drought.

C. Discussion

These case studies were seen as good examples of the development of self-reliance which is critical. Another example -- from Rajasthan, India -- was cited. There, ongoing rural development programs incorporate various facets of disaster preparedness. Families who fall below the poverty line are regularly

identified by government agencies and local political groups and are targeted for income-creation and income-protection programs. When drought hits the area, these programs are accelerated to provide relief. Shelved projects such as water projects and seed distribution, which have been identified in the interim, are brought into action. Nutrition supplementation is also accelerated and food is provided as part of the wage for work. Wages are kept low, and the recipients of assistance are not punished if output is low. This system has worked well in India.

A second speaker provided more details on India's experience, highlighting the importance of cattle preservation for small farmers and the repositioning of food grains to ensure the supply of food at a reasonable price. The latter was particularly important for counteracting negative effects. The food distribution channel was also used to distribute other nutrient supplements. The speaker also pointed to the importance of concomitant health service to prevent infectious diseases, especially those related to unsafe drinking water.

In Vietnam, food and nutritional surveillance and nutrition education for the population ensure that the best use of food is made. Women must take a minimum of five nutrition lessons and obtain a certificate before marriage. Vietnam is regularly inundated by floods, therefore farming programs focus on teaching people how to cope with this type of disaster and to make good use of their ecosystem. They have achieved excellent results after six years.

Another speaker pointed out that, if the entrenched disaster situation is addressed through development programs rather than relief alone, root causes of the problems are addressed. The mobilization of labor and income transfers to households facing collapse illustrates some essential elements of a response that is designed to protect and augment the assets of the poor, thereby promoting self-reliance and encouraging economic sustainability. Other considerations might be to diversify household income-generation activities -- for example, to develop or enhance new skills to increase productivity and versatility.

More publicity needs to be given to these positive experiences so that others may learn from them.

The case studies and examples illustrate the importance of the following:

- o Provision of employment to assist families in maintaining the households' income, through a wide range of actions (from creating jobs to providing inputs for agriculture that help to achieve this)
- o Setting up infrastructure before the crisis, to permit delivery of services and help (food, water, fuel, and so forth) to the affected population
- o Having available good information on the extent of the problem (where disaster-affected people are and who needs help when) helps to make the response flow more smoothly.

D. Recommendations of Working Groups

This topic was discussed in two parts: one group discussed transition in the context of displaced persons, while the other focused on the situation where the affected population remains in place. This distinction is necessary because each situation has profound implications for the type of program that can be developed.

I. Transition in the Context of Displaced Persons

Transition into a developmental or productive mode should be considered and planned when the first relief activities begin. Development objectives supporting gradual transition must be considered at the beginning. The program must be flexible to allow corrections as relief and transition activities occur. The maintenance or development of food sufficiency should receive priority consideration.

The objectives of transition in this context are to avoid dependency, recreate assets (go back to a growth path), create income, and foster intra-community aid (such as reestablishment and

enhancement of skills and development of community services.)

Natural and man-made disasters related to drought, earthquake and flood in times of peace, as well as war, civil strife, and mass migration can cause displacement. Responses to such situations should lead to resettlement of displaced persons within their own country or in another country or countries. These people are normally settled in camps or merged into communities and cities. Many are likely to end up in city slums because of limited opportunities to earn income.

Resettlement camps often do not become organized communities; too often they do not disappear even when the causative situation has changed. They become something between a permanent asylum and a "rural slum". The option between camp settlement and community merging depends on how easily the displaced are assimilated into society.

The major constraints in the course of transition from emergency to long-term development include:

- o The development policy of the concerned government, which is influenced by internal and external factors
- o Evolution of the situation, in which other emergencies may arrive from the same cause or other causes
- o The overlapping and conflicting jurisdictions of international donor agencies and local governments, which reduce the adequacy of combined efforts to meet needs.

These constraints operate in the context of more specific human and environmental variables such as land and food availability, physical security, and the capability of the government to respond to the needs of the displaced. All these factors are in themselves complex, inter-related, and influenced by such things as available living space, agricultural productivity, cultural factors, national and international sectoral policies, and the degree of dependency of the government on international donor

wage should exceed that needed for work done. Benefits from these activities should accrue to the community as a whole and not only to the elites in the community. Other measures that lighten the burden are suspension of taxes and placing a moratorium on repayment of loans. Credit schemes can be supported to assist affected populations in maintaining their normal income-generating activities; for example, seed banks and fertilizer schemes could be set up for farmers. Food reserves might also be created but nations or communities should decide if these are feasible. If food prices rise rapidly, price control is an important component. Food prices can be reduced by dumping food on the market. It should be noted, however, that these solutions could also create new problems.

b. Investment in Infrastructure

Examples are public works, information systems, farming-systems support, and community credit schemes. Conventional farming-systems support, such as provision of high-yielding crop varieties, are not useful because they are usually directed toward better agricultural areas and those who are better able to use them. Research and development should focus on drought-resistant crop varieties and farming systems for marginal agricultural areas.

c. Human Resource Development

Skill enhancement and training for new skills can be developed through handicrafts, new construction techniques, new agricultural systems, and water supply development. New agricultural systems should evolve gradually through a process of careful experimentation.

d. Sustainability

Aid should be conceived as program, not project aid. This is important because program aid implies a longer-term commitment. Rather than having activities supported by a single donor for a limited period, the group suggested using a consortium of donors to provide better assurance of continuity. If a donor should pull out or discontinue support, others can make up the shortfall. A time frame of ten to twenty years was suggested. The pace of change will

vary within and among countries, and this variability should be taken into consideration. If there is a well-articulated and well-structured development plan in place, relief aid can actually accelerate the development process.

support. It should be noted that the same factors (and many more) are usually taken into consideration when designing a development program.

A systematic approach can help to overcome constraints and to clear the path to development for displaced people. Guidelines for developing an operational framework can be discussed under the following three headings used by the group. (These headings are not to be considered as phases or priorities.)

a. Resettlement

Relocation should take into account cultural compatibility in the camp and surrounding community. A practical way should be established to register the population. Food should be provided, perhaps for several seasons. When bringing support to the area, consideration should be given to using local markets and resources. Employment should be provided through public works that concern development of infrastructure and security services. Monetary or in-kind payments to these workers deserve consideration.

b. Recovery and Prevention of Future Malnutrition

This heading covers food distribution to malnourished children under five years old and other vulnerable groups through clinics and follow-up to treat and prevent malnutrition. Other health-related activities such as water, sanitation, vaccinations and essential drugs, school feeding, micro-nutrient supplementation, and nutritional surveillance should also be included. Food can be used as an incentive to encourage participation in ongoing nutritional surveillance. Nutritional surveillance is a mechanism for raising the consciousness of donors to the needs of displaced persons.

c. Development

Enlargement and consolidation of physical security, as well as considerations for specific community needs, are prerequisites for this phase. The elements of the strategy should include allocation of land, tools, and seeds; transfer of administrative responsibilities to the displaced; consolidation of health and education

services; and, if possible, linking the camp to the existing public road network. Another element is the training for future emergencies at the local and national levels. This should be undertaken while updating technologies and working with the displaced to help them adapt to their new lifestyle after the disaster.

In times of disaster, lessening civil strife is important. This might be achieved by consciously striving to increase the national government's participation in administering relief and in development, and by lowering the profile of international participation (bearing in mind that sometimes national governments have trouble coping with the incidents resulting from civil war.)

2. Settled Situation: Non-displaced Persons

The linear model that depicts the sequence of events as relief, rehabilitation, and development does not adequately reflect reality. In the settled situation, the population is in a vulnerable zone where they are prone to disasters. An administrative structure for development is in place, but disruptions occur when disaster hits. A key part of the strategy for the settled situation is, therefore, to make the transition as smooth as possible. For any given situation the starting point will vary, since the progression of activities and the resource capabilities of the affected area fall on a continuum, ranging from highly-structured and well-financed and administered situations to medium or poor situations in which the administrative structure is less developed or less adequately financed.

When outlining the elements of a strategy, consideration should be given to income protection through diversification of economic activities, asset protection or creation, social and economic investment, and investment in human resources (that is, education and training.)

a. Income Protection

Points commonly found to be useful include public works, which have been traditionally used to provide employment and wages for affected populations. Food might substitute for part of the wages, but the caloric value of the

VII. SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

A. Consensus Reached

Consensus was reached over a good number of issues:

1. Preparedness and Response

- o Response should be the key guide for gathering information for preparedness and assessment.
- o All parties concerned should agree on the type of information to collect and on the "trigger" levels to avoid duplication and overlap in data collection. A single system with inputs from all parties might be a way to overcome problems of credibility. A conscious effort must be made to develop mechanisms to coordinate data collection and to use the data to guide response. Periodic internal and external reviews of the information system were encouraged as a means of verifying information.
- o International assistance should include support for the development of structures for preparedness, as well as for delivery of services once a disaster has occurred.
- o The affected community needs to participate actively in the development and implementation of all relief activities. They can assist in identifying appropriate early warning indicators, appropriate responses, and also provide logistical support.

2. Assessment and Monitoring

- o Socioeconomic as well as health and nutrition information should be used for assessment and monitoring, whenever feasible.
- o Permanent monitoring of food security in the form of an early-warning system is recommended for famine-prone countries. Time series monitoring is preferable to one-shot assessments in

time of need. Whenever possible, nutritional surveillance should use and build on existing data. Adequate resources need to be committed for information systems. Such systems should have political and financial support from all parties involved -- joint support and maintenance of a common information system should be encouraged.

3. Rations

- o More work is needed on ways to overcome micro-nutrient deficiencies that result from nutritionally inadequate rations. Medicinal supplements should be used only as a last resort. The solution is to provide a nutritionally adequate ration by fortifying distributed foods, or to allow the trading of donated foods to obtain funds to purchase micro-nutrient-rich fresh foods.
- o A more liberal policy is needed to allow the sale of donated foods to generate funds to purchase other essential items such as fuel and spare parts for vehicles.
- o The 1985 FAO/WHO/UNU energy and protein requirements should be used as the guide for calculating ration levels, especially if the population is totally dependent on distributed foods. If it is not possible to meet these requirements, then a minimum of 1,900 kilocalories per day per person should be the target for sedentary populations. Additional allowances must be added for nonsedentary groups, groups at risk, and groups exposed to severe temperatures. The protein content should be at least 12 percent of the total calories provided. The rations must also provide for minimum requirements of vitamins A, B, and C, iron, and folic acid.
- o The concept of a "survival" ration proved controversial and was rejected. There was agreement that there is no advantage to setting such a level. The answer to the food shortage problem is not to come up with a survival ration

but to prevent such shortages from even occurring in the first place.

4. Logistics and Distribution

o To ensure equitable distribution of food to those in need, a viable registration system that properly identifies beneficiaries is essential and this needs to be developed.

o More flexibility in the choice of food commodities is needed so that there is a better match between the foods provided and local food habits. If whole grains are donated, equipment for milling them should also be provided to ensure that the recipients can use the grains in a form that is compatible with their cooking practices.

o Standardization of vehicles according to what is available and maintainable in the country will improve food distribution.

o The delivery of food aid needs to be speeded up; donors should provide support for governments to build up their capacities to manage and distribute food aid.

5. Transition from Relief to Development

o Transition to a developmental or productive mode is essential and must be incorporated in the response strategy from the beginning. There was agreement that the basic elements of this strategy should include income or asset protection, social investment, human resource development, and development of infrastructure to deliver these and other basic social services to the population.

B. Unresolved Issues and Areas for Future Research

Further discussions and research were invited for issues of assessment, indicators, micro-nutrient deficiency, indigenous coping strategies, and program aid.

o There were two unresolved issues concerning assessment that merit more research. The first concerns the use of anthropometric indicators for assessment and monitoring. The relative advantages and disadvantages of arm circumference and weight-for-height in emergency situations need clarification. Field-level people were particularly anxious to get clear guidance on the choice of appropriate indicators and their use and interpretation. An expert committee, which includes field people, needs to be convened to resolve this issue. This group should also review the relationship between anthropometry and mortality in emergency situations in children of all age groups as well as adults.

o Although there was support for use of socioeconomic indicators, more guidance is needed on their choice, use, and methodology of collection.

o Ways to treat and prevent micro-nutrient deficiencies need to be developed and tested. Information on technical details of food fortification, based on successful experiences, should be assembled and made available to donors and governments as soon as possible.

o More attention needs to be given to traditional coping mechanisms among disaster-prone populations. These need to be better documented, and methods proven to be useful need to be revived.

o To promote sustainability of relief, rehabilitation, and development activities in disaster areas, assistance should be conceived as program aid over a long term, rather than as project aid. The formation of consortia of donors could be a way to ensure continuity of funding. Appropriate and continuous training of all staff (international and local) needs to be supported to ensure effective disaster management and recovery.

ANNEX I

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ANNEX 2

PAPERS PRESENTED AT THE INTERNATIONAL CONFERENCE ON NUTRITION IN TIMES OF DISASTER

1. Cutler, P. Preparation for Early Response to Disasters.
2. Soekirman, A. N. Djumadias, and I. Tarwotjō. The Development of Food and Nutrition Surveillance in Indonesia.
3. Nieburg, P. Assessment of the Food and Nutrition Situation Among Refugees and Famine Victims.
4. Shonam, J. and E. Clay. The Role of Socioeconomic Data in Food Needs Assessment and Monitoring.
5. Rivers, J. P. W. and J. A. Seaman. Nutritional Aspects of Emergency Food Relief.
6. Stephenson, R., C. Williams, N. Russell and M. D. Thompson. Issues of Distribution and Logistics as Constraints on Adequate Nutrition in Times of Disaster.
7. Abraham, A. S. W. From Emergency to Development in Yifatna Timuga District in Shoa Region, Ethiopia.
8. Moremi, T. C. Transition from Emergency to Development Assistance: Botswana Experience.

ANNEX 3

AGENDA

TUESDAY, 27 SEPTEMBER

- 09.00-10.30 Opening Session:
- Introduction by Chairman
 - Welcoming remarks by:
 - J-P. Hocke, UN High Commissioner for Refugees
 - M. Abdelmoumene, WHO Deputy Director-General
 - N. Jerome, USAID Director of Nutrition
 - W. Santos, Chairman, INPF
 - Keynote address by:
 - J. Ingram, WFP Executive Director
 - Opening address by Chairman
- 10.30-11.00 Coffee Break
- 11.00-11.45 Presentation by P. Cutler on his paper:
"Preparation for Early Response to Disasters"
- Discussion by M. Ayalew
- 11.45-12.30 Presentation by Y. Tarwotjo:
"The Development of Food and Nutrition Surveillance in
Indonesia," by Soekirman and others
- Discussion by J. Mason
- 12.30-13.00 General Discussion
- 13.00-14.00 Lunch Break

- 14.00-17.30 Working Groups:
- Working Group No. 1 - Room L14 (L Building)
 - Working Group No. 2 - Room L10 (L Building)
 - Working Group No. 3 - Room X7 (X Building)
 - Working Group No. 4 - Ex. B. Room (Conf. Room)
 - Working Group No. 5 - Salle B (3rd Floor)
 - Working Group No. 6 - Ex. B. Room (Cont. Room)
- 15.30 Coffee Break
- 17.30-19.00 Meeting of Rapporteurs (Ex. B. Room)

WEDNESDAY, 28 SEPTEMBER

- 08.30-09.15 Presentation by P. Nieburg:
"Assessment of the Food and Nutrition Situation among
Refugees and Famine Victims"
- 09.15-09.30 Discussion by S. Kinoti
- 09.30-10.00 Presentation by J. Shoham:
"The Role of Socioeconomic Data in Food Needs
Assessment and Monitoring," by J. Shoham and E. Clay
- 10.00-10.15 Discussion by W. Bertrand
- 10.15-10.30 Coffee Break
- 10.30-11.00 General Discussion
- 11.00-11.30 Presentation by J. Rivers:
"Nutritional Aspects of Emergency Food Relief,"
by J. Rivers and J. Seaman
- 11.30-11.45 Discussion by B. Torun
- 11.45-12.00 General Discussion

- 12.00-12.30 Presentation by A. S. Wolde Abraham:
"From Emergency to Development in Yifatna Timuga
District in Shoa Region, Ethiopia"
- 12.30-13.00 General Discussion
- 13.00-14.00 Lunch Break
- 14.00-17.30 Working Groups
- Nos. 1 and 2: Assessment
Nos. 3 and 4: Rations and Logistics
Nos. 5 and 6: Transition and Preparedness

THURSDAY, 29 SEPTEMBER

- 08.30-09.00 Presentation by B. Szynalski:
"Issues of Distribution and Logistics as Constraints on
Adequate Nutrition in Times of Disaster,"
by R. Stephensen and others
- 09.00-09.45 General Discussion
- 09.45-15.00 Working Groups
- 13.00-15.00 - Working Group rapporteurs prepare joint
recommendations on Assessment
- 15.00-17.00 Plenary: Assessment methods
- 17.00-18.00 - Working Group rapporteurs prepare joint
recommendations on Rations and Logistics
- Working Group rapporteurs prepare
recommendations on Preparedness

FRIDAY, 30 SEPTEMBER

08.30-10.15	Plenary: Rations and Logistics recommendations
10.15-10.30	Coffee Break
10.30-11.00	Presentation by T. Moremi: "Transition from Emergency to Development Assistance: Botswana Experience"
11.00-13.00	Panel discussion and recommendations on Transition
14.30-15.15	Recommendations on Preparedness
15.15-16.00	Final Session