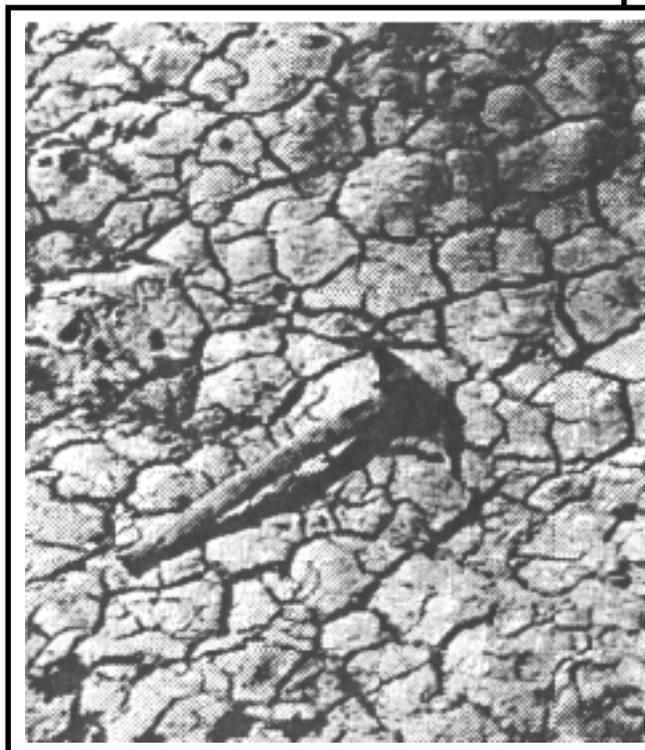


2nd Edition

Drought and Famine



■ Disaster Management Training Programme

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Drought and Famine

2nd Edition

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DHA

Disaster Management Training Programme

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United Nations reorganization and the Disaster Management Training Programme

Since this module was written, there have been reorganizations within the United Nations system. This section describes these organizational changes and explains the expanded role of the United Nations in Disaster Management.

In December 1991 the General Assembly of the United Nations adopted resolution 46/182* establishing the Department of Humanitarian Affairs (DHA) in order to strengthen **“the coordination of humanitarian emergency assistance of the United Nation”** and ensure **“better preparation for, as well as rapid and well-coordinated response to complex humanitarian emergencies as well as sudden and natural disasters.”** The Department incorporates the former UNDRRO as well as former UN emergency units for Africa, Iraq and South-East Asia. The Secretariat for the International Decade for Natural Disaster Reduction (IDNDR) also forms part of the Department.

With regard to complex emergencies, DHA often operates in the grey zone where security, political and humanitarian concerns converge. Policy planning and policy coordination are performed in New York, where DHA works closely with the deliberative organs of the United Nations and with the political, financial and economic departments of the Secretariat.

The Geneva Office (DHA-Geneva) concentrates its activities on the provision of emergency operational support to governments and UN operational entities. It is also responsible for the coordination of international relief activities related to disaster mitigation. It continues to handle the UN system’s response to all natural disasters.

An Inter-Agency Standing Committee (IASC) chaired by the Under-Secretary-General for Humanitarian Affairs has been established pursuant to General Assembly resolution 46/182. It associates non-governmental organizations, UN organizations, as well as the International Committee of the Red Cross (ICRC) and the International Federation of Red Cross and Red Crescent Societies (IFRC). The Executive heads of these agencies meet regularly to discuss issues relating to humanitarian emergencies. An inter-agency secretariat for the IASC has also been established within DHA.

Several Special Emergency Programmes (SEP) have been organized within the Department, including the Special Emergency Programme for the Horn of Africa (SEPHA), the Drought Emergency in Southern Africa Programme (DESA), the Special Emergency Programme for the New Independent States (SEP-NIS), as well as the United Nations Office for the Coordination of Humanitarian Assistance to Afghanistan (UNOCHA).

DHA promotes and participates in the establishment of rapid emergency response systems which include networks of operators of relieved resources, such as the International Search and Rescue Advisory Group (INSARAG). Special attentions given to activities undertaken to reduce the negative impact of sudden disaster within the context of the International Decade for Natural Disaster Reduction (IDNDR).

The Disaster Management Training Programme (DMTP), which was launched in the early 1990s, is jointly managed by DHA and UNDP, with support from the Disaster Management Center of the University of Wisconsin, on behalf of an Inter-Agency Task Force. It provides a framework within which countries and institutions (international, regional and national) acquire the means to increase their capacity-building in emergency management in a development context.

*Copy is included in *The Overview of Disaster Management Module*.

■ INTRODUCTION

Purpose and scope

This training module, *Drought and Famine*, is designed to introduce this aspect of disaster management to an audience of UN organization professionals who form disaster management teams, as well as to government counterpart agencies, NGOs and donors. This training is designed to increase the audience's awareness of the nature and management of disasters, leading to better performance in disaster preparedness and response.

The content has been written by experts in the field of disaster management and in general follows the UNDP/UNDRO *Disaster Management Manual* and its principles, procedures, and terminology. However, terminology in this field is not standardized and authors from different institutions may use the same terms in slightly different ways.

Overview of this module

This module addresses a type of disaster that devastates human settlements around the world – **famine**. As the module indicates, famines have multiple causes. Nevertheless, **drought** is frequently an important contributing factor. Therefore, the following discussion considers the various types of drought, factors causing drought and drought impacts. Next, the module describes famine. As with drought, the discussion commences with definitions and then moves through causes and impacts. Factors influencing the severity of the famine such as individual and family coping strategies, early warning systems, and measures to mitigate the effects of drought and developing famines are also covered. Finally, the role and interaction of different actors in providing relief and rehabilitation, including UN agencies, governments, NGOs and donors, are analyzed.

Training methods

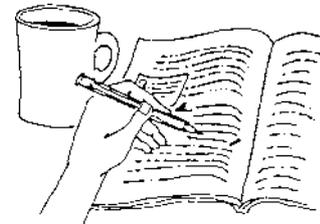
This module is intended for two audiences, the self-study learner and the participant in a training workshop. The following training methods are planned for use in workshops and are simulated in the accompanying “training guide”. For the self-study learner the text is as close to a tutor as can be managed in print.

Workshop training methods include:

- group discussions
- simulations/role plays
- supplementary handouts
- videos
- review sessions
- self-assessment exercises



The self-study learner is invited to use this text as a workbook. In addition to note-taking in the margins, you will be given the opportunity to stop and examine your learning along the way through questions included in the text. Write down your answers to these questions before proceeding to ensure that you have captured key points in the text.



PART **1**

DROUGHT

After reading and completing the exercises in this module, you will be able to:

- *define and distinguish between different types of droughts and their causes*
- *analyze factors that influence the relationship between rainfall and crop yields*
- *identify and predict the likely impacts of droughts*

Definitions

The climate and weather systems of the earth are constantly changing. As part of these dynamic processes, extremes of temperature, rainfall, and air movement will naturally occur. Periods of unusual dryness, i.e. droughts, are therefore a normal feature of climate and weather systems in all countries, including those generally regarded as being “wet” and “cold” as well as those areas usually associated with the term “drought” – the semi-arid areas of the tropics. While droughts may be regarded as unusual in that they do not occur all the time, or in some areas for most of the time, droughts should not be regarded as being “abnormal” and, in fact, should be planned for in all countries.

Drought is notoriously difficult to define and different definitions abound. Nevertheless, it is important that those involved in drought preparedness, mitigation, and declaration activities share a common understanding of the ways in which drought may be defined and the assumptions and constraints involved in using particular definitions.

Among the factors contributing to the difficulties involved in defining drought are:

- In most cases the drought phenomenon is temporary. A “drought” lasting a month may occur in an area which is known to experience cycles of alternating wet and dry periods (say every 5 years) and which is also known to be experiencing an increasingly drier climate for the past 50 years. (See Box 1.). Defining a temporary reduction of water/moisture availability as a drought given such dynamic processes is extremely difficult as much depends upon the length **of the time period being considered**.
- Droughts of similar severity may have dramatically different impacts on different societies as a result of ecological, socio-economic and cultural differences. This, in turn, affects how drought is perceived and how the term is used. Thus, it is difficult to define the term solely with regard to the **physical event**, i.e. the reduction in water/moisture availability. Invariably the definition has to take some account of how the physical event **impacts** upon society.

LEARNING OBJECTIVES

While droughts may be regarded as unusual in that they do not occur all the time, or in some areas for most of the time, droughts should not be regarded as being “abnormal” and, in fact, should be planned for in all countries.



A generally accepted definition of drought is a **temporary reduction in water or moisture availability significantly below the normal or expected amount (norm) for a specified period.**

The key assumptions of such a definition are:

1. the reduction is temporary (if the reduction were permanent then terms such as “dry” and “arid” would be more appropriate)
2. the reduction is significant
3. the reductions is defined in relation to a “norm” i.e. normal expectation
4. the period taken as the basis for the norm is specified.

How the “norm” is defined is of critical importance. Assumptions 3 and 4, therefore, require more detailed clarification. The “norm” may be defined either:

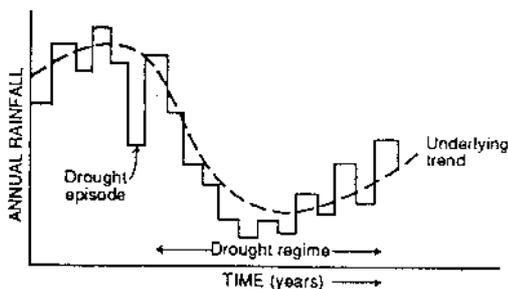
- **technically** – a reduction of water availability might qualify as a “drought” when it falls below about 80% of the average availability over the preceding 20 years. However, the period selected as the basis for estimating the average may prove misleading. (See Box 1) or
- **culturally** – in terms of the level of water availability the society has come to expect. Thus, after a run of ten years with above average rainfall a society may have become used to the wetter state and perceive the first year of average rainfall as a drought.

Q. Choose a drought that you are personally familiar with and briefly describe it using each of the key assumptions described above.

A. _____



Figure 1
 Schematic presentation of fluctuations occurring on different time scales.



Causes of reduced rainfall

When discussing the causes of drought it is helpful to distinguish between short drought **episodes** lasting 1-3 years and long dry regimes of predominantly subnormal rainfall spanning about a decade or more and, which may, include several intense drought episodes.

The **proximate or immediate** cause of a rainfall shortage may be due to one or more factors including an absence of available moisture in the atmosphere; large scale subsidence (downward movement of air within the atmosphere) which suppresses convective activity; and the absence or non-arrival of rain-bearing systems. Changes in such factors involve changes in weather systems on many spatial scales ranging from local to regional to global. While

it may be possible to indicate the immediate cause of a meteorological drought occurring in any particular location, it is often not possible to indicate the underlying cause.

Short term episodes can often be linked to global-scale fluctuations in the atmosphere and oceans elsewhere in the world. For example, the El Niño/Southern Oscillation (ENSO) phenomenon, which involves the periodic invasion of warm surface water into the normally colder waters off the Pacific coast of South America, affects the levels of rainfall in many different parts of the world, including south-eastern Africa. However, knowledge about causes of the invasion of the warmer currents is presently incomplete.

On a larger scale, the link between sea surface temperatures and rainfall has been suggested as a possible cause of long dry regimes. Thus it has been suggested that the fact that the southern Atlantic has been consistently warmer than the northern Atlantic since around 1970 is related to the predominantly dry period in the Sahel since the mid-1960s.

Increasing levels of carbon dioxide and other “greenhouse” gasses have been suggested as causes of rainfall changes in the Sahel and elsewhere. However, as with all the postulated causes there is insufficient understanding of the physical processes involved to state with certainty that the postulations are correct.

Box 1

Rainfall fluctuations since 1900 in the Sahel

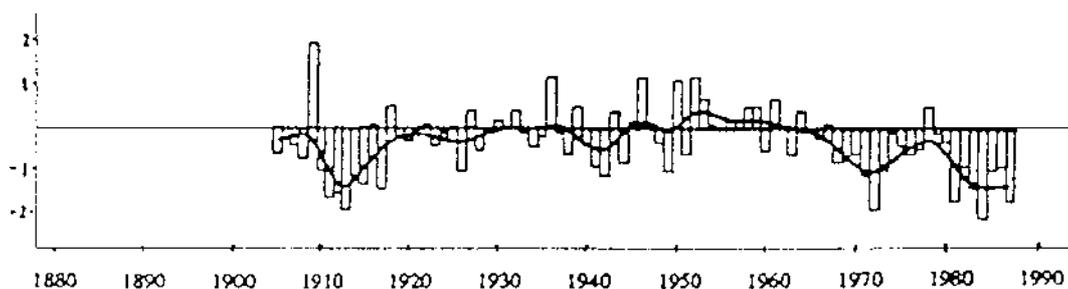
The importance of specifying the “norm” or base period when defining and discussing the incidence of drought may be illustrated by a case from the Sahel region of Africa.

The graph below shows the national annual rainfall series for Niger in the West African Sahel from the start of the century to 1987. The smooth line shows the overall trend based on the actual rainfall during the period 1941-70.

The extended dry period around the early part of the century is clearly visible. The driest year coincided with the widespread famine which affected the Sahel around 1913. The period 1920-60 was comparatively wet and there was a significant increase in both the human and livestock populations. Since the mid-1960s the country has (in common with the rest of the Sahelian countries) been experiencing a run of dry years which is the most prolonged since detailed

records began. 1951 is an example of a “drought year” during a period of generally above average rainfall.

Under a system established by the World Meteorological Office (WMO) a 30 year international meteorological standard is used as a base period. Until 1991 the 30 year base period covered the years 1931-60. For the Sahel this included the predominantly wet years of the 1950s and early 1960s. During 1991 the international base period was changed to cover the period 1961-90. So far as the Sahel is concerned, this includes virtually all the declining rainfall periods since the late 1960s. Thus, an agricultural planner utilizing the internationally established methods of estimating “normal” rainfall in relation to a particular project area in 1992 would find a much drier “norm” than if he/she had referred to the data in 1990. What might previously have been considered an average year in 1960 might be considered an average year in 1992.



Many causes of long dry “regime” have been postulated. Among the local level causes are human-induced changes resulting from vegetation loss due to overgrazing and deforestation either in the general vicinity or “upwind” of the area along the line of the prevailing, moisture carrying winds. Such changes may involve “biogeophysical” feedback mechanisms, i.e. once they start, they feed back on themselves and perpetuate the drought conditions.

However, one of the main problems with the postulations involving human induced change is that of distinguishing human induced change from natural long term fluctuations. For instance, there would seem to be a 50 year fluctuation in rainfall in the western Sahel with the predominantly dry period since the mid-1960s being part of such a cycle. However, reliable rainfall data for the Sahel and many other parts of the world are available only for the last 80-90 years, and this is too short a period to support the assertion that there is such a rainfall cycle in the area. The World Meteorological Office believes that five or six such cycles are necessary to confidently predict trends (WMO 1966). Clearly however, land use patterns which result in environmental degradation, desertification, and deforestation are inextricably linked in a causal way to drought.

Q. *Why is it important to specify and review the base period chosen to establish overall rainfall expectations?*

A. _____



ANSWER

The base period is used to define the expected level of rainfall. Because rainfall varies over multi-year periods and because individuals tend to expect the most recent events to repeat themselves, it is possible for individuals to expect rainfall amounts which are not realistic, thereby making planting and investment decisions based on incorrect or misleading information.

Types of drought

It is conventional practice to distinguish between three different types of drought, namely meteorological, **hydrological and agricultural**. Particularly in the case of meteorological and agricultural droughts, these types are frequently, but wrongly, seen as being synonymous.

Of the three types of drought, the first two describe the physical event whereas the third describes the particular impact of the first two on agricultural production. It is necessary to carefully distinguish between these types and clarify where and how they overlap.

Water used in support of human activity is derived from either direct rainfall or previous rainfall which is temporarily “stored” in rivers lakes, groundwater aquifers and snowfields/glaciers.¹ In the case of some aquifers and glaciers, such “stores” may contain rain that fell decades or even centuries before. A temporary reduction of either of these two main types of water source may cause a drought.

Meteorological drought describes a situation where there is a reduction in rainfall for a specified period (day, month, season, or year) below a specified amount – usually defined as some proportion of the long term average for the specified time period. Its definition involves only precipitation statistics. As indicated in Box 2, care needs to be taken in utilizing and aggregating rainfall data.

Hydrological drought involves a reduction in water resources (streamflows, lake levels, groundwater, underground aquifers) below a specified level for a given period of time. Its definition involves data on availability and offtake rates in relation to the normal requirements of the system (domestic, industrial, irrigated agricultural) being supplied.

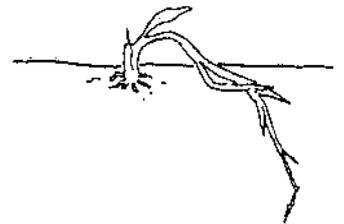
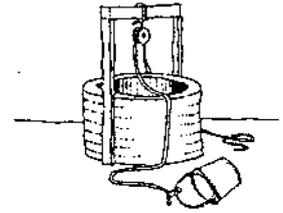
The distinction between the two types can often be blurred as hydrological droughts may be caused by reductions in precipitation anywhere within the catchment area of the river or aquifer system. Thus, irrigated agricultural areas alongside the River Nile in Egypt may experience a hydrological drought as a result of a meteorological drought in the Ethiopian Highlands regardless of the levels of rainfall within Egypt itself.

In the case of rivers fed by snowmelt, irrigated areas downstream may experience reduced water availability as a result of reduced snowmelt caused by below normal temperatures during the summer months. Areas drawing water from underground aquifers through wells and boreholes may experience hydrological drought as a result of geological changes which cut off parts of the aquifer. Overutilization of the aquifer may also result in its exhaustion.

Agricultural drought is the impact of meteorological and/or hydrological droughts on crop yields. Crops have particular temperature, moisture and nutrient requirements during their growth cycle in order to achieve optimum growth. If moisture availability falls below the required amount during the growth cycle then crop growth will be impaired and yields reduced. However, droughts have different impacts on different crops, e.g. sesame often thrives in dry years. Because of the complexity of the relationships involved, agricultural drought is difficult to measure. A fall in yields *may* be due to insufficient moisture but it may also stem from, or have been exacerbated by, such factors as the unavailability of fertilizers, lack of weeding, the presence of pests and crop diseases, the lack of labor at critical periods in the growth cycle, and unattractive crop prices. Also these factors can interact with each other and exacerbate conditions. For example, in the 1984 drought in Ethiopia, the drought contributed to army worm infestation which substantially increased the amount of crop damage.

Q. *What is the difference between hydrological drought and meteorological drought?*

A. _____





Small scale irrigation is part of a rehabilitation program for drought-affected areas in Ethiopia

IFAD/F. Mattioli UNDRR News, May/June 1986.

ANSWER (for page 15)

A meteorological drought results directly from a reduction of rainfall in a specific area while a hydrological drought results from the reduced availability of water in holding areas such as streams, lakes, and reservoirs.

Factors affecting the severity of drought

While it is usually true that decreased rainfall results in decreased crop yields, the following factors influence the strength of the relationship.

The proportion of production which is irrigated

The correlation between rainfall and yields is weaker in irrigated rather than rainfed areas. The extent to which this is the case however, will be determined by the importance of local rainfall in the irrigated water supply and whether all or only part of the crops' moisture requirements are normally met through irrigation.

The moisture retention capacity of the soil

Different soil types have different capacities to "hold" or retain moisture. For instance the water retention capacity of sandy soils is generally significantly lower than that of clay soils. In areas Where soil moisture retention capacities are high, crop growth may not be affected by prolonged dry periods (as much as 20 days) and some moisture may actually be held over from one wet season to another.

In contrast, in areas where retention capacity is low, dry periods of only a week may result in reduced yields and moisture present in the soil at the end of one season will not last to the next. In many arid and semi-arid areas of the tropics the predominant soil types are sandy. To attain optimum crop growth such areas need frequent and evenly spaced rainfall throughout the growing season.

National soil surveys are available for most countries, either from the Ministry of Agriculture or the local FAO office. Geography departments at local universities frequently have information on soil types and characteristics.

BOX 2

PROBLEMS IN THE USE AND INTERPRETATION OF RAINFALL DATA AS AN INDICATOR OF DROUGHT

When using precipitation data as an indication of the existence and extent of a meteorological drought careful consideration must be given to the problems of measuring rainfall in the area in question and problems associated with aggregating data. Most precipitation in the tropics is associated with convective activity, ie. Where currents of warm air rise up into layers of cooler air. Convective rainfall can be heavy and highly localised. Thus immediately adjacent areas may receive very different amounts of rainfall. In contrast, most rainfall in mid-latitude temperate areas is associated with the movement of fronts which causes similar levels of rainfall overlarge areas. If, as is often the case in developing countries, large regions are covered by only a few rain gauges then it

is quite possible that the picture conveyed by the rain gauges may not reflect the actual situation elsewhere in the region. Thus, pockets of drought may exist in an area judged to have received adequate rainfall and vice versa.

While rainfall is usually recorded daily (hourly at the most sophisticated stations) the data are often presented to non-meteorologists as monthly totals. While such totals may indicate average or above average rainfall, these may be the result of one or two heavy rainfall episodes. As discussed below, crop yields may be affected by fry periods as short as a week. The increasing practice of using 10-day "decade" periods as the basis for summarizing rainfall performance is preferable.

Timeliness of the rainfall

Deficiencies in moisture supply at critical stages during the growth cycle (e.g. germination and flowering) can significantly reduce yields. Consequently the distribution or timeliness of the rainfall during the growing season is potentially as important as the overall amount of rain.

Because of the importance of timeliness, particularly in semi-arid areas where soil moisture retention capacity is low, rainfall must be described and analyzed in appropriately short time periods so that prolonged dry periods are not “hidden” within aggregate monthly figures which may indicate that rainfall has been around or even above the average (See Box 2).

Models for different types of crops indicate the moisture requirements for optimum crop growth. In some countries such “moisture satisfaction” models are used to produce forecasts, at different stages within the normal growing season, of crop yield on the basis of rainfall occurring during the cycle. As part of the FAO’s program of strengthening the early warning capacity within countries prone to drought and transitory food insecurity, such agro-meteorological analytical capacity is being developed within Ministries of Agriculture and Meteorological Departments.

The adaptive behavior of farmers

In the face of an intermittent start to a wet season, some farmers may respond with repeated replantings of the same crop variety to take account of the rains when, and if, they finally start, while others may replant using other seed varieties. Some farmers may not have seed reserves of their own or be in a position to purchase replacement seeds for the first, failed planting. In this situation some farmers may experience a crop failure while others in the same area are enjoying a satisfactory harvest. Information on farmer behavior in the face of late or inadequate rains may be available from the Extension Services Departments within Ministries of Agriculture.

Q. *Choose a drought that you are familiar with and describe how two of the above factors either increased or decreased drought impacts.*

A. _____

A standard operational definition of drought?

While it might appear attractive for all agencies to adopt a standard operational definition of drought, such a definition is likely to prove both elusive and unnecessarily restrictive. To determine, for instance, that “an area should qualify as being drought affected when its rainfall falls below 70% of the average for the previous 20 years” is not particularly useful if most of the area’s agriculture is irrigated. Moreover the cut-off chosen is arbitrary and may exclude areas experiencing “classic” drought impacts as



Standardized definitions cannot take account of the wide variations in vulnerability to the effects of drought as a result of wider variations in physical, economic and social conditions between areas and countries.

It has become possible to prevent excess mortality resulting from food shortages caused by drought alone.



Emergency aid airlifted from Europe to Ethiopia

UNHCR/B. Press

a result of average but poorly spaced rainfall. Standardized definitions cannot take account of the wide variations in vulnerability to the effects of drought as a result of wider variations in physical, economic and social conditions between areas and countries.

The impact of droughts

Of all the natural hazards, droughts are potentially those having the greatest economic impact and affecting the greatest number of people. Earthquakes and cyclones may be of enormous physical intensity but are invariably of short duration and geographically limited. By contrast droughts affect large geographical areas, often covering whole countries or parts of continents and may last for several months and, in some cases, several years.

Of the main natural disasters, droughts are unique in terms of the length of time between the first indications from, for example, rainfall monitoring, that a drought is developing and the point at which it begins to impact significantly upon the population of the affected area. The length of such “warning time” varies significantly between societies.

In many countries the warning time is on the order of several months. In others, for instance those with a high proportion of landless agricultural laborers, the warning time may be much less, perhaps only a few weeks. Whatever the period, a warning time allows for a potential response to mitigate the impacts of the drought *before* they become significant. In the case of countries where the lead time is on the order of months there is, potentially at least, sufficient time for relief assistance, including food aid, from the international community to be mobilized.

Thus, by virtue of modern meteorological monitoring and telecommunication systems it has become possible to prevent excess mortality resulting from food shortages caused *by drought alone*. While droughts may continue to be a contributory cause of famines, other factors such as armed conflict and international politics, are now invariably responsible for propelling a situation of economic hardship caused by drought into a famine.

Droughts, almost or virtually always, have a direct and significant impact on food production and the overall economy. The impact on a particular population is related to the severity and nature of the drought, but equally, and occasionally more importantly, to the nature of the economy and society in the affected area.² Box 3 describes the effects of drought on Niger in 1984.

First consider an extreme example. Two semi-arid countries experience a 50% reduction in annual rainfall. Country A is a high income economy where agriculture contributes only 10% of the total Gross Domestic Product (GDP) and water for industry, agriculture and domestic use is drawn from reliable underground aquifers. Country B is a low income economy where agriculture is primarily rainfed and contributes 50% of total GDP. Clearly the drought impacts on Country A are likely to be negligible whereas for Country B they are likely to be severe.

The scenario becomes more interesting if the assumption about the reliability of the underground aquifers in Country A is altered so that water is drawn from rivers and reservoirs whose catchment area is affected by the reduction in rainfall – a hydrological drought. Likely impacts include reduced agricultural and industrial production, increased unemployment,

domestic water rationing, increased cost of living, increased investment in the exploitation of alternative water resources and so on.

However, by virtue of its greater wealth Country A will still probably be able to cope by purchasing imported food to make up for any domestic production losses and providing compensation to those most seriously affected. Thus, the level and distribution of wealth and how the economy is structured are central to any consideration of the nature and severity of drought impacts.

Social and organizational considerations are also important. Two countries with similarly structured economies and levels of wealth may be affected quite differently by droughts of similar severity as a result of:

1. The extent to which the drought hazard is taken account of in resource allocation decisions by
 - **households** – planting and consumption/saving decisions
 - **communities** – construction of dams with reserve capacity, organization of local food stores, and investment in alternative water sources
 - **governments** – encouragement of research on drought-resistant crop varieties, creation of administrative procedures to respond to drought, and investment in additional transport and storage capacity.
2. The extent to which social and political institutions encourage the recognition of the hazard and a rapid and effective response to it when a drought does occur is also critical. For instance, the existence of a free press, accessible administrative systems, open public debate and representative political systems are increasingly recognized to be important factors determining the effectiveness of the response to droughts by national governments.

Bearing in mind the variations between economies and societies noted above, the following list of **potential economic and social impacts** of an **agricultural drought** may be helpful. The list is neither exhaustive nor comprehensive but is intended to illustrate some of the possible outcomes of drought. Potential information sources on the impacts are noted in brackets.

BOX 3

THE ECONOMIC IMPACT OF THE 1984 DROUGHT ON NIGER

Niger's main exports are uranium, livestock, and cowpeas. Agriculture accounts for 36% of the Gross Domestic Product (GDP) and provides employment for approximately 90% of the labor force. As a result of the important role of uranium exports in the economy Niger is less dependent on agricultural exports than many other African countries. Nevertheless, in 1984 total agricultural production fell by 19% when compared to the average for 1981-83 and cereal production fell by 37%. Food aid imports increased by 450% but total cereal availability was still down 37% when compared to the average for the previous three years.

The economic impact of droughts extends well beyond the single year losses indicated above. Average GNP growth for the 1965 to 1988 period was only 0.4%/ year. In a simulation exercise in which the impact of the 1972-73 and 1983-84 droughts on output were reduced by half, the long term growth rate for the period would have increased to 2.0%/year. Reducing the impact on output by half is not an unrealistic scenario and could be achieved through a combination of effective internal measures to stimulate economic activity and external efforts to meet import requirements.

Source: World Bank 1991.

- Reduced income for farmers and agricultural laborers (*household income and expenditure surveys undertaken by statistics departments, ministries of agriculture, university researchers, employment offices*).
- Reduced spending locally on agricultural inputs and equipment and non-agricultural items and services like travel and non-subsistence foods (*household income and expenditure surveys, interviews with parastatal and private sector suppliers of agricultural inputs surveys of business activity undertaken by ministries of commerce, central and commercial banks, town councils, local chambers of commerce, etc.*)
- Decrease in price of livestock as farmers are forced to sell because of increases in the cost of pasture and purchased feeds (*ministry of agriculture, early warning units, NGOs, interviews with livestock traders, district officials, and market clerks*).
- Increased price of staple foods (*price monitoring units within ministries of commerce, agriculture, district administration offices, NGOs, etc.*)
- Inability of certain groups within the population to afford increased food prices results in their:
 - switch to cheaper and sometimes less preferred foods
 - reduction in overall food intake
 - borrowing to maintain food intake
 - selling assets to raise funds
 - engaging in alternative income earning activities locally
 - migrating in search of employment opportunities
 - migration to where relief food is being distributed (*monitoring undertaken by Early Warning Units, specially organized surveys, interviews with district officials, NGOs. Local leaders, etc.*)
- Reduced food intake leads to deterioration of nutritional status and reduction in ability to resist infection (*nutritional and epidemiological surveillance units with ministries of health, NGOs*).
- Difficult and scarce availability of water results in a general increase in diarrhoeas and other water/hygiene-related illnesses (e.g. typhoid, dysentery, eye infections, etc.) Shortage of water and increased mobility of population increase the opportunities for transmission of epidemic diseases such as cholera; dry climatic conditions also facilitate the transmission of meningococcal meningitis. (*ministry of health statistics, hospital admittance records*).
- Increased stress and morbidity (disease and illness) results form migration journey (*ministry of health, NGOs, interviews with migrants*).
- Drying-up of water sources leads to reduction in water quality, the need to travel further to collect water and possibly migration to better water sources (*rural water authorities, district officials, NGOs, specially organized surveys*).
- Increased competition for access to remaining water sources may lead to increased incidence of local disputes/conflict (*local police, district officials, local leaders*).
- Loss of education due to reduction in school attendance by children lacking energy and/or money for fees, plus the need for them to assist other family members in water collection and income generating activities (*ministry of education, school attendance and prison records*).
- Social costs of migration, e.g. break-up of communities and families.

- Reduced demand within the economy generally (*ministries of finance, central and commercial banks, IMF and World Bank country representatives*).
- Increased defaults on loans in rural sector (*central and commercial banks*).
- Loss of basic services, such as rural area health posts and schools which stop functioning because of lack of water.
- Reduced government revenues and foreign exchange earnings as a result of a decline in agricultural exports (*ministries of trade, finance, central banks, IMF and World Bank country representatives*).
- Increased inflation rate within the economy (*ministries of finance, commerce, central banks, etc.*).
- Costs to government of organizing relief measures (*lead ministries in relief operations, UN Disaster Management Team*).
- Costs to international community of assisting governments relief efforts (*UN Disaster Management Team, DHA*).
- Opportunity costs of funds used in relief efforts.

Q. Choose a drought that you are familiar with and describe its major impacts drawing from the list of impacts provided above or others with which you are familiar.

A. _____



Reducing the impact of drought

There are a number of actions that can be taken to counter drought conditions or lessen their impact. They include:

- Getting seeds in place for when the rains begin
- Improving rangeland management
- Improving water resource management
 - dig new wells
 - improve existing wells
 - construct retention dams or catch dams
 - construct subsurface dams to trap water in sandy riverbeds
 - recharge the aquifer with catchments which trap water and allow it to seep quickly down into the water carrying strata
- Planting drought-resistant crops, such as sorghum and millet instead of hybrid maize
- Implementing counter-desertification measures such as
 - erosion control
 - tree planting
 - construction of wind breaks and barriers
- Gearing up all government sectors to meet the new needs

■ *SUMMARY*

This section of the module has focused on drought because drought is a significant and frequent contributing cause of famine. In order to increase your understanding of the drought phenomenon, the module identified three types of drought – hydrological, meteorological and agricultural. Although scientists have postulated many underlying causes of rainfall declines, knowledge is still incomplete. Even so, rainfall tends to vary in multi-year cycles. This creates expectations both on the part of human populations and the scientific community regarding yearly rainfall levels. It is important in determining whether rainfall is below the normal levels to specify how the normal expectation is determined.

Even though areas experience significant reductions in available water supply, factors, which include the planting behavior of farmers, soil types, spacing of rainfall, and extent of irrigation, cause variations in the extent to which reduced rainfall results in reduced crop yields. Other social and economic factors also influence how communities and individuals are affected by drought. Nevertheless, droughts invariably have widespread impact on individuals, households, communities, and countries.

PART 2

FAMINE

After reading and completing the exercises in this part of the module, you will know:

- *The historical incidence of famine and some of the causes of previous famines*
- *Different ways of conceptualizing famine*
- *Major causes of famine*
and you will be able to:
- *Distinguish between famines associated with a decline in overall food availability and a lack of access to food by specific vulnerable populations*
- *Understand and determine the role of conflict in creating and sustaining famines*
- *Support coping strategies of vulnerable populations*
- *Analyze coping patterns to predict whether famines are developing and progressing*
- *Interpret signs of early warning*
- *Design programs and policies to maintain food security for vulnerable groups*

Incidence of famine

Famines have occurred periodically in most, if not all, societies throughout history. Chronicles of ancient civilizations in India, Egypt, Western Asia, China, Greece and Rome record famines in these and other parts of the world. In the Middle Ages famine was a frequent occurrence in Europe. For example, historians estimate that during the 900 year period from the 10th Century to the 18th, there were 89 “general” famines in France and hundreds more “local” famines. Since then famines in Western Europe have become markedly less frequent as a result of agricultural innovation and the Industrial Revolution, though the 1846-51 “Great Famine” that occurred in Ireland was possibly one of the most catastrophic. The most recent “famine” to occur in Western Europe developed in the Netherlands during the winter of 1944 when a military stalemate between the advancing Allied Forces and the retreating German Army created severe food shortages in the main urban areas and significantly increased mortality.

Estimate of the total deaths directly attributable to a particular famine are notoriously poor, often prone to exaggeration, and frequently a matter of dispute. Bearing this in mind Box 4 describes some of the most severe famines that have occurred in modern history. By comparison, excess mortality in the Ethiopian Famine of 1984-85 is estimated at between 400,000 to 500,000 (Rahmato 1991), though a figure often used by the media at that time was “over 1 million”.

LEARNING OBJECTIVES



Surviving on roots and leaves in Matekaga, Chad.
 UNDRO News, Jul/Aug 1985.

Definitions

Famine

For many, the word famine is defined by images of mass starvation, where whole communities are literally starving to death. Indeed, such is the power of the modern media, that some tend to define famine in terms of the horrific and widely screened film of the feeding camps in northern Ethiopia in late 1984. Such a perspective is problematic in at least three respects:

- it tends to view famine as a single event rather than as a process which culminates in significantly increased morbidity and mortality;
- it is rarely the case that whole communities starve to death. Rather it is usually only certain more vulnerable groups within the community that experience significantly increased mortality rates;
- famines need not be as stark and visible as in the extreme situation of the barren Ethiopian feeding camps. Widespread starvation can occur almost unseen to the outside observer, behind closed doors in peoples' homes even in agriculturally productive areas.

However, to accept that famine is a process rather than a single clearly identifiable event creates problems for those trying to differentiate famine from other more prevalent conditions such as chronic hunger which affects as many as a third of the world's population and causes the premature death of many among the world's poor. The safest approach is to define famine in the following term:

*Famine results from a sequence of processes and events that reduces food availability or food entitlements and causes widespread and substantially increased morbidity and mortality.*³ (after Downing 1990)

Food security

Over the last two decades the concept of food security has emerged as a definitional scheme that considers the relationships between food production, distribution and consumption. It is now widely used by governments and donor agencies and it is helpful to locate famine within this framework. The most widely used definition of food security is that outlined by the World Bank (1986):

FAMINE



FOOD SECURITY



FAO DEFINITION OF FOOD SECURITY

The concept of **food security** is further clarified by using the FAO definition where **food security** embraces 3 main objectives:

- Adequate supply (including production, reduction of post-harvest losses and balance between imports and exports).
- Stable supply (including production **and** price stability at interzonal and intertemporal level).
- Access to supply (including adequacy of consumption in the insecure zones, adequacy of income in relation to food prices and access to employment).

Food security is access by all people at all times to enough food for an active, healthy life.⁴ Its essential elements are the availability of food and the ability to acquire it. Food insecurity, in turn, is the lack of access to enough food. There are two kinds of food insecurity: chronic and transitory.

Chronic food insecurity is a continuously inadequate diet caused by a household's persistent lack of ability to buy or to produce enough food.

Transitory food insecurity is a temporary decline in a household's access to enough food. It often results from instability in food prices, declining food production or household incomes – and in its worst form produces famine.

BOX 4

EXAMPLES OF MAJOR FAMINES**Ireland 1845-1849****Total excess mortality 1.0-1.25 million**

This famine was caused by a combination of crop disease (potato blight), and the British Government's reluctance to fund substantial relief measures. It coincided with a bitter struggle within the British Parliament between agricultural/rural "protectionists" and urban/industrial "free-traders" over the so-called Corn Laws which restricted the importation of foreign cereals to protect British farmers from cheap imports. The potato blight first appeared in Ireland in September, 1845 at a time when approximately half the population of 8 million were dependent upon potatoes. Wheat, barley and oats were the other staples, a significant proportion of which were traditionally exported to Britain. The doctrine that "free trade" should not be impeded or disrupted severely limited the effectiveness of the Government's response. Exports of cereals to Britain drawn by greater demand in the industrial cities were allowed to continue throughout the famine. Gratuitous distribution of relief food was allowed reluctantly and only in remote areas where it was unlikely to conflict with private traders. Only those owning less than 0,1 hectares of land were eligible for government relief. The famine and its after effects had a profound effect on Irish society. Emigration (principally to North America) increased dramatically, with the younger and more dynamic tending to leave. By 1881 the combined effects of famine mortality and emigration had reduced the total population by half. The pressure for national independence was given considerable impetus by the famine.

Soviet Union 1932-34**Total excess mortality approximately 5 million**

This famine is considered largely attributable to Stalin's forced collectivization programme. This programme extracted agricultural products from the peasantry, partly to feed the state bureaucracy and urban workers but also to pay for the rapid expansion of the industrial sector through the export of grain in exchange for foreign machinery. The programme was aggressively implemented by Communist Party officials who viewed the peasantry as kulaks, (ie. Conservatives who were uncommitted to the revolution) and resulted in production targets that were unrealistically high and underestimated or ignored the consumption needs of the peasantry. The searching of houses and barns and the seizure of any grain found was a common feature of this period. Foreign assistance was not allowed into the country to relieve the situation.

Bengal 1943-46**Total excess mortality over 3 million**

The interplay of war with Japan, a modest reduction in production in Bengal (much of which now forms part of Bangladesh) due to cyclones and floods and the ineptitude of the British administration caused this famine. Burma, a traditional source of rice supplies, was invaded by the Japanese in 1942. Because of the war footing of the economy, employment and wages in urban areas were higher than normal. A cyclone in October 1942 reduced production of the important winter aman rice crop and reduced the employment available to agricultural laborers. As a result of these factors and the uncertainty created by them, rice prices rose dramatically. Wholesale prices in May 1943 were 380% above the level in May 1942. Agricultural laborers were unable to afford these prices as were the rural artisans (barbers, weavers, fisherman, etc.) whose income was partly dependent on the disposable income of the laborers. As a result the artisans became destitute and, after the agricultural laborers, experienced the greatest increases in mortality. Under more normal circumstances, the Famine Codes would have come into effect providing a combination of works projects and food distributions. This was not done, indeed the famine was never officially declared, largely because the administration felt that there was insufficient food available locally to supply such schemes. The reallocation of shipping to enable food to be imported was not approved due to higher priority being given to military needs. The famine and the criticism of the British administration fueled the development of Indian nationalism. Independence was achieved in 1947.

China 1958-61**Total excess mortality 16,5-29,5 million**

This was possibly the most catastrophic famine in recorded history. Though drought and floods in different parts of the country did contribute, the famine was largely the result of policy failures associated with Mao tse-Tung's "Great Leap Forward". The Great Leap Forward launched in 1957 involved the forced mobilization of the peasantry as part of a crash programme to increase industrial production. Aggregate national grain production fell by 25-30%.

Politically motivated exaggeration of crop production statistics and the fear of local leaders communicating their problems up the administrative hierarchy obscured the severity of the situation from national leaders. Policies on the production, distribution and foreign trade in grains were not altered and special relief programmes were not launched.

Q. Choose a famine that you are familiar with or one of the famines described in Box 4. Indicate whether the famine was a result of chronic or transitory food insecurity and cite both events and processes that encouraged the famine to develop.

A. _____



Causes of famine

Famines are caused by either or both of the following:

- a decline in food availability
- a reduction in people’s access to, or their ability to acquire, food.

Until recently it was generally believed that the only cause of famine was a decline in food availability due to a reduction in production resulting from adverse weather, disease/pest infestation, or through a cutting-off of traditional sources of supply. However, over the last century there has been a growing realization that famines can occur in areas where overall food availability has not declined, but as a result of a reduction in the ability of certain groups within the population to acquire the food, for instance as a result of a loss in their income or a sudden rise in the price of food.

This case was convincingly made by Amartya sen in his book *Poverty and Famines (1981)* which provided a conceptual framework for the analysis of people’s ability to acquire food known as Entitlement Theory (see Box 5). This approach, which allows analysis of the way famines affect individuals, households and socio-economic groups differently is closely linked to the move away from defining famine in terms of mass starvation.

ANSWER

The Irish famine of 1845-49 was a transitory food insecurity famine that was caused by potato blight (an event) and protectionist agricultural policies (a process) These situations combined to cause over one million deaths and wide-spread migration.

BOX 5

ENTITLEMENT THEORY

The term ‘entitlement’ is used to signify command over resources which, in turn, give control over food or which can be exchanged for food. Through some combination of production, trade, labor, property rights, inheritance or social welfare provision, individuals have either direct access to food or the means by which to acquire it. A farmer has the option of consuming his/her own production directly

or selling for cash in order to buy some other type of food. An agricultural laborer sells his/her labor either for money or for payment in kind, usually food. Rural artisans (e.g. shoe-makers and weavers) sell their labor or products for money. Entitlements are, therefore, not fixed or equal but vary according to an individual’s position within the wider system of production, exchange, control and distribution.

Q. What important insights did “Entitlement Theory” bring to the conceptualization of famine?

A. _____

Declines in **food availability** may be caused by a range of “natural” and human-induced factors. Table 1 provides an overview of factors that may precipitate a food crisis and indicates early symptoms.

Among the “**natural**” factors are:

- agricultural drought
- floods
- high winds
- unseasonable cold spells/frosts
- crop disease
- pest infestation (e.g. locusts, army worms and quelleda birds).

Among the **human-induced factors** are:

- conflict preventing farmers from planting, weeding, harvesting, and selling or possibly, involving the physical destruction of standing crops
- external economic shocks, e.g. sudden increases in the price of imported oil or fertilizers or a sudden decline in the value of a country’s exports thereby limiting its capacity to import items normally necessary for agricultural production
- internal macro-economic mis-management, e.g. poor agricultural pricing policies discouraging farmers from growing surpluses, the overtaxing of export commodities so that the country’s foreign exchange earnings fall and it becomes less able to import vital commodities such as oil and fertilizer
- forced procurement of farm produce by state organizations
- over-export of foods which reduces the amount available nationally to below required levels

A **reduction of people’s ability to acquire food** may also be caused by a range of “natural” and human-induced factors which affect supply and ability to purchase.

Among the “**natural factors**”:

- a significant loss of income of particular groups as a result of a natural disaster, e.g. agricultural laborers and rural artisans following a drought, flood, or cyclone

Table 1

Factors that may precipitate a food crisis

Natural – flood, cyclone, tidal bore, tornado, drought, excessive untimely rains, plant pests, animal diseases.

Human-made – war, civil strife, influx of refugees, economic embargo.

Economic – fall in fertilizer and/or pesticide use, reduced irrigation supplies, non-availability of quality seeds, decline in production credit, lower HYV acreage, lower world food production, unfavourable producers’ incentives, e.g. low pre-planting or previous year’s output prices, low guaranteed price, speculative hoarding of foodstuffs, smuggling of foodstuffs across border, cut in food aid programmes.

Early symptoms of a food crisis

Economic – rising food prices, falling livestock prices, sharp decline in market deliveries of basic foodstuffs, fall in government food stocks, rising global food prices, shortage of foreign exchange, decline in wages, shortage of employment, panic-buying of foodstuffs.

Social – increase in city-ward movement of rural people, increase in floating population in city streets, increase in the number of beggars, increase in infant mortality, people eating ‘famine foods,’ long queues in VGF centres.

Report of the FAO Workshop on Strengthening National Early Warning and Food Information Systems in Asia and the Pacific, Bangkok, Thailand, 7-11 October, 1991, Annex 3B, p., 28

ANSWER

Entitlement Theory provided a conceptual framework to explain how famines could occur in areas where overall food availability had not declined.

Among the human-induced factors:

- a significant loss of income of particular groups as a result of external
- economic factors (e.g. the cutting off of key export markets) or internal economic mis-management (commodity pricing decisions or wage cuts)
- a significant increase in the price of food as a result of hoarding or inflation
- an erosion of traditional community welfare support systems
- conflict limiting access to markets or disrupting local trade patterns
- strict rationing of available foodstuffs.

Many of these factors can be seen in the famines described in Box 4.

Q. *Indicate how a “natural” phenomenon like a tropical storm can reduce both food availability and access to food.*

A. _____



Each famine is likely to have a particular combination of causal factors acting and possibly interacting in the process by which the famine develops. Where multiple causes are involved it is often helpful to distinguish between **underlying and proximate causes**. Thus a gradual decline in agricultural production (e.g. through loss of soil fertility or the diminishing of agricultural incentives) may be an underlying cause, whereas the proximate cause was a drought or a sudden increase in the price of fertilizer.

Some broad generalizations as to changes in causal factors over time can be made. Historically the incidence of famines resulting directly from natural disasters was probably greater than has been the case over the last few decades. Conflict and economic factors were undoubtedly the primary cause of some famines, but in societies such as Western Europe during the Middle Ages famines were very often the result of harvest failures. Two consecutive harvest failures inevitably resulted in famine.

However, over the last century technical innovation and advances in social organization have resulted in some countries having the capacity to produce substantial agricultural surpluses. With more recent advances in transport, telecommunications technology, and increased international collaboration, it is now quite feasible for some countries (or areas within large countries) to provide assistance to areas experiencing famine.

Famines are now preventable, at least in theory. For a famine to occur at the end of the twentieth century implies, in addition to the strictly causal factors, the failure of the national government and/or the international community to act to prevent or mitigate the famine. This point also comes

ANSWER

A tropical storm may destroy standing crops thereby reducing food availability and cause a loss of income to farmers and agricultural laborers thereby reducing the ability to acquire food.

through clearly in the examples described in Box 5. While natural disasters were contributory factors in Ireland, Bengal and China, in the cases it was the actions or omissions by the national or colonial governments which both created and exacerbated the famine. In all four examples, the interests of the affected population were at some point in the story subsumed beneath that of a higher goal or principle. In the case of Russia and China it was rapid industrialization as part of the communist revolution. In Ireland it was the principle of free trade. In Bengal it was the goal of defending India against a Japanese invasion.

Q. *It is asserted that famines are now preventable. Describe why you agree or disagree with that assertion.*

A. _____



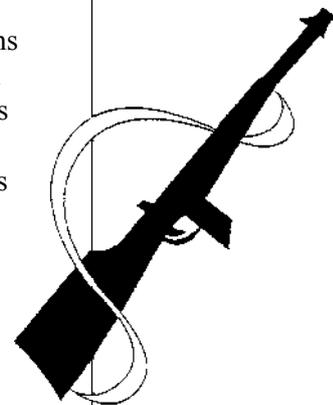
The role of conflict

Throughout history conflict has frequently been an important contributory cause of famines. For instance the surrounding and laying siege to large towns and cities was a regularly employed military technique in Europe during the middle ages, causing the starvation of large numbers of civilians as well as soldiers. The Rumanura famine of 1916-18 in Rwanda, Eastern Africa resulted from the military campaigns waged by the colonial powers involved in the First world War. A much remarked feature of the African Food Crisis of 1983-86 was the fact that while drought and food shortages affected as many as 24 countries on the continent it was the countries experiencing civil war that developed famines i.e. Ethiopia, Chad, Mozambique and Sudan.

Conflict has the effect of both reducing food availability and reducing the ability of people to acquire it by:

- the direct destruction of life, property, food, animals and crops
- the abandonment (either forced or voluntary) of land and other productive resources
- the disruption of commerce, free movement and the option of employing particular coping strategies.

In some cases these effects may have been intended by one or more of the parties to the conflict or it may have been an unintended result of the conflict. In reality it is often difficult to distinguish between the two. The fact that the effect was unintended does not, however, make it any easier for the affected population to cope.



ANSWER

Famines are preventable because it is possible for areas with food surpluses to provide food in areas or to groups experiencing a shortage. On the other hand, assistance programs such as these require support of governments in affected areas, adequate transport and delivery mechanisms, and agreement by food surplus areas to provide assistance.

Conflict is a prevalent and significant cause of famines.

There are strong arguments in support of the case that **conflict is a prevalent and significant cause of famines**. These include:

1. Superpower rivalry between the US and USSR fuelled local and regional conflicts around the world from the 1950s to the 1980s and contributed directly to famines, e.g. in Mozambique and Angola during the 1980s or to an increased level of vulnerability to famine by drawing resources into the military, e.g. in the Horn of Africa during the 1970s and 1980s.
2. The introduction of substantial quantities of modern weaponry such as automatic rifles and land mines has dramatically increased the impact of local and regional conflicts upon the civilian population and frequently leads to such a destabilization of normal production and trading activities that large areas may experience famine, e.g. Southern Sudan during the late 1980s.
3. Generally, it is significantly more problematic for the international community to provide relief assistance in a conflict situation than one where conflict is not present. Physical accessibility to the affected areas, political considerations, and the safety of the relief workers may prevent, delay, or limit the response by the international community. Significantly, in conflicts where national sovereignty is disputed the effectiveness of the United Nations system in mobilizing and coordinating relief assistance is limited by the need to respect the wishes of sovereign governments.

The implications of the apparent trend in famine causation for the international community extend beyond those personnel directly responsible for the provision of relief assistance. The effectiveness, let alone feasibility, of many of the potential interventions described in Part 2 may be severely limited by conflict. Negotiating temporary cease-fires or protocols on the freedom of movement for relief agencies or for the establishment of “corridors of tranquillity” are all methods by which the feasibility and effectiveness of relief programs may be increased in conflict situations. All have been used in recent relief situations. Corridors of tranquillity were an important innovation during the UNICEF led Operation Lifeline Sudan 1 during 1989 in South Sudan. (Minear et al. 1991)

These innovations in relief provision obviously require agreement among combatants. However, in some situations it may not be possible to gain the agreement of both parties and may even be physically almost impossible for outside agencies to work in the area affected by conflict as was the case in and around Mogadishu in Somalia during 1991-92.

Q. *How does conflict facilitate the development of famines?*

A. _____



ANSWER

Conflict can result in destruction of people and crops, cause widespread migration, and inhibit or prevent delivery of relief assistance.

Vulnerability and coping strategies

Vulnerability to famine is a more complex notion than vulnerability to earthquakes or flooding where the primary concerns are technical i.e. geological, geomorphological, engineering/structural design rather than social and economic. Inevitably, the factors determining the vulnerability of a society to famine vary considerably and there is a difference between the vulnerability of societies and households. Also vulnerability varies between geographical areas, social class and age. However, common factors are likely to include:

- a low income country with a high proportion of very poor people
- food production subject to wide climatic or pest-related fluctuations
- internal and external trade poorly developed
- the media restricted and criticism of the government not tolerated
- limited options for individuals/households to cope with the food crisis

Many of these factors overlap and poverty automatically increases vulnerability. Yet, despite these factors, individuals in highly vulnerable situations demonstrate remarkable resilience and ingenuity and utilize a wide range of responses to preserve themselves and their livelihoods.

Commonly employed responses or “coping strategies” include seeking off-farm employment, borrowing from neighbors, going into debt, altering consumption patterns such as switching to cheaper foods or gathering locally available “wild food”, selling off assets such as land, furniture, or animals to raise cash to purchase food, or migrating to relief camps or out of the affected area. The particular responses adopted vary widely as a result of the different causal factors involved in famines, the nature of the local food production and consumption systems, cultural factors, the nature of the households affected, local market conditions and the absence or presence of relief programs. However, studies of past famines reveal certain patterns in the coping responses chosen (see Box 6).

BOX 6

COPING STRATEGIES

On the basis of documented responses to African famines, Corbett (1989) suggests that there is a simple three stage sequence in coping strategies and argues that this model may provide a useful tool for analyzing the economic behavior of households prior to and during famines in Africa.

Stage One: Insurance mechanisms

- changes in cropping and planting practices
- sale of small stock
- reduction of current consumption levels
- collection of wild foods
- use of interhousehold transfers and loans
- increased petty commodity production
- migration in search of employment
- sale of possessions (e.g.- jewellery)

Stage Two: Disposal of productive assets

- sale of livestock
- sale of agricultural tools
- sale or mortgaging of land
- credit from merchants and moneylenders
- further reduction of consumption levels

Stage Three: Destitution

- distress migration

The importance of acknowledging and supporting the capacity of vulnerable groups to cope with distress conditions should not be understated because an understanding of coping strategies can be very helpful to those involved in designing the various components of relief programs. When relief assistance is designed without taking these capacities into consideration the assistance can often undermine existing capacity and leave those intended to be helped worse off than before. Even in the worst of conditions, individuals have skills and knowledge, social and organizational capacities, and strength of will which should be supported and encouraged if long term vulnerability is to be reduced. When “victims” of famines are seen as helpless without skills, energy, and motivation, relief programs will ignore local strengths and result in long term dependencies. (*Anderson and Woodrow, 1991*).



Preparing parched earth in anticipation of rains.

FAO/J. Van Acker, UNDRO New, July/August 1986

Patterns of coping strategies are receiving increased attention in the hope that they may provide an indication of the severity of the situation and the likely length of time before significant increases in morbidity and mortality occur. However, the research is still at an early stage and there are indications that coping strategies may be so time and location specific as to be of only limited use to those involved in “macro decisions” relating to the relief program.

For instance, a study by Reily (1990) of a group of agro-pastoralists in North Kordofan Province in Sudan found that the lack of transport animals within certain households prevented these households from engaging in petty trading, while the absence of adult males herding camels in search of better pasture necessitated “early” long-distance migration by female heads of households in search of employment. Furthermore, the group’s failure to recover from previous famines and/or a process of chronic impoverishment had considerably altered their coping strategies over time. Thus, there would appear to be considerable variation of strategies employed and a changing sequence of strategies, even over a short period. This makes it difficult to interpret the significance of particular strategies being employed, particularly for those located away from the affected area such as in central government offices and donor organizations.

Q. *Why is it important to develop the capacities and support the “coping strategies” of famine “victims”?*

A. _____



Famine early warning systems

Because famines develop over a period of months and, sometimes, years it is possible to detect their development and give warning so that interventions can be made to limit their progress and avoid the destruction of livelihoods and increased mortality.

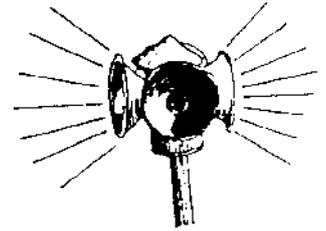
While the term “famine early warning system” did not appear until the 1970s, efforts to monitor indicators capable of providing “early” warning date back to Ancient Egypt where the level of the River Nile was closely monitored. However, with the exception of India which developed a sophisticated system of monitoring social conditions as part of the Famine Codes developed during the second half of the 19th Century, most of the efforts to provide warning of famines have, until at least the 1980s, focused on monitoring food production.

This focus on food production was due to the dominant view that famines were a product of a decline in food availability. In addition, many colonial administrations maintained District administrations and Statistical Departments which collected information on agricultural production and local conditions, and these systems formed the central component of the information systems which were used to indicate the existence of food shortages within the country.

During the last two decades many developing countries have, with donor encouragement and assistance, invested in and improved the coordination of their existing systems for reporting on meteorological, agricultural, crop marketing and other indicators, such as nutritional status, so that they are better able to provide “early warning” information. In most countries such systems have involved the creation of “Early Warning Units” located in an appropriate department of Central Government into which the Meteorological Departments, Agricultural Extension and Statistics Departments feed information. Within countries there may also be local level “Early Warning Systems”. Often these are funded by NGOs and usually, but not always, feed into the government-run National Early Warning Systems.

In addition to these national systems there are other “Early Warning Systems” functioning at different levels. Thus, regional groupings such as CILSS (Permanent Inter-State Committee for Drought Control in the Sahel) in West Africa, SADCC (Southern African Development Coordinating Conference) have established Regional Early Warning Systems which combine the output of the national systems with information from other sources, such as remote sensing information from satellites. At the global level the FAO’s Global Information and Early Warning System (GIEWS) also combines the output of the national and regional systems with information from other sources (FAO Crop Assessment Missions, NGO field staff reports). GIEWS is an important source of information for donor organizations.

This, it is now feasible for donors to be alerted to poor rains and the likelihood of a poor harvest half-way through a growing season. If the government issues an international appeal or makes a purchase on the world market just as the much reduced harvest is being brought in, then the first food shipments may arrive in three or more months to be used either to maintain supplies within the marketing system or for use in “food for work” or free distribution programs.



ANSWER (for page 32)

Relief programs should be designed to promote long-term development and reduce vulnerability. These goals require that local social, political and cultural capacities be strengthened.

Famines may occur in areas not experiencing a decline in overall food availability.

As noted above most early warning systems focus upon indicators of food production and availability rather than the status of the food entitlements of different groups. These early warning systems frequently use “Food Balance Sheets” in which estimates of food production, imports, exports, and consumption are combined to produce an estimate of the aggregate shortfall that needs to be made up by commercial imports or food aid.

Despite insights gained from Entitlement Theory, it has generally proven difficult to make decision-making systems sensitive to the fact that famines may occur in areas not experiencing a decline in overall food availability.

BOX 7

PROBLEMS WITH THE INTERPREATION OF THE RESULTS OF NUTRITION SURVEYS

Many Governments and donor organizations attach considerable importance to nutritional status information as an indicator of the extent to which famine conditions are present in a population and thus of the need for the provision of food relief. This attitude can be largely attributed to the following factors:

- i) nutrition surveys focus on children aged 1-5 who are the most physiologically vulnerable. Furthermore, malnutrition among this group proves more compelling than among others in the community;
- ii) the surveys provide hard, “scientific” data;
- iii) high rates of malnutrition are taken as “proof” of inadequate food intake.

While there is undoubtedly a role for nutritional surveillance as a food security monitoring tool, its usefulness is probably more limited than is commonly recognized by most relief agencies and donor organizations. While in richer countries nutritional status often involves continuous clinic-based monitoring which may be conducted in a reliable manner, in much of Sub-Saharan Africa it involves the anthropometric measurement (weight and height) of children in periodic surveys, the results of which are often unclear.

Confounding variables such as disease may significantly affect the rates of malnutrition. Thus, in a village where poor water quality has led to a high incidence of diarrhoeal diseases, a survey may indicate a high rate of malnutrition based on weight-for-height data. The most appropriate response in such a situation would be to provide oral-rehydration therapy and measures to improve water quality in addition to food relief. In some instances food relief may not be required at all. Thus, as a guide for the **need for food relief interventions**, nutritional status can be misleading.

The out-migration from the affected area and increased mortality frequently associated with periods of severe transitory food insecurity and

famine introduces bias into nutritional surveys. Unexpectedly low rates of malnutrition may, rightly or wrongly, be interpreted as being affected by the death or out-migration of the most severely malnourished and their non-inclusion in the sample.

In order that nutrition surveys yield statistically valid results it is necessary to have large sample sizes and follow strict research protocols. In areas of poor infrastructure such surveys are costly in terms of the logistical support and the time of skilled staff. During relief programmes when skilled staff are often in short supply and face many other demands on their time, the opportunity costs of carrying out large surveys are high. As a result of the pressures and logistical difficulties the strict protocols are not always followed and the results may not be meaningful.

Observer error (i.e. measurement errors by the assessment team) can become significant unless the assessment teams are subject to regular observer evaluations and retraining. An experiment by two NGO nutritional assessment teams in Sudan in 1985 which involved the measurement of the same 131 children resulted in one NGO estimating that 24% of the sample were less than 80% of the weight for height standard while the other NGO estimated that 48% were less than 80% of the weight for height standard (Soeters 1988).

As a result of the above factors, a gradually emerging consensus among experienced relief agencies is that while periodic anthropometric surveys do provide useful information for food needs assessments and the design of appropriate interventions. Other data gathering techniques should be used to complement anthropometric surveys. A growing trend among such agencies is, therefore, to reduce the resources devoted to anthropometric surveys to a minimum and to increase the resources devoted to the collection of “socio-economic” information such as alternative income sources, coping mechanisms and access to “famine foods”, which are able to provide a fuller picture of food needs and help inform decisions regarding appropriate interventions.

While many systems claim to make use of information on the status of entitlements (food prices, current coping strategies), such information is generally given less weight than the food balance sheet and, where it is available, nutritional status information. This may be attributed, in part, to the following factors:

- incomplete knowledge of coping strategies;
- coping strategies vary according to location, socio-economic group and passage of time thus limiting their use as objective predictors;
- data on food production and nutritional status are perceived to be more objective than information on coping strategies (See Box 7).
- many developing country governments and donor organizations see the role of emergency assistance as preventing mortality; others view emergency food aid as a means to prevent destitution and loss of livelihoods, as well as to rehabilitate damaged infrastructure and property, reconstitute or recover damaged or lost resources, and proceed with productive activities.

BOX 8

CASE STUDY: EARLY WARNING IS NOT ENOUGH

The Ethiopian Famine of 1984-85 resulted in total excess mortality of 0.4-0.5 million. It was caused by the complex interplay of a number of factors including drought, civil war, the poor performance of the Ethiopian Government and its unpopularity with western donors. The nature of the interplay and the relative contribution of each factor is still a matter of dispute, but the fact is that it occurred in a country which, following the famine of 1973-5, had set up an early warning system which was considerably more sophisticated than then existed in most other countries in Africa.

Northern areas of the country experienced poor rains in 1983 and 1984. Significant parts of the northern provinces of Eritrea and Tigray were under the effective control of rebel movements. Up to half the GNP was being expended on the civil war. Using the reports produced by the early warning system, the government appealed to the international community for assistance on several occasions throughout 1983 and 1984. Some donors responded in 1983 but the response to the crucial March 1984 appeal, which had requested a total of 450,000 tons of grain, was very poor. Among the reasons contributing to the poor response to the March Appeal were:

- the donors felt the earlier appeals had been exaggerated;
- reports originating in the rebel-held areas that western food aid was being used by the Ethiopian Army and being re-exported to the USSR made donors extremely cautious about approving new assistance;
- key donors had closed their development programmes in the country for policy (foreign and

- economic) reasons which limited their ability to corroborate the government's assessments and made them unusually dependent on assessments by the UN for this purpose;
- the government was perceived not to be giving sufficient priority to the relief efforts, for instance the main port had been closed to food aid shipments between December 1983 to April 1984 and travel in the area where the famine was developing by donors and foreign media was severely restricted.

In March 1984 a crucial FAO/WFP food aid assessment mission visited the country. While recognizing that the gravity of the situation warranted the provision of 685,000 tons of emergency food aid, the mission concluded that unless the handling capacity of the ports was improved, only 125,000 tons could be managed. Discussions with the government on the mission were prolonged, and by the time the report was issued in June, the crisis had worsened due to the failure of the "Beig" crop. The NGOs in the country increased their pressure on donors and their own relief efforts. In August the government issued another appeal but this was at a time when the government was preparing for the 10th Anniversary celebrations of the 1974 Revolution and downplayed the existence of the famine. At the beginning of Oct., following the celebrations, travel restrictions to the affected area were eased and donors began the process of mobilizing assistance, but even at this late stage there was a failure to appreciate the unprecedented scale of assistance that would be required. On October 21st, the BBC broadcasted a news report from one of the feeding camps which was quickly transmitted around the world and evoked an immediate and unprecedented international response.

While the substantial investments made in Early Warning Systems over the last two decades have probably led to more timely interventions in many instances, reviews of the performance of early warning systems frequently conclude that the linkages between early warning and response are weak. There have been several instances over recent years where, despite advance warnings, the response by governments of the affected country and the international community have been too late to prevent widespread destitution and mortality (see Box 8).

Q. *What data are useful in designing “early warning systems”?*

A. _____



Measures to maintain food security

The overall objective of short term relief measures should be to protect people’s access to food through:

1. ensuring the availability of food in the affected area *and*
2. protecting the entitlements of all groups within the affected population.

This section describes some of the principle measures for maintaining food security. These include:

- price stabilization
- food subsidies
- employment creation programs
- general food distributions
- supplementary feeding programs
- special programs for livestock and pastoralist populations
- complementary water programs
- complementary health programs

Many low income countries already implement food security interventions as part of their general development and welfare programs and these are potentially capable of expansion to serve as key components of a relief strategy. How rapidly such an expansion can be implemented will in part reflect that amount of preparedness planning that has been carried out in advance of the period of transitory food insecurity.

Price stabilization

Large fluctuations in food prices on open markets is a characteristic of many low-income countries and is the principal cause of the erosion of food entitlements. For instance in Sudan during 1991, prices of sorghum (*durra*) the main staple, increased from 150 Sudanese pounds/bag to 1,500. Such

ANSWER

Early warning systems often rely on data such as rainfall, food production, crop marketing, and nutritional surveys.

fluctuations may be exacerbated by an inability to pay for the large scale imports required to offset shortages and/or institutional delays in initiating such imports. Inefficiencies in the marketing systems commonly found in low income countries also serve to increase the extent of price fluctuations.

The maintenance of domestic grain reserves or buffer stocks may reduce the degree of price instability. By releasing stocks when prices are high or rising and purchasing at times when prices are low or falling, sharp fluctuations may be “smoothed”. However, the “smoothing” of large fluctuations will require such substantial purchasing, storage and selling operations that the costs may be prohibitive for many low-income countries.

Depending on the scale of the production shortfall it may become necessary to undertake commercial imports of food to maintain supplies in the private sector marketing channels. This may take the form of the government issuing import licences to commercial importers or, where the market in staples is controlled by parastatals, instructing the parastatal to undertake imports. Generally imported food costs more and it may be necessary for prices to be allowed to rise to cover the additional costs. If the government is committed to holding prices at levels prevailing before the episode of transitory food insecurity, it must subsidize the imports. Kenya provides a classic example of a country with adequate foreign exchange undertaking such commercial imports in response to a severe drought. In 1984-85 the Government of Kenya imported 386,000 tons of maize from Thailand to maintain the operating stocks of the grain parastatal the National Cereals and Produce Board. This involved an outlay of US\$ 62 million. To offset the additional costs the consumer price of maize was increased in late 1984.

At a local level there are opportunities for rural communities to increase their own capacity to withstand the effects of variable food supplies. For example, the establishment of “grain banks” and increasing farm level storage capacity, involving both storage and financial capacity to retain output, can be particularly significant in semi-arid, variable rainfall environments. Efforts to integrate domestic markets will spread and, thereby, dampen the effects of regional or provincial variability in output on local prices.

Food subsidies

These are interventions in supply and distribution which are intended to ensure that the price to the final consumer is below that which would prevail without regulation. Many price stabilization programs involve a measure of subsidy. Because of their scale, market-wide subsidies benefiting all consumers are extremely costly and are therefore not feasible in many low-income countries and may be difficult to sustain financially even in middle-income countries. However, the cost of the intervention can be reduced by *targeting* in terms of:

- subsidizing only those commodities whose consumption is important to poor people but not to the rich, for example coarse grains such as sorghum and millet;
- restricting the subsidy to geographically defined areas experiencing transitory food insecurity or to areas where are concentrations of vulnerable groups, the “fair price” shops established by the Indian government is an example of this form of targeted food subsidy;

Where cash resources are available and the marketing system is capable of maintaining food supply availability, it is usually more cost effective to pay workers on a cash-for-work basis.

- restricting the subsidy to particular households within the population who are especially vulnerable. In countries with comparatively sophisticated administrative systems and infrastructure food stamp coupons which reduce the price of food may be used to target to particular households.

Employment creation programs

New employment creation programs or the expansion of existing programs is a widely used relief strategy in Asia (see Box 9) and has also been employed in Africa, notably in Botswana. Employment creation is potentially a key strategy in protecting the entitlements of groups who are physically able. Employment creating programs vary enormously in their scope and coverage from modest community-based schemes providing seasonal employment opportunities in a few villages to state or nationwide programs having a significant impact on the overall availability of employment opportunities. Employment creation programs are attractive because they:

1. provide employment income to specific groups
2. potentially can be used to create assets such as roads and canals
3. avoid the dependence that may be associated with programs involving free food distribution over long periods.

In a food deficit country where food aid is available and where local food availability is subject to extreme fluctuation, it may be appropriate to use food aid to pay the wages of the laborers on a food-for-work basis. However, where cash resources are available and the marketing system is capable of maintaining food supply availability, it is usually more cost effective to pay workers on a cash-for-work basis.

Employment creation programs may be targeted on particular groups or areas which are vulnerable to transitory food insecurity. Employment guarantee schemes offer employment opportunities regardless of the numbers of people wishing to participate. Such schemes usually operate by offering a wage rate set at levels below the effective agricultural wage rate so that only those at or near destitution levels will apply. For programs implemented in rural areas, it is vital that workers are not drawn away from agricultural production activities at times of high labor demand.

BOX 9

PUBLIC WORKS DURING THE 1970-73 DROUGHT IN MAHARASTRA STATE, INDIA

Public works formed the central component of the response. At the peak of employment in May 1973, nearly five million laborers participated on a daily basis. The average attendance in April-June 1973 exceeded 20% of the total rural population in 7 out of 26 district and was as high as 35% in Buihar District. In many villages most of the labor force was employed on relief works. Even though real wages were meager, the contribution of relief works to total village income in 1972-73 was often enormous. A survey of 70 villages found that in 45 the contribution exceeded 50% of total village income.

Wages were paid in cash. The intent was to enable laborers to purchase food themselves, mainly from "Fair Price Shops" where grain rations of 12kg per head per month were meant to be available. However, the public distribution system failed to meet more than a small fraction of the population's food needs and the bulk of purchases were therefore made on the open market. The payment of cash wages ensured that delays and failures in public food delivery did not paralyze the provision of relief. *From Dreze 1990*

Employment creation programs for particular vulnerable groups should be aware that the nature or cause of their vulnerability may prevent them from participating in the program. Thus, elderly and disabled may be physically unable to participate. Female heads of household experience barriers to participation due to child care responsibilities or social conventions. For these reasons special measures may have to be taken to ensure their participation or separate programs developed to address the food security needs of particular households.

Administrative and technical capacity to manage employment programs is a key consideration in deciding the role that such programs should play in a relief context. The lack of such capacity in Africa explains in large part the comparatively limited role of such programs as a relief measure in that continent.

General food distribution programs

In situations where existing marketing channels are not an effective means of maintaining food availability and it is not possible to mount employment creation programs of the scale required, it will be necessary to provide food rations to the target population which cover a substantial part of their food requirements. In some situations it may be necessary to cover all of the caloric and micro-nutrient requirements of the affected population, for instance, in predominantly subsistence farming areas where a total crop failure has occurred, household food reserves have been exhausted and the opportunities for obtaining temporary income from alternative sources is limited. As with refugee camp situations, if the ration does not contain the recommended levels of calories and micronutrients, the health of the population may deteriorate and their resistance to disease reduced. Therefore, cereals should be “balanced” by the provision of pulses (cowpeas) and oils/fats and where possible complementary foods such as fresh vegetables, sugar and salt.

It is extremely rare for famine-stricken or refugee populations to receive the entire food basket. Most of the time, the ration is only cereals, sometimes pulses and vegetable oil are added. It is assumed that the recipients will either obtain the balance from other sources or will sell some of their ration

BOX 10

MINIMUM DAILY FOOD REQUIREMENT

The WFP Emergencies Manual (1989) suggests that the minimum* daily average requirement of 1,900** kilocalories (kcal.) (which may need to be increased to 2,000-2,200 kcal if there is widespread malnutrition) may be met by the following combination of commodities:

* assumes that other local foods are available

** will need to be increased in cold weather areas where population is living in tents.

cereal flour	400grams (or 450-500 grams of whole grain)
pulse	60 grams
oil/fat	20 grams
fortified cereal blend	30 grams
sugar	15 grams
salt	5 grams



Food distribution in Chad

LRCS/ Liliane de Toledo,
UNDRO News, Jan/Feb 1985.

Agencies should consider carefully the appropriateness of allocating resources to programs which are likely to have limited impact.

to purchase it. As the rations come in containers marked “not to be sold or exchanged” and some local authorities criminalize the sale of donated rations, this can create problems. In the instances when people have tried the “experiment” of living solely on WFP recommended minimum rations, e.g. refugees in Somalia, severe nutritional problems have resulted.

General food distributions usually involve the delivery of sufficient commodities for a given period, often one or two months, to village level authorities/leaders, who are then responsible for ensuring fair distribution of the commodities among the households in the village. Until the mid-1980s responsibility for providing general rations in Africa lay with agencies of the government of the affected country supported by the UN and bilateral donors. Increasingly then non-governmental organizations (NGOs) have been involved in managing general food distribution programs.

General food distribution programs may be targeted to take account of differences in need between areas and within population groups. Such targeting may take the form of providing different ration sizes to different groups or areas, or excluding some areas/groups from the program. Such targeting can be problematic as it requires an effective information system to differentiate food needs between areas and groups and may be culturally unacceptable to the affected population.

Supplementary feeding programs

These involve the provision of rations to particular groups whose growth and health status are most likely to be impaired by a low or reduced food intake, i.e. children under the age of five years, pregnant and nursing mothers and the elderly. Supplementary feeding programs may be provided as a take-home ration or be prepared on-site for consumption at centrally located feeding centers. Many supplementary feeding programs employ anthropometric assessments to determine entry to the program, so that, for instance, only those children falling below 80% of the international weight-for-height standard are admitted to the program. For severely malnourished children intensive feeding regimes involving several prepared meals provided on-site may be necessary.

Priority should always be given to creating effective **general food distribution programs**. Supplementary feeding programs implemented in situations where the general ration is inadequate are likely to have only limited effectiveness. For example, if the general ration is inadequate take-home rations are likely to be consumed by non-target group members of the community or household. In on-site programs children graduated from the programs may rapidly lose weight due to the lack of food within their household and have to be readmitted to the programs. Though there are often considerable pressures upon relief agencies to implement supplementary feeding programs regardless of the adequacy of the general ration, agencies should consider carefully the appropriateness of allocating resources to programs which are likely to have limited impact.

Special programs for livestock and pastoralist populations

In predominantly pastoral areas or in areas of plough-based agriculture, where livestock represent an important component of the agricultural system and a significant proportion of household assets, programs to sustain the livestock or at least to support the price of the livestock are desirable. A feature of drought-related transitory food insecurity is that livestock prices fall at a time when grain prices are invariably rising. The reduction in grazing and fodder make it more difficult to sustain animals. Livestock markets become oversupplied, forcing the prices down to levels perhaps only one-tenth of the pre-drought levels.

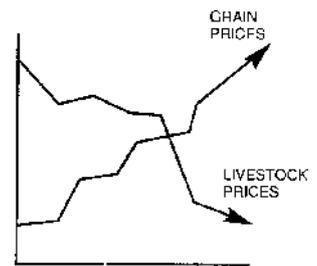
In areas where plough-based agriculture is practised and *effective* intervention may be to set up cattle camps into which cattle can be held, fed, and watered on behalf of their owners until the drought has passed. In this way a crucial household asset can be kept alive and dramatically improve the speed of recovery following the drought. The Indian Famine Codes of the late 1800s recognized that a fodder scarcity situation required separate measures. Building on this earlier practice, Indian state authorities and NGOs organized large cattle camps and transported cattle feed into drought-affected areas during the 1987-88 droughts.

In areas where the agricultural system is predominantly pastoral, a range of interventions, such as the provision of fodder aid and improved veterinary care to limit the spread of diseases often associated with periods of livestock stress, may be provided to limit livestock mortality rates. Commodities which might be provided as fodder aid include locally procured hay or crop by-products such as stalds and husks, or more concentrated feeds such as molasses and groundnut cake. There are a range of measures to support the prices of livestock or provide owners with a payment for livestock that might otherwise die without conferring any income to the owner. These include: expanding the activities of parastatal meat corporations so that more animals are purchased at “fair” prices; maintaining slaughterhouse capacity and activity; and establishing local procurement and slaughtering projects to supply meat to local schools or vulnerable groups.

Complementary water programs

Periods of drought-related food insecurity invariably witness a reduction in the number of water sources and the deterioration in the quality of water as sources dry up and become polluted through increased use. Areas where water sources are pumped are vulnerable to the breakdown of the local administration, lack of foreign exchange (to purchase fuel and spare parts), and conflict. Reductions in the number of water sources and the deterioration in the quality of water sources have a number of undesirable effects which serve to increase, often significantly, the levels of morbidity and mortality.

Migrations to functioning water sources may result in the congregation of populations around such sources. Reduced availability of water limits effective hygiene practices. The consumption of poor quality and polluted water increases the incidence of water borne diseases such as diarrhea.



Water distribution system

Source: UNHCR

As a result, water-related mortality may be a significant in periods of drought as lack of access to food. Emergency water measures may include:

- assisting communities to transport water from more distant sources, e.g. by providing donkey-drawn water carts, providing fodder for donkeys, or trucking water to communities;
- improving the maintenance of existing boreholes and pumps;
- drilling and equipping new boreholes.
- deepening existing well s or digging new ones;
- digging new dams/tanks or ponds or deepening existing ones to collect more water during the next rains;

Complementary health programs

Periods of transitory food insecurity invariably witness significant increases in levels of morbidity. Reduced food intake, poor hygienic practices, and deterioration in water quality associated with lack of food and water contribute to an increase in the incidence of water-borne disease. Countries which rely heavily on agricultural exports as a source of government foreign exchange may also experience a reduction in the ability to support basic services such as primary health care as a result of reduced exports. Thus, health care provision may be reduced as the population is experiencing increased vulnerability to infection.

Ensuring the continued functioning of the primary health care system is an important goal during periods of drought-related food insecurity. Among the specific health interventions that might be provided are:

- providing Oral Rehydration Solution and education on its use;
- ensuring the adequacy of supplies of basic medicines for the primary health care network;
- supporting expanded immunization programs (EPI) to ensure maximum coverage
- distributing Vitamin A to prevent blindness resulting from inadequate micro-nutrient intake.

Q. *Choose three of the measures mentioned above to maintain food security and discuss how it can inhibit starvation. If possible, describe a particular situation where such program was implemented and describe its results.*

A. _____



Selecting particular interventions

In view of the multi-causal nature of famines, it is not possible to provide simple “cookbook” lists of appropriate interventions. Each situation requires careful review of both the proximate and underlying causes of the food insecurity and the selection of interventions which mitigate against them and provide relief to the affected population. Most programs are likely to involve a combination of measures which seek to increase the availability of food and measures which attempt to maintain the entitlements of all groups. Thus, programs will generally employ a mix of interventions to:

- **keep food prices at affordable levels for affected households**, e.g. through price stabilization schemes, increased food imports by commercial or public concerns, and the provision of general or targeted subsidies
- **protect the capacity of affected households to procure food and limit the extent to which they have to sell key assets**, e.g. through employment creation schemes, general feeding programs, livestock price support schemes and holding camps
- **limit the increase in morbidity during periods of transitory food insecurity**, e.g. complementary water and health programs

An additional objective of programs to mitigate transitory food insecurity should be to encourage community stability by improving the immediate environment by the provision of food, water, agricultural or other programs that help prevent distress migration. Migration and the assembling of large populations in relief camps have been found to significantly increase morbidity and mortality. Moreover, the recovery process is hampered if farming households are away from their agricultural lands at the start of the next season.

Factors which affect the particular mix of relief measures employed are likely to include:

- the causes and **nature** of the transitory **food** insecurity episode
- the **prevalence of existing food security** interventions within the country (e.g. food subsidies and public works programs) which could be expanded
- the **nature and scale of the resources available** to implement and expand relief measures;
- the **administrative capacity available**.

Food aid

Resource availability and the constraints attached to particular resources are inevitably a crucial factor. For many years, the relief resource most readily available from donor countries has been food aid. The food aid programs of the USA (which regularly provide 60% of the world’s food aid) and the European Community seemed, at least initially, from the need to dispose of substantial surpluses resulting from internal agricultural policies. Though there are signs that food aid is gradually becoming a more fully-costed resource in foreign aid budgets, it remains the case that it is often considerably easier for a relief agency to receive an allocation of \$5 million in food than an equivalent value as a cash grant to undertake cash-for-work,

ANSWER (for page 42)

For example (1) **price stabilization programs** maintain food prices at levels that are affordable to impacted groups; (2) **employment creation programs** provide either cash or “food” wages that allow households to maintain their entitlements and strengthen individual initiative; and (3) **special programs for livestock** seed to maintain significant household assets by keeping animals alive thus speeding recovery and avoiding destitution.

water and health programs. As a result there would appear to be a bias towards food aid-based interventions in those countries where domestic sources of finance are limited.

Many food aid donors require that food aid provided to relieve food insecurity and famines be distributed free to the affected population. While some regular food aid programs are used to support price stabilization and food subsidy programs, the conditions attached to emergency food aid often prevent its use in price stabilization and subsidy interventions. Thus there is a general bias towards general and supplementary feeding programs in emergency interventions based on donated food aid.

■ *SUMMARY*

Famines have occurred throughout history and routinely result in substantial death and destruction. However, a famine is not just a single event but rather results from a sequence of events and processes that reduces the availability of food generally or the access to food of particular vulnerable groups. This reduction in food may be either chronic or temporary and may be caused by both natural and human made factors. Among the human made factors, conflict is often a significant cause of famines and the presence of conflict frequently renders food assistance difficult or, even, impossible.

In theory, famines are preventable. In reality, they occur all too often. When they do occur they represent a breakdown in the capacity of local, national and international assistance systems. “Victims” of famine must often rely first on their own resources to alleviate famine impacts. The design of relief programs must take account of these coping patterns and build on community and individual strengths. Sometimes these coping patterns are systematic enough to provide forecasts of developing famines. In addition to analysis of coping patterns, many countries now have “early warning systems” that measure drought conditions, food production and food marketing to alert authorities to an impending crisis.

Many different programs which help to maintain food security have proven successful. These include the distribution of food to general or targeted populations, income producing programs and price control programs to help households purchase food, complementary water and health programs to minimize morbidity and mortality, and special programs to maintain livestock and other household assets.

INSTITUTIONAL ISSUES

After reading and completing the exercises in this part of the module, you will be able to:

- *differentiate the drought and famine roles of various UN agencies, national governments, NGOs and donors*
- *understand potential new roles for the UN in famines which involve civil conflict and intense political consideration*
- *specify how and when rehabilitation programs should be established*

Introduction

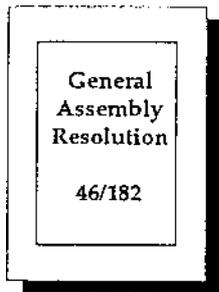
Famines are, in theory, preventable but they require significant organizational resources. A large number of international, national, and local organizations exist and are necessary to combat famines and alleviate suffering. The system by which the international community and national governments respond to developing famines is extremely complex and not well formalized. The following section describes the roles of national governments, the UN system, and NGOs in providing relief and rehabilitation.

National government roles

Effective action by national governments is crucial to successfully implement efforts outlined above to reduce vulnerability to famines. Preparedness to mitigate the effects of famine requires that additional response capacity be sustained on an ongoing basis within the system. Where governance is ineffective, such capacity is unlikely to be maintained between famine episodes. Thus, the substantial international investment in the transport capacity of the Sudan in the mid-1980s was not sustained and is being rebuilt to cope with the 1990-91 situation.

Similarly the performance of the national government is crucial to the effectiveness of the overall response by the international community once a famine is developing. Where, as in Botswana and Kenya during the mid-1980s, a national government is prepared to take the lead in initiating its own relief program and guide the subsequent international response and where the situation is uncomplicated by conflict and severe internal political strains, the international response system works relatively effectively. Where these conditions are not met, as in the case of Sudan and Ethiopia during the mid-1980s, the international response system has frequently performed poorly.

LEARNING OBJECTIVES



United Nations roles

Several UN agencies are involved in responding to transitory food insecurity and famines. The greater part of resources channelled through the UN in response to such situations are via WFP (food aid), UNHCR (all forms of assistance for refugees) and UNICEF (non-food relief, but especially health and water supply with a focus on women and children as priority groups). (See Boks 11 for a simplified outline of the roles of key UN agencies).

Most of the coordination between agencies takes place at the country level. The UN Disaster Management Team, chaired by the UNDP Resident Representative/Resident Coordinator has an important role to play in coordinating the UN's response, but its role may be different than during sudden-onset disasters. The slowly intensifying nature of famines means that existing donor coordination arrangements may be utilized, at least up to the point where the situation is recognized to require an exceptional response. In extreme cases, the UN Secretary General may choose to provide a stronger coordination mechanism.

In light of the issues created by compound and complex emergencies which often include population displacement, famine, civil conflict and intense political considerations, the United Nations has determined to strengthen and make more effective the collective efforts of the international community, in particular the UN system, in providing humanitarian assistance. This determination is reflected in the implementation of *General Assembly resolution 46/182*, passed in December of 1991.

This resolution affirms that humanitarian assistance must be provided in accordance with the principles of humanity, neutrality and impartiality. Accordingly the UN has a central and unique role to play in providing leadership and coordinating the efforts of the international community to support the affected populations.

The implementation of Resolution 46/182 includes the creation of a contingency funding arrangement, that is, a central emergency revolving fund of US \$50 million as a cash-flow mechanism to ensure the rapid and coordinated response of the organizations of the system. The UN will also establish a central register of specialized personnel and teams of technical specialists, supplies and other resources that can be called upon at short notice by the UN.

The leadership of this UN initiative will be provided by a high level official, the emergency relief coordinator, designated by the Secretary-General, to work with the entities of the UN system dealing with humanitarian assistance. This position combines the functions previously carried out in the coordination of UN response by representatives of the Secretary-General for major and complex emergencies, as well as by the United Nations Disaster Relief Coordinator.

This emergency relief coordinator, among other duties, is charged with facilitating the access by the operational organizations to emergency areas for the rapid provision of emergency assistance. In cases of complex emergencies this may require negotiation with all parties concerned to obtain their consent and, where needed, the establishment of temporary relief corridors, days and zones of tranquility and other forms.

Box 11

ROLES OF THE KEY UN AGENICES IN MITIGATING TRANSITORY FOOD INSECURITY

	Vulnerability Reduction	Preparedness	Early Warning	Relief Provision		Relief/Recovery Coordination	Rehabilitation	Conflict Resolution & Protection
				Food	Non-food			
UNDP	★	★	—	—	x	★	★	x
WFP	x	★	★	★	x	x	x	—
FAO	★	★	★	—	x	x	★	—
UNHCR	—	x	x	x	★	x	★	★
DHA	★	★	—	★	★	★	x	★
UNICEF	★	x	x	x	★	x	x	x
WHO	★	x	x	—	x	x	x	—
ILO	★	—	—	—	—	—	x	—
WORLD BANK	★	x	—	—	—	x	★	—

Note: The mandated roles of the agencies may vary according to local circumstances

Key — = no role or involvement x = some role involvement ★ = important role or involvement

UN Secretariat

Location of the Unit for Special Emergency Programmes and the Office for Emergency Operations in Africa (1984–86). The UN Secretary General occasionally appoints Special Representatives at country level to coordinate large scale relief operations.

UNDP

Involved in vulnerability reduction, preparedness and rehabilitation through its various development activities. As the in-country representative of the UN system, the UNDP Resident Representative plays a key role in coordination.

WFP

Provider of substantial proportion of emergency food aid to Africa and coordinator of contributions and shipments by bilateral donors. Involvement frequently includes in-country logistics involving bulk movements to regional or district distribution points.

FAO

Involved in vulnerability reduction and rehabilitation through its agricultural development activities. Involved in drought preparedness activities (preparedness planning, manuals development, training, etc.) in several African countries. The FAO's Global Information and Early Warning System is the main global early warning system for drought-related disasters and FAO provides assistance to national early warning systems. The FAO Office for Special Relief Operations (OSRO) occasionally leads multi-donor assessment missions to countries requesting substantial food aid assistance. Seed provision as part of drought recovery is FAO's responsibility. FAO provides food security planning at national, regional, village and household levels, assists in building and managing food security stocks, and works with response and assessment missions in case of food emergencies as well as agricultural rehabilitation

UNHCR

Responsible for coordinating the provision of all forms of assistance to refugees. Some attempt is made by UNHCR to gain early warning on large scale refugee movements. WFP has increasingly taken over responsibility for provision of food aid to camp level. UNHCR is supported by NGO's, UNICEF, and national government agencies in providing/distributing non-food assistance to camp populations. UNHCR has primary responsibility for organization of repatriation programmes, once this becomes feasible.

DHA

Mandated responsibility for coordination of international relief and assisting countries with disaster prevention and preparedness. In many instances its coordination activities extend little beyond the collation, analysis, and dissemination of information on relief requirements.

UNICEF

Involved in vulnerability reduction and rehabilitation through development activities, etc. focusing on children and women. Frequently plays an important role in the provision of health care (basic medicines support for primary health care system) and water provision (drilling rigs, borehole rehabilitation and handpumps) during relief operations. The one UN agency which is not bound by its charter to provide assistance to organizations approved of by the national government. Consequently, UNICEF has played a lead role in the provision of relief assistance to rebel-held areas of South Sudan.

WHO

Provides technical assistance and advice on medical requirements during emergencies. Project funds and technical assistance for Nutritional Surveillance systems may be available. In addition, WHO can have a role in early warning.

There are many operational considerations in complex emergencies. One of the most crucial is that of the safety of relief teams in conflict zones. As coordinators of assistance for the displaced, the UN staff bears a special responsibility for ensuring that all personnel operating in or adjacent to conflict zones work in conditions of minimum risk and maximum security. Guidelines and procedures for personnel should be established in conjunction with the host government and, where possible, with insurgent groups. The UN is often charged with the responsibility of notifying relief workers and other organizations about the risks they may face from military operations in or near their relief activities. In this regard, the UN is often able to obtain clearances for special flights into contested areas on airplanes bearing United Nations markings, to arrange for safe transport through the front lines in specially-marked UN vehicles, and to establish special relief corridors whereby food and relief supplies can be delivered under flags of truce or through designated corridors, without undue restraint. It is important for the UN to carefully assess the risks before encouraging relief organizations to commit personnel and resources to operations in non-secure areas. A UN assurance that an area or means of transport is safe carries much weight – and responsibility.

Two of the most important aspects of working in remote and insecure areas are communications and stand-by evacuation support. To the greatest extent possible, UN coordinators should ensure that relief personnel have immediate and 24-hour access to telecommunications facilities and that suitable means are immediately available to evacuate personnel in case of an emergency. This may entail the assignment of light aircraft to be available on short notice to evacuate staff.

Q. *How does Resolution 46/182 affect UN roles in meeting famine needs?*

A. _____



Donor and NGO roles

While there is considerable variation between countries, it is generally the case that the majority of resources provided in response to transitory food insecurity is provided by bilateral donors on a government-to-government basis or channelled through NGOs. For instance WFP is responsible for providing only 20% of total emergency food aid and bilateral donors provide the rest. Increasingly NGOs are used by bilateral donors as channels for their

assistance. Approximately 40% of emergency food aid to Africa is now channelled through NGOs such as CARE, Oxfam, Save the Children Fund and the Catholic Relief Services. These trends have important implications:

- they increase the potential role of foreign policy considerations in the provision of relief and, thereby, may influence the effectiveness of the response;
- potentially they limit the role of UN agencies, though much depends on local circumstances and the level of collaboration at the country level between UN and bilateral donor personnel;
- they increase the need for effective coordination mechanisms between the government, bilateral donor organizations, UN agencies and NGOs.

The donors use NGOs to channel relief assistance because of:

- doubts about the effectiveness of government agencies to handle the large volumes of assistance
- doubts about the commitment/ability of government agencies to reach those most in need
- fears of corruption and high levels of “leakage”.

NGOs are particularly attractive to bilateral donors in areas where sovereignty is contested and a rebel movement is in control of significant portions of territory. For foreign policy/diplomatic reasons, bilateral donors may be unwilling to be seen providing assistance in such areas, even if it is humanitarian assistance. By virtue of their respect for national sovereignty, UN agencies may be prevented from operating in such areas. Bilateral donors may therefore use NGOs, either as intermediaries between the donor and local agencies or a bulk transporter and final distributor.

The increasingly important role of NGOs has a number of implications. Where the government or UN has established effective coordination mechanism and the number of NGOs in the country is limited coordination among the NGO community may be adequate. Where government and UN coordination mechanisms are weak and there is a significant increase in the number of NGOs, significant coordination problems may arise. While in the short run, the use of NGOs may be necessary to ensure a prompt and effective response, the use of NGOs should not prevent the longer run efforts to strengthen the capacity of government agencies.

Q. *Identify the implications of the increasing tendency of donors to use NGOs to provide famine assistance.*

A. _____

ANSWER (for page 48)

Resolution 46/182 increases the capacity of the UN system by providing an emergency funding mechanism, mandates creation of a roster of individuals and resources to respond to famine situations and affirms that humanitarian assistance is a foremost goal of the United Nations which may require exceptional negotiation with various parties to a conflict.





These returnees have been assisted to re-establish themselves

UNHCR/J. Courtin

Rehabilitation

Rehabilitation involves assisting the affected population to replace assets lost during the famine and, where this is realistic, to re-establish their livelihoods. The severity of the famine will determine the nature and scale of the rehabilitation requirements. Thus, if migration to camps and significantly increased mortality have occurred, a comprehensive rehabilitation program will be required. This may involve health care services, counselling, material supports e.g. seeds, tools, cooking utensils, and blankets and other support, especially transportation back to previous home sites, to re-establish homes and productive activities. If the impact of the transitory food insecurity episode was not severe and most households had not been obliged to sell productive assets (e.g. seeds stocks and breeding livestock) then a rehabilitation program may not be required. Rehabilitation needs should be carefully assessed and interventions tailored to the particular situation.

The timing of rehabilitation interventions is particularly important. For example, seed distribution programs must be completed before the start of the next rainy season. Thus, the intervention has to be planned and implemented alongside relief activities. If the program is successful and the rains satisfactory then the relief activities may be wound down at the end of the growing season and other rehabilitation activities commenced. The need to assess, plan and prepare rehabilitation interventions when personnel are preoccupied lower priority. The record of successful rehabilitation activities has not always satisfactory. Allocating staff to work on the rehabilitation interventions and protecting them from the pressures of the relief program, is often necessary to ensure effective rehabilitation programs.

Q. *Under what conditions should rehabilitation programs be implemented?*

A. _____



Seed programs frequently form a key component of rehabilitation efforts. The rationale is that the affected population have exhausted their seeds stocks either through repeated re-sowings or consuming them as food. Nevertheless, care should be taken when assessing the need for a seed program as there have been instances where an area that was thought to be severely short of seeds, crop production recovers rapidly following the first good rains even in the absence of seed distribution programs. Seeds are highly divisible and households may be capable of acquiring small quantities from several different sources. However, while aggregate production may be capable of “bouncing back” rapidly, this may mask severe seed shortages in the most resource-poor farming households. Targeted seed distributions should be considered in such a situation.

ANSWER (for page 49)

It increases the potential for foreign policy considerations to drive relief program designs; potentially limits the role and authority of UN agencies; and increases the need for coordination, mechanisms.

Ensuring the timely provision of *appropriate seed stocks* is central to the effectiveness of seed programs. In a country experiencing food shortages resulting from production shortfalls, seed will be in short supply and seed prices inflated. Many government agriculture departments maintain seed stocks and these may be a useful source of in-country seeds for use in seed distribution programs. However, it should not be assumed that such seed stocks contain the appropriate varieties for the farming systems in the area where the distribution is to take place. The intervention tactics should take account of farmers' seed preferences and local ecological factors. Where appropriate seed varieties are not available from sources within the country, imported varieties may be considered. However, the seed importation is often hindered by logistical difficulties and importation regulations designed to prevent the spread of crop diseases. The success rate of seed programs using imported varieties is not high.

In countries where plough-based agriculture is practised, speed of recovery will be greatly increased if draught animals are kept alive during the drought or famine as suggested above. Alternatively, "restocking" schemes may be implemented to provide draught animals to households where animals were sold, died, or were eaten.

The rehabilitation of predominantly pastoral communities is lengthier than the rehabilitation of predominantly arable communities. Such communities invariably emerge from periods of transitory food insecurity with reduced flock/herd sizes and with a variable number of households having lost entire flocks/herds. Aggregate livestock losses of 80% or more have been recorded in recent famines in Africa. In such situations it may take a decade for herds to regain their pre-famine levels. Households which have been fortunate enough to sustain some of their breeding stock are likely to be able to regenerate their herds with little or no assistance. Households which have lost their breeding stock and have insufficient assets to purchase such stock (which will be available only at high prices following a period of high stock losses) may need assistance. Various types of "restocking" programs have been attempted, with varying degrees of success. Breeding stock may be procured locally or from elsewhere in the country and provided free or on loan to selected households.

Through the provision of credit households can be encouraged to make their own investment/consumption choices during the rehabilitation phase, e.g. to purchase their own breeding stock and farm equipment. Though more flexible such an intervention may be difficult from an administrative point of view and have implications for the degree and length of an agency's involvement in the area.

Q. *What special consideration surround "seed" rehabilitation programs?*

A. _____

The success rate of seed programs using imported varieties is not high.

ANSWER (for page 50)

Rehabilitation programs are necessary after severe periods of transitory food insecurity and famines when households have lost most assets, been forced to migrate, and have experienced high rates of mortality.



■ SUMMARY

Effective government response is critical to successful relief programs in response to famine. Unfortunately, in many countries that experience famine governments are unstable thus inhibiting effective responses. Several United Nations agencies have important roles to play in responding to famine. Because many emergencies include, in addition to famine and displaced populations, civil conflict and intense political considerations, the UN is developing new roles to support effective responses to provide humanitarian aid. Increasingly, donors are choosing to deliver famine assistance through NGOs. This trend has some significant implications for relief and rehabilitation programs.

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ANSWER (for page 51)

Seeds must be distributed before the next set of rains; seed varieties must be appropriate to local farmer preferences and growing conditions; seeds are highly divisible and local stores may be sufficient for recovery purposes without special programs.

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■ FOOTNOTES

¹ By virtue of costly technology that allows salt to be removed from water, desalinated sea water has become an important source of water for domestic, industrial and agricultural purposes in some of the arid, oil rich states of the Middle East. However, this unique water source is not considered here.

² For the USA the total costs and losses of the 1987-89 drought have been compared to estimates of the losses that might be expected from the 'worst case' hurricane – roughly \$7 billion, and the 'worst case' earthquake – between \$30-50 billion (Riebsame et al. 1991)

³ Some researchers, notably de Waal (1989), have questioned whether famine necessarily involves increased mortality, and on the basis of the terms used by the population in his study area (Darfur, Western Sudan) distinguishes between “famines that kill” and “famines” that may not “kill” but result in hunger, destitution and social breakdown. This distinction helps by a) showing that those affected by famine may define it differently to those definitions used by outsiders, and b) that for those affected the process leading up to increased mortality has a similar importance to the threat of increased mortality.

⁴ The current internationally accepted standards for calorie and micronutrient intake to enable “an active and healthy life” are contained in WHO (1985).

ACRONYMS

DHA	Department of Humanitarian Affairs
DMTP	Disaster Management Training Programme
FAO	Food and Agriculture Organization
IMF	International Monetary Fund
NGO	Non-Governmental Organization
UNDP	United Nations Development Programme
UN-DMT	United Nations Disaster Management Team
UNDRO	United Nations Disaster Relief Organization (now DHA- Geneva)
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
WFP	World Food Programme
WHO	World Health Organization