Food Shortages and Household Coping Strategies in Tanzania

Camillus J. Sawio[1] and Cosmas H. Sokoni[2].

Abstract

Food production in Africa has not kept up with the demands of rapid population growth, urbanization and rising incomes. It has been rising at a slow annual rate of about 1-2%. However, population has been increasing at 3.0 % annually. In fact, per-capita food production has been declining for the past 15 years. Persistent food shortages and famines have been a major problem. For Tanzania this problem has ecological, technological, economic, ideological as well as political factors. As food crises intensify, households devise numerous coping strategies for survival which reflect, among other things: self-reliance, creative adoptive strategies, accepting loans, community contributions and sharing, controlling the sale of food and other assets and migration to other rural or town areas. A deeper understanding of such coping strategies by planners and other decision-makers will result in better handling of vulnerable peoples in times of population-food-famine-environmental crises.

Introduction

In the last two decades, many African countries have been suffering from persistent food shortages and famines. In Tanzania, food shortages and famines have been a major problem for a long time. Even in the mid 1990s, Tanzania like many African countries has continued to be threatened by food shortages and famines (TET, 1993/1994, p. 5).

Generally, famines result from chronic cyclical food shortages. However, causes vary from environmental, social, political, economic, and technological factors. In Africa they have their main roots in the general causes of food insufficiency among the poorest households in rural and urban

[1]Dr. Camillus J. Sawio is a Senior Lecturer and [2]Dr. Cosmas H. Sokoni is a Lecturer in the Department of Geography, University of Dar es Salaam.

areas. Again, analysts of the political economy of famine argue that famines can be triggered by a natural disaster such as drought, and can be caused by long term political and economic decisions.

Rau (1991) insists that famine affects some groups more than others. The poor and food-insecure households are affected the most. There have been no reports of massive famine in the capital cities of African countries despite the fact that occurrences of food shortages and high food prices have left many poor people chronically hungry.

Political and economic decisions influence people's ability to establish their entitlement over an adequate amount of food. Many people have been reduced to starvation following political and economic changes such as alienation of land, loss of employment, fall in wages and so on. This makes it impossible for them to acquire any commodity bundle with enough food to survive. In addition, food shortages and famines have been occurring in recent years largely because of (a) inadequate food reserves, (b) poor storage facilities, (c) high post harvest losses, (d) natural disasters, (e) inadequate policies and (f) little knowledge and effort to understand household and community coping strategies.

As the problem intensifies, households become more innovative in devising coping strategies. However, little has been done to understand and coordinate responses or coping strategies of the most vulnerable people; the predominantly rural poor, pastoralists, small farmers, and agricultural labourers who have lost the ability to raise or purchase food (Rau, 1991:81). In order to help vulnerable people more timely and effectively, planners, and decision-makers, need to learn and understand these coping strategies and their impact on food shortages. A better understanding of these will enable planners and decision-makers to (a) improve on them, especially in assisting households to plan better in coping with food shortages and (b) monitor early enough the incidence of food crises and therefore plan ahead to avoid hunger in the long run.

Objectives

This article contributes to the growing literature on famines and food shortages. It intends to enlighten Tanzanian decision makers and development planners in assisting households to strengthen their coping strategies in order to improve household food security. Important future research topics in the areas of food shortages, famines and development planning are suggested.

Two broad working premises are central to this paper: (i) Mistaken policies are equally a major driving force behind food shortages and famines in

Tanzania together with population growth and natural disasters. (ii) Better understanding of the coping strategies of households affected most by food shortages by planners and decision makers will improve the country's capacity to solve food related problems.

Household Coping Strategies: The Conceptual Framework

Little has been done to learn and understand household coping strategies in times of food shortages and famines. The search for coping strategies among food-shortages and famine-stricken households in Tanzania makes use of a theoretical conceptual model (Figure 1) developed by Eshete (1995). Eshete analyzed three major periods of disaster-related food shortages or famines: 1984-85; 1987-88, and 1990-91 in Wolaita awraja, Ethiopia. Eshete's aim was to improve the theoretical understanding of the general categorization and patterning of household coping strategies and responses to deepening food crises.

The analytical model divides observed responses or coping strategies into two broad strategies: (a) general strategies and (b) sub strategies. These are divided into four patterns of sequential categories labeled '**stages**' 1 to 4 (see Figure 1).

Eshete examined household coping strategies as: (a) production based responses, (e.g. diversification, intercropping); (b) market based strategies (e.g. reducing consumption, selling family labor, diversifying second sources of income, petty trading, etc.); and (c) non market based strategies (e.g. using institutional income transfers, such as donations, food feeding programs, etc.). One of Esthete's aims in developing this model was to capture the causal relationships between seasonal and disaster induced food shortages. It also aimed at illustrating schematically the root causes and major impacts of poverty, destitution, serious food shortages and malnutrition among rural households. 'The model suggests that the vulnerability of rural households to food crises is the result of a gradual process of recurring seasonal food shortages and asset erosion. The rural poor who face serious food shortages often suffer from malnutrition and its impact on productive capability and exposure to disease' (Eshete, 1995:93).

In Figure 2 below, Eshete captures the more frequently practiced coping strategies. These include: changing of cropping and grazing practices; reduction of food consumption; temporary migration in search of employment in towns; asking kin and friends for support; borrowing grain and money; and increased pursuit of secondary occupations.

Others are collecting and eating wild foods; rationing current food consumption; sale of productive assets; dependence on relief food; sale of household possessions (e.g. livestock and land); increased petty commodity production; and distress migration.

A general observation of Eshete's model reveals that in the first stage, a self-reliance thrust dominates the coping strategies. In the second stage, the bulk of activities is dominated by an accommodating or adoptive character. This tends to be dependency orientated. In the third stage a sense of loss of patience is dominant. One begins to be desperate as the crisis intensifies. The dynamic is that of depletion and giving away of assets for survival. In the fourth and final stage, coping strategies depict distress and frustration, weakness and a sense of defeat. This explains the notions of separation and abandonment.

African case studies (Watts, 1983; Corbett, 1988; Rahmato, 1987; De Waal, 1986; Mortimore, 1989) have documented the more coping strategies adopted by households. Available literature (Eshete, 1995; Chambers, R. et. al., 1981; Raikes, 1988) shows that rural households living in environmental harsh and hazardous socio-economic and political conditions slowly degenerate into abject poverty following disaster-induced food crisis. But households usually develop complex coping strategies to minimize risks and struggle for survival.

Chronic hunger

This involves sustained nutritional deficiency on a persistent basis. Famine entails acute starvation and a sharp increase of mortality. Chronic undernourishment implies deficiency of food intake and other deprivations, including lack of education, health care, basic facilities and so on. When a household or a person does not have the necessary commodity bundle to acquire enough food to survive, there has been "entitlement failure". This can happen because of (i) a fall in personal endowment due to alienation of land, loss of labour power, or illness, (ii) an unfavourable shift in exchange entitlement, loss of employment, fall in wages, rise in food prices or (iii) decline in self-employed production (Sen, 1981).

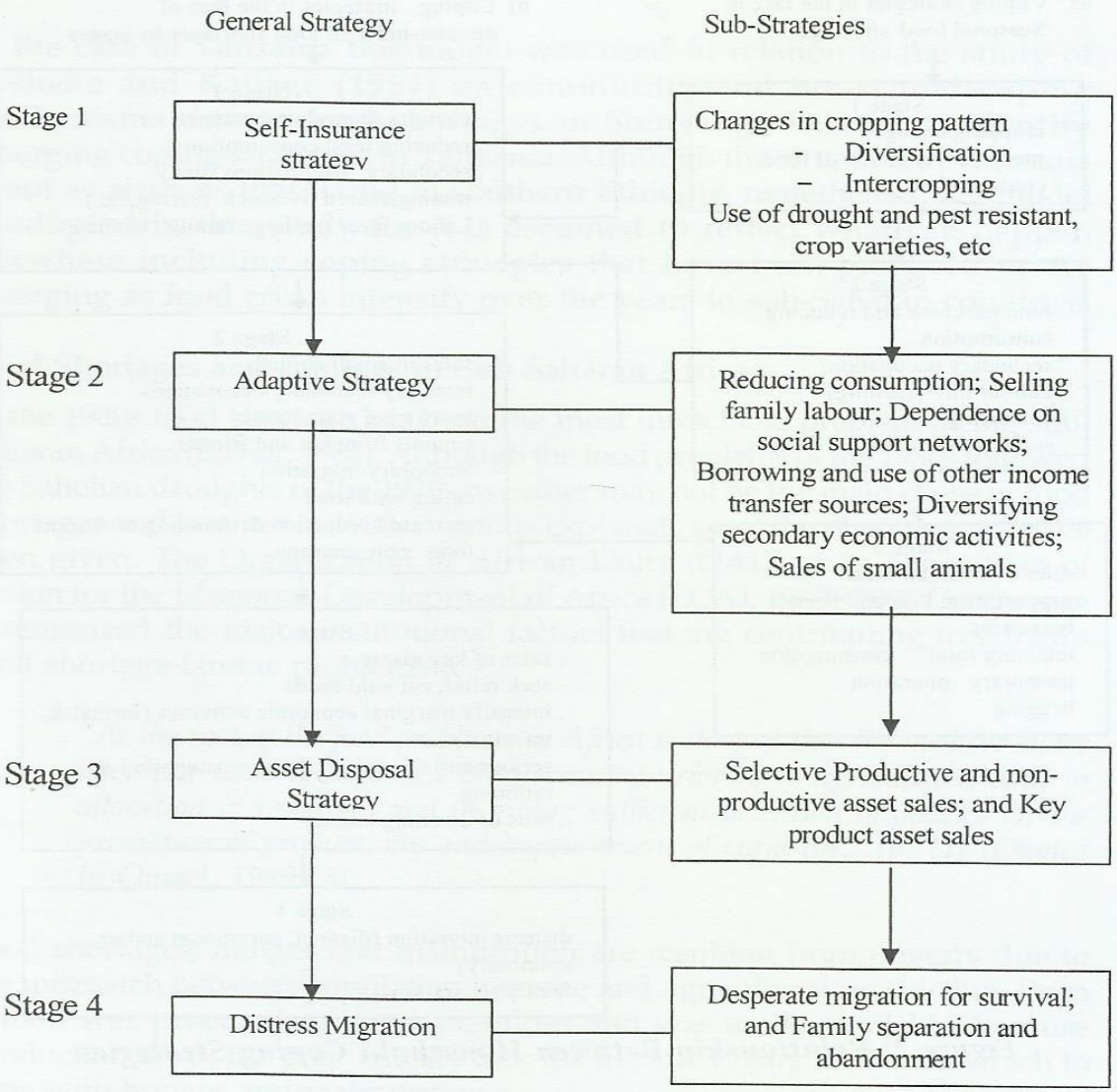


Figure 1: Model – Categorisation of Household Coping Strategies

Note: Slight reduction in food consumption and local- based family labour selling starts in stage 1 in this model. This model does not show how the same strategies that are undertaken in varying intensities in different stages of deepening crisis until they are exhausted (e.g., reducing food consumption, selling family labour, diversifying secondary economic activities, etc.

Source: D. Eshete, 1995.

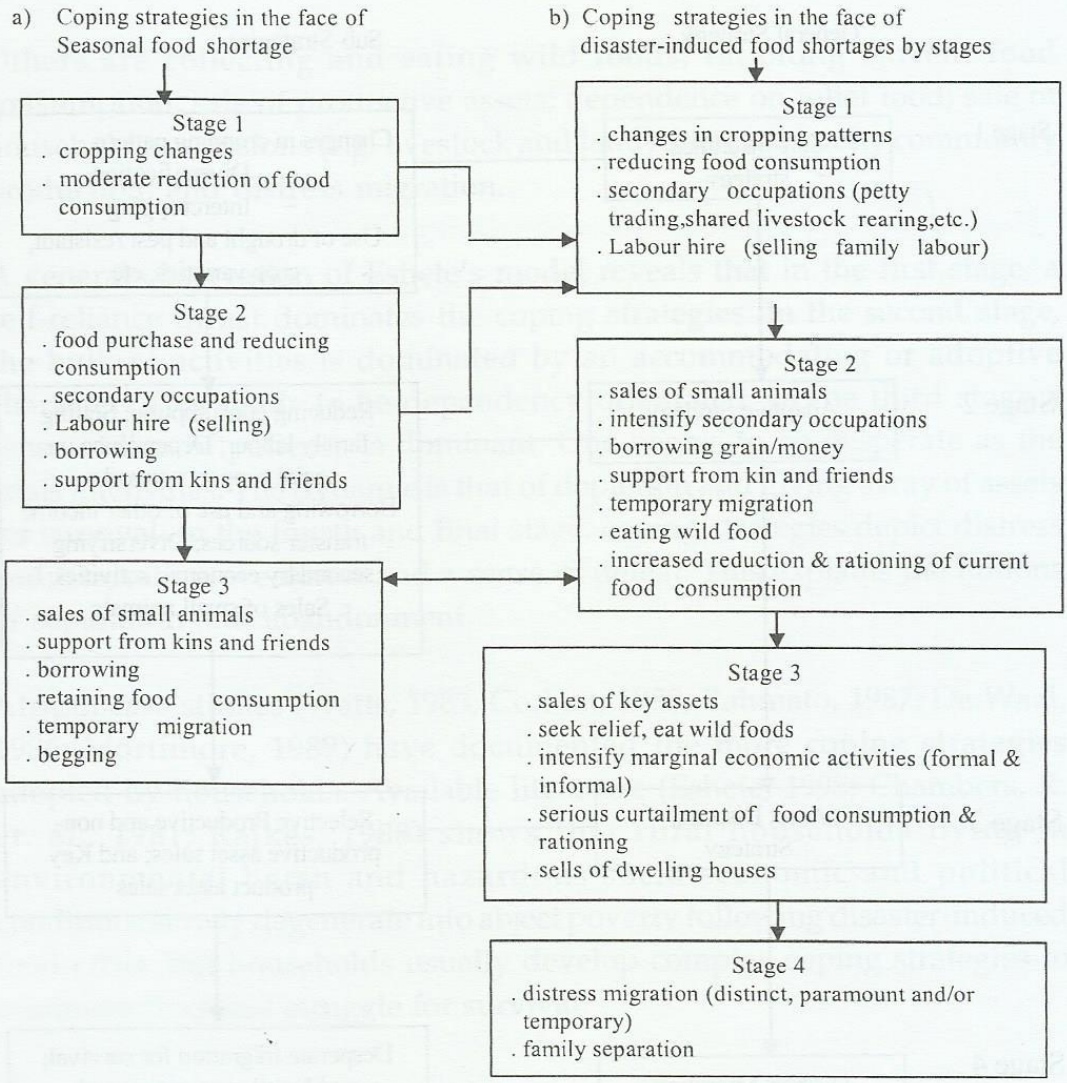


Figure 2: Relationship Between Household Coping Strategies

Note: 'a' and 'b' show the relationships (differences and overlapping activities) in coping strategies and responses by stages. Specifically, 'a' shows the relationships and linkages coping between and during the first two stages of seasonal and the first stage of disaster-induced food shortages. 'b' shows the relationships and linkages in strategies between stages 3 and 2 of seasonal and disaster-induced food shortages respectively. Not all of the coping strategies adopted in stages 3 and 4 in periods of disaster-induced food shortages are adopted during periods of seasonal food shortages. This is due to the marked differences in the degree of food scarcity of the two types of food shortages, which suggests that household coping strategies vary with the degree of seriousness of food shortages.

Source: D. Eshete, 1995.

In the case of Tanzania this model was used in relation to the study of Basheke and Kaijage (1984) on community and household coping mechanisms during food shortages in Shinyanga District to identify emerging coping strategies in Tanzania. Although the situation in Tanzania is not as acute as that found in southern Ethiopia, nonetheless, the model is adopted in this study for it is assumed to reflect what can happen elsewhere including coping strategies that have been practiced or are emerging as food crises intensify over the years in sub-Saharan countries.

Food Shortages and Famines in Sub Saharan Africa

In the 1980s food shortage has been the most intractable problem facing sub-Saharan Africa (Eicher, 1984). Although the food problems of the 1980s followed the Sahelian droughts of the 1970s, weather may not be the main cause of food shortages and famines in 1980s. Various explanations of the phenomenon have been given. The Organization of African Unity (OAU) at its Lagos Plan of Action for the Economic Development of Africa (ECA), 1980 - 2000 Conference summarized the major institutional factors that are contributing to Africa's food shortage-famine problematic:-

> *"At the root of the food problems in Africa is the fact that the member states have not usually accorded the necessary priority to agriculture, both in allocation of resources and in giving sufficient attention to policies for the promotion of productivity and improvement of rural life." (p. 11) (Quoted in Omari, 1989:75).*

Food shortages, hunger and malnutrition are resulting from poverty due to the mismatch between population increase and agricultural production. Even if food was procured in large quantities and was easily available, because production is up, the poor usually lack the income to buy food with which to cope with hunger and malnutrition.

The 1980s food shortages and famines in Africa were compounded by the increasing population growth, high rates of soil erosion, declining agricultural yields, land degradation and desertification, displacement of people from the homelands as refugees due to wars, fluctuations in world commodity prices, inflation, and growing indebtedness of many governments. The situation is more or less the same today.

The destruction of the nature of the precapitalist modes of production that were capable of adapting to changing forces of nature (Watts, 1983) is another contributing factor. Porter (1979) demonstrated that there existed workable

peasant modes of adjustment to drought and famine that disappeared after the peasant got immersed into capital economic systems.

Malthusian perspectives notwithstanding, several viewpoints link food shortages and famines with population growth and the balance between it and resources. Rapid population growth is creating insurmountable demand and pressure on life supporting systems, especially croplands and forests (Timberlake, 1986; Commins, et. al., 1986). The resulting imbalance has caused a virtual breakdown of the agricultural system.

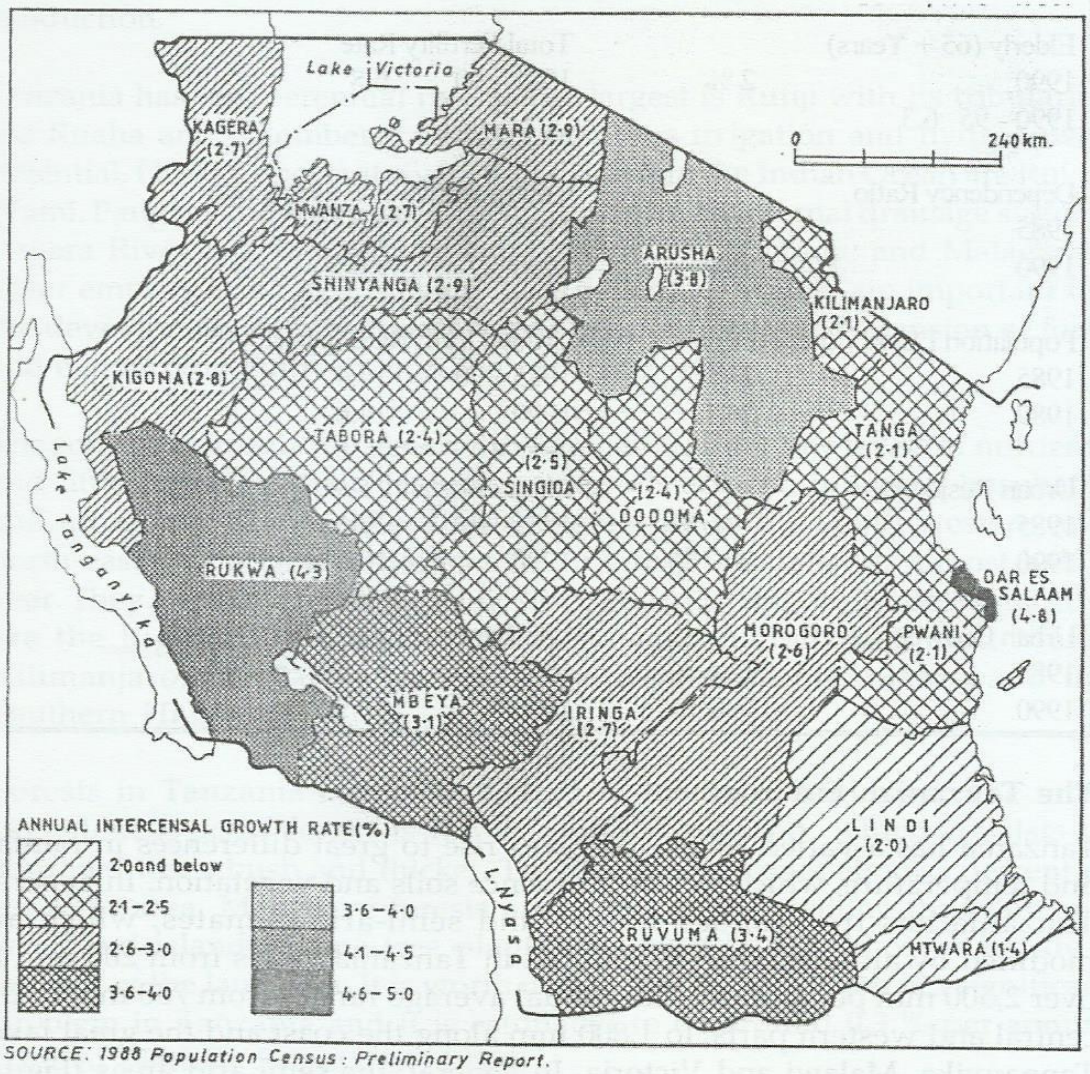
Prior to discussing food shortages and famines in Tanzania and the coping strategies households adopt, a description of the Tanzanian population and environment is worth outlining, albeit, briefly.

Tanzania's Population Profile

The population of mainland Tanzania in 1988 was 22.5 million people compared to 17.0 million in 1978. The average household size was 5.3 and 4.9 in 1988 and 1978 respectively. Tanzania, like many developing countries exhibits a high population growth rate. However, the population growth rate has declined significantly, from 3.3% for the-1967 – 1978 inter-censal period to 2.8 % during the 1978 - 1988 inter-censal period. The population growth rate by regions, in the 1978 -1988 period reveals great variations (Figure 3). For the regions or areas that are arid and semi arid and which are often food deficit/ famine stricken areas, some interesting insights come to fore. Some of the semi arid zones, for example Arusha, shows a population growth rate of 3.8, well above the average.

Taking 3.4 % as the average population growth rate, it appears that Tanzania will double its population in 20 years. The crude birth rate is high at 48.1 and total fertility rate is just under seven. The crude death rate (CDR) declined considerably since the 1967 due to improved health conditions, and expansion in education and other facilities. But there has been some increase in mortality rates to 14.6 in the 1990s, perhaps due to growing food insecurity, coupled with incidence of AIDS epidemic, tropical diseases like malaria and sleeping sickness, as well as increasing levels of low incomes and poverty.

Tanzania is characterized by low population density that was estimated to be 24 persons per square kilometer in 1988, an increase from 19.8/ in 1978. The highland areas in the northeast (Kilimanjaro) have high population density, 83/Km^2, and even some of the so called food deficit regions, for instance, Dodoma, Mara, Mwanza, Tanga and Mtwara exhibit higher population densities than the rest, and even above the national average. Should densities increase further these areas may continue to experience food shortages and even famines for many years to come.



SOURCE: 1988 Population Census: Preliminary Report.

Figure 3: Annual Inter-census Population Growth by Region, 1978-1988

Table 1. Source: United Nations Secretariat, 1993:3

Population Size in thousands		Population Growth Rate	
1985	21,895	1985 - 90	3.43 %
2025	25,993	1990 - 95	3.36 %
Population Under 14 Years		Crude Birth Rate (per 1,000)	
1985	48.6 %	1985 - 90	48.6
1990	49.3 %	1990 - 95	48.1
Elderly (65 + Years)		Total Fertility Rate	
1990	2 %	1985 - 90	6.8
1990 - 95	6.3		
Dependency Ratio		Contraceptive Prevalence rate	
1985	99.0	1974 - 85	1.0 %
1990	98.6	1990	5-7 %
Population Density (per Km^2)		Crude Death Rate (per 1,000)	
1985	24.0	1985 - 90	14.4
1989	26.1	1990	14.6
Urban Residence		Infant Mortality Rate (per 1,000)	
1985	17.6 %	1985-90	108
1990	20.7 %	1990	102
Urban Growth Rate		Life Expectancy at Birth	
1985	11.6 %	1985 - 90	51.8
1990	8.0 %	1990	50.9

The Tanzanian Environment

Tanzania has a varied relief that gives rise to great differences in rainfall and temperature, which in turn influence soils and vegetation. In general, Tanzania has tropical sub-humid and semi-arid climates, which are modified by altitude. Overall, rainfall in Tanzania varies from 200 mm to over 2,500 mm per annum. The annual average ranges from 750 mm in the central and western parts, to 1,800 mm along the coast and the great lakes Tanganyika, Malawi and Victoria. In general, the semi arid areas (Figure 4), are classified as rainfall deficit areas (Nieuwolt, 1973) with dry weather, scanty and unreliable rainfall with a mean annual range of 400 to 800mm

(Rugumamu, 1992:56). These are the most critical food deficit, and/or famine prone areas (Porter, 1979, Christiansson, 1981).

Most of Tanzania's arid and semi-arid zone is not suited for extensive farming systems and livestock production because of its high rainfall variability and less fertile and fragile soils. Although great amounts of rainfall generally mean greater agricultural potential, higher elevations present a different scenario in that steeper slopes and faster runoff may result into greater erosion (UN, 1993) resulting in lower agricultural production.

Tanzania has few perennial rivers. The largest is Rufiji with its tributaries the Ruaha and Kilombero, with tremendous irrigation and hydropower potential. Other important rivers that drain into the Indian Ocean are Ruvu, Wami, Pangani and Ruvuma. Other rivers form an internal drainage system. Kagera River and Mara River empty into Lake Victoria; and Malagarasi River empties into Lake Tanganyika. The surface waters are important for the development of irrigation projects necessary for the expansion of food and export crop cultivation in the semi arid zones.

The soils of Tanzania are generally characterized by low levels of nutrients and little organic matter. However, the soils are rich in lime, phosphates and ammonia. The highland areas especially in the south-western and north-eastern parts, are characterized by high rainfalls for almost half a year. They also have fertile volcanic soils. The most important, economically, are the highland clusters in the northeast, including Mount Meru, Kilimanjaro, the Pare Mountains, the Usambara Mountains, and the Southern Highlands.

Forests in Tanzania cover about half of the total land area. The most prevalent type of forest is the **miombo woodland**, which consists of scattered trees, bush and thicket. Tropical forests cover about 2 percent of the land area. Mangrove forests are found in strips along the mainland coast and islands. Some tree plantations exist but these cover hardly 1 percent of the land area. It is worth noting that deforestation is a significant problem in Tanzania and it is estimated to be around 0.3 % per annum (United Nations Secretariat, 1993).

On deforestation, Misana and Nyaki (1993:42) contend that a common

factor among the causes of deforestation is human intervention. Because of rapid population growth, there is increasing pressure to expand croplands and intensify harvesting of forest products for domestic use and foreign markets. It is estimated that Tanzania's forest area declined from 44.3 million ha in the 1930s to just 38.1 million ha or 43 % of total land area in 1987 (Mnzava, 1988). The regions that have been affected the most by deforestation are Coast, Mbeyà, Dodoma, Singida, Shinyanga, Tabora, Kigoma and Tanga (Misana and Nyaki, 1993:45).

The impacts of deforestation affect food production and hence food shortages in different ways including availability of fuelwood to cook food, erosion and hence low production of food and others crops due to deterioration of soil resources.

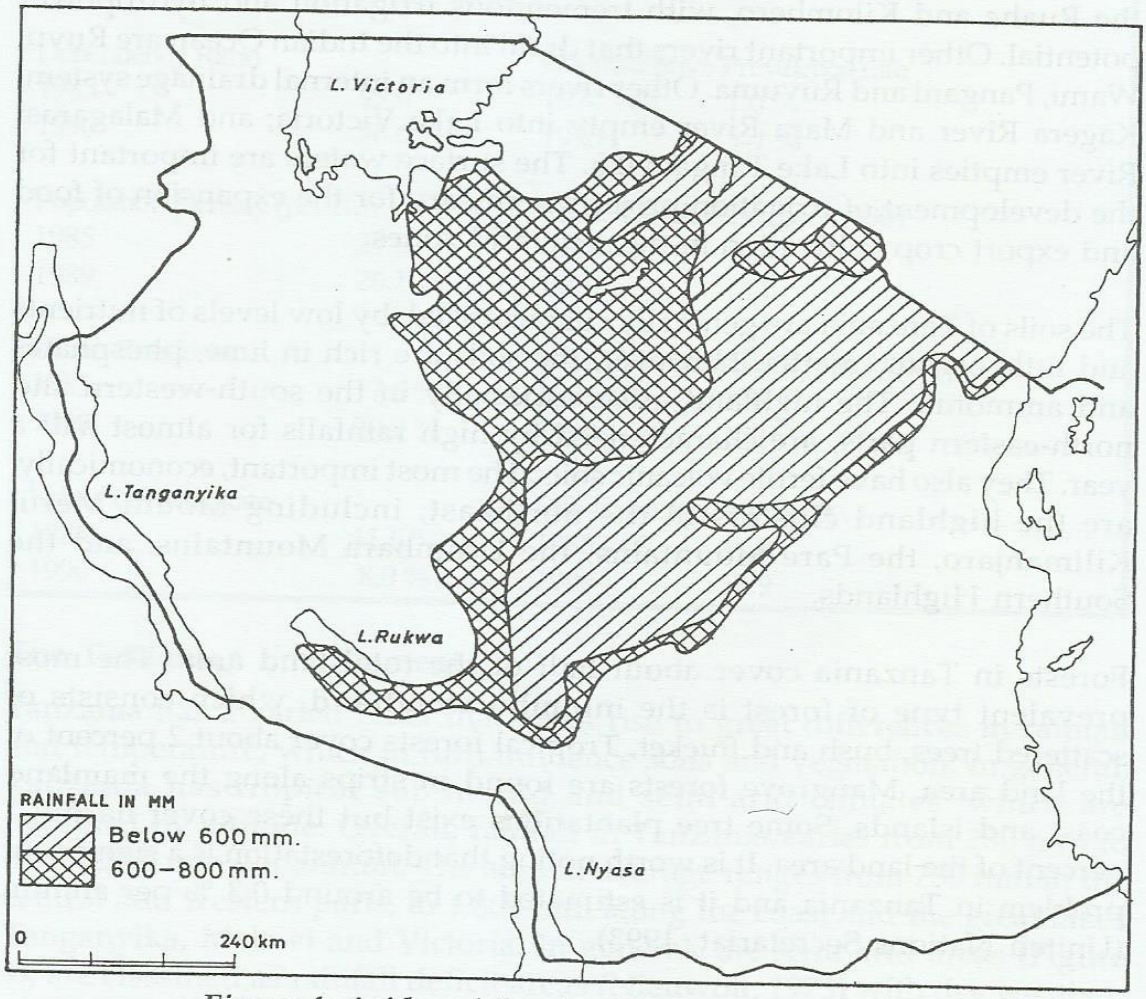


Figure 4: Arid and Semi-arid areas in Tanzania

Incidence of Food Shortages and Famines in Tanzania

In recent years, Tanzania has experienced severe food shortages. Lema (1987) documenting these food crises noted that some of the food shortages degenerated into acute famines. There were food shortages in 1969/70; 1973/74; 1974/75; 1979/80; 1980/81; 1983/84; and 1984/85 (Lema, 1987:20).

Recent food shortages in Tanzania occurred when the country experienced long spells of drought in the 1988/89 period. Because of the drought, food and cash crop production declined considerably. Floods occurred in 1990 and destroyed many food crops and hundreds of people in some regions had no food for almost a year. Cassava mealybug made the situation worse.

It was reported in 1992 (PMO, 1992) that 13 regions out of 25 (Table 2) faced serious food shortages. Over 39,000 metric tons of maize and nearly 4,000 metric tons of legumes were needed as food relief for three months. It was estimated (Kilimo Early Warning Monitoring Unit) that food shortages mounted to 187,000 metric tons of foodstuffs, especially grains.

The food shortage and the drought that occurred in these 13 regions in 1990/91 season and the country's ability to offset the shortfall through strategic food reserves and food importation has been small. Food assistance was requested from international donors. The most affected regions were Arusha, Dodoma, Mrogoro, Coast, Tanga, Kilimanjaro, Iringa, Tabora, Singida, Mara, Mwanza, Lindi and Mtwara. The affected population was estimated to be 3,650,000. The target population that needed food relief amounted to 875,040 people (URT, 1992). Those in need of emergency food were neither able to purchase food nor work to earn the food.

Probable Causes of Tanzania's Recent Food Shortages and Famines

The population-food shortage-famine problem which often translates into 'food insecurity' or 'food inadequacy' in Tanzania and elsewhere is complicated by physical, socio-economic and political factors.

(i) Physical Factors

Although Tanzania has a diverse ecology potentially suited for food and export crop production, yet large portions of the country are arid and semi arid receiving less than 800 mm of rainfall annually. Large areas too are tsetse fly infested, and vermin and pests destroy food in post harvest times.

Bryceson (1988) observed that in the period 1919-1985 food shortages occurred every year in 'food shortage-famine prone regions'. The arid and semi-arid areas are the most affected by food shortages (Figure 5).

Table 2. Verified Statistics on Drought - Hit Areas Unable to Purchase Food

REGION	DISTRICT	Affected Popula-tion	Capable Group (FWK)	Unable to Work	Demand per Month (Maize) (Tons)	Demand/ Month (Beans) (Tons)
Arusha	Arumeru	58,107	1,982	56,125	871.6	87.1
	Kiteto	33,209	1,019	32,190	498.1	49.8
Coast	Kibaha	5,895	1,538	4,357	88.4	8.8
	Rufiji	77,394	9,287	66,107	1,160.9	116
Dodoma	Dodoma	40,000	15,000	25,000	600.0	60.0
Iringa	Iringa	1,420	--	--	10.6	1.1
	Ludewa	15,310	--	--	114.8	11.5
Kilimanjaro	Rombo	96,903	9,690	87,213	1,453.5	145.3
Lindi	Lindi	50,114	2,046	48,063	751.7	75.2
	Nachingwea	64,000	6,400	57,600	960.0	96.0
	Liwale	17,835	1,784	16,051	267.5	26.7
Mara	Musoma	202,304	31,152	171,152	3,034.6	303.4
Morogoro	Kilosa	26,070	--	26,070	391.1	30.6
	Morogoro	7,030	--	7,030	105.5	39.1
Mtwara	Masasi	34,449	22,306	12,143	516.7	51.7
	Newala	21,910	18,414	3,496	328.7	32.9
	Mtwara	20,159	10,576	9,583	302.4	30.2
Mwanza	Ukerewe	17,000	7,000	10,000	255.0	25.5
	Ukara	13,000	5,000	8,000	195.0	19.5
Singida	Manyoni	20,000	5,000	15,000	300.0	30.0
Tabora	Tabora	12,462	2,000	10,462	186.9	18.6
	Igunga	8,000	3,000	5,000	120.0	12.0

Source: URT, 1992, Emergency Food Requirements for Drought Hit Areas in Tanzania, Office of the Prime Minister and First Vice President.

Although climatic variations need not cause great disturbances, food shortages and famines (Lema, 1987); variable climatic conditions including occurrence of droughts and floods can result in erratic food supplies. Mascarenhas (1973) and Porter (1979) have found a close correlation between the frequency of droughts and the frequency of food shortages. Rugumamu's (1992) study found that prolonged drought was the most serious cause of food shortage and famine in Shinyanga.

The occurrence of drought also influences the way farmers or peasants cope to survive. For example, traditional staple foods that are resistant to drought in semi-arid areas such as sorghum and bulrush millet have been replaced by maize. As Porter (1979) observes, such changes in the type of crop planted in an area can affect the system of food production in general:

> *'Although maize has the advantage of better yield when rains are good, and of being less susceptible to bird damage, it is less drought resistant than sorghum and bulrush millets, more vulnerable to insect damage, and does not store as well (Porter, 1979:57).*

Social, Economic and Political Factors

Mujwahuzi (1989), Omari (1989, 1994) and Cortas (1988), contend that social, economic and political factors have contributed to food shortages and famines in Tanzania. The massive process of villagization contributed significantly to food shortages (Raikes, 1988). The process of villagization disturbed people in their production plans. The policy of ujamaa villages discouraged growth of capitalist institutions and private initiative in agricultural production. This was a mistaken policy whose impact on food and export crop production has been negative.

Furthermore, the introduction of Ujamaa and communal farming systems did not introduce better technologies, implements or ways of farming and storing crops. The poor agricultural implements, the hoe and knife, delayed payments to peasants, lack of seeds, fertilizers and other inputs constituted great discouragement in both export and food crop production.

The costly war with Uganda offset the foreign exchange reserves which could have imported grains to meet the country's 1980 and subsequent

years' grain shortages. Since the war, importation of grain increased yearly in an attempt to meet local food demand.

The poor performance of the institutions that were entrusted with the task of procuring and distributing food has also contributed to the problem. The National Milling Corporation (NMC) was the only parastatal charged with the responsibility of collecting and buying grains from the peasants, as well as processing and distributing flour and grains in all urban centers. But the parastatal accumulated big debts, and often failed to pay the peasants in time. It has been plagued by bureaucratic and mismanagement problems, which made the institution fail to keep reliable records of estimates of crops and production, leave alone involvement in financial malpractice.

Matango (1975), contends that food shortages are due to lack of serious policy emphasis on food production by the government from the colonial times to post independence time. Tanzania has been forced to put more emphasis on cash crops at the expense of food crops. As a consequence rural areas have been neglected in terms of transport infrastructure. Poor transportation makes the movement of produce from one of area of the country to another difficult and hinder movements of in-outs to the rural areas. The persistent failure to transport foods particularly grains, from the rural areas that produce them in large quantities (e.g. Mbeya, Rukwa, Ruvuma and Iringa regions) to the urban areas demonstrates the inadequacy of urban and urban-rural linkages in the economy (Sawio, 1993:49).

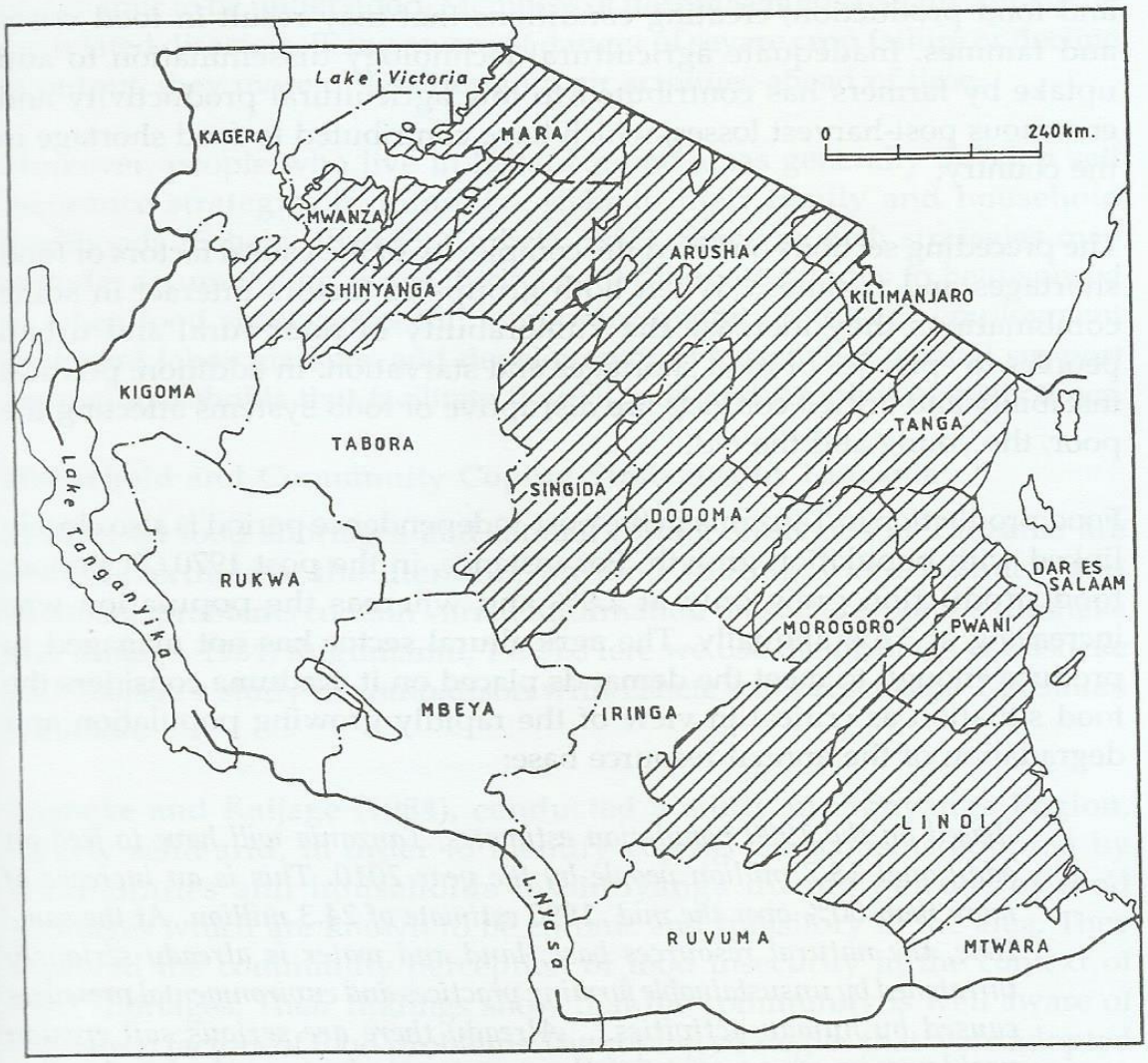


Figure 5: Food Shortage and Famine Prone Areas in Tanzania

The neglect of smallholder agricultural production in government development policies and strategies has also encouraged rural urban migration. This deprives the rural areas of potential productive labour force. Public investment in agriculture has remained small compared to other sectors. Export crops have been overemphasized in resource allocation terms, while food crops receive less (Rau, 1991). Inappropriate agricultural policies, manifested in discriminatory pricing, coupled with overstaffing, poor financial control and resource mismanagement and urban biased policies, have underplayed the role of the smallholder in both export crop

and food production; creating conditions that may result in food crises and famines. Inadequate agricultural technology dissemination to and uptake by farmers has contributed to low agricultural productivity and enormous post-harvest losses, which have contributed to food shortage in the country.

The preceding sections outlined the complexity of the causal factors of food shortages and famines. When both groups of factors interact in some combinations they increase the vulnerability of poor rural and urban peoples to episodes of food shortages and starvation. In addition, political instability and armed conflicts are disruptive of food systems affecting the poor, the young and the old.

Food production in Tanzania in the post-independence period is also closely linked with population growth. For instance, in the post 1970/71 period, food production grew only at 2.9% and whereas the population was increasing at 3.5% annually. The agricultural sector has not managed to produce enough to meet the demands placed on it. Kaduma considers the food situation as critical in view of the rapidly growing population and degradation of the annual resource base:

> *'Based on the 1990 population estimates, Tanzania will have to feed an additional 18.7 million people by the year 2010. This is an increase of more than 50% over the mid 1990 estimate of 24.3 million. At the same time, the natural resources base, land and water is already seriously threatened by unsustainable farming practices and environmental pressures caused by human activities.... Already there are serious soil erosion problems in many parts of the country and in particular Arusha, Kilimanjaro, Dodoma, Shinyanga, Singida, Tabora, Mwanza, Mbeya, and Iringa regions' (Kaduma, 1994:101).*

At this juncture, we ask, how do households cope with these hardships? What coping strategies are there for households experiencing food shortages and famines in Tanzania?

The Dynamics of Coping Strategies

Coping strategies among households experiencing food shortages and famines are not haphazard or random. There is a general sequential pattern

or dynamic to be understood. Members of the households usually anticipate the related disasters. Being aware of danger of severe crop failure or decline in output, they more or less design their activities ahead of time.

Moreover, people who live in hazard prone areas generally develop self insurance strategies to minimize risks to their family and household livelihoods (Eshete, 1995:95; Corbett, 1988). Some of such strategies may include: accumulating assets during better harvest seasons to be disposed of when food shortages occur; temporary migration to seek employment in distant labor markets; and development of systems of mutual support among households that facilitate flow of food and supplies in crisis times.

Household and Community Coping Strategies in Tanzania

Studies on food shortages and famine coping strategies in Tanzania are few. Nevertheless, the literature on food shortages and famines, and economic problems contain varied information on such responses (Basheke and Kaijage, 1984; Rugumamu, 1992). Here we use the findings of Basheke and Kaijage's study in comparison with Eshete's to present the Tanzanian situation.

Basheke and Kaijage (1984), conducted a study in Shinyanga Region, largely semi-arid, in order to identify coping mechanisms adopted by communities and households in Shinyanga during periods of food shortages which are known to be chronic and transitory in the area. They explored the community perception of food insecurity in the context of food shortages. Their findings show that the community is well aware of the causal factors of food problems.The coping strategies that were adopted in less severe (seasonal) food shortages sustained the communities without deleterious or tremendous changes in their traditional livelihoods. On the contrary, the findings revealed that mechanisms adopted during prolonged periods of food shortages showed a potentially destructive impact on the environment (Basheke and Kaijage, 1984:ii). A general conclusion here is that coping strategies adopted by households for survival purposes in food crisis or famine conditions are not without shortcomings. But, when well understood and assisted with appropriate planning, household coping strategies could become sustainable means of reducing vulnerability to food shortages and famines at household level and enhancing food security at national level.

One of Basheke and Kaijage's concern was that despite the existence of knowledge that the area experienced persistent food shortages and that many villagers are often threatened by famine, yet, in such crisis times, information and assistance from authorities is always delayed. They argued that there was a great need to improve disaster relief planning.

Basheke and Kaijage assumed that knowledge of the methods local people use in detecting and monitoring food shortages, as well as knowledge of the coping strategies they use should be acquired by planning and development authorities in order to: (i) identify the most appropriate intervention, (ii) target relief support to the most vulnerable groups, and (iii) plan ahead and timely how to carry out the intervention properly.

The study established causes of food shortages and food insecurity. These included: rainfall unreliability, drought, soil infertility, failure to follow modern or improved farming practices, dependence on two staples (rice and maize), population growth and improper household food planning (Basheke and Kaijage, 1984:5-6).

Generally, Shinyanga Region is known to experience severe food shortages every ten years (Basheke and Kaijage, 1984:5). Local peoples' prediction of impending food shortages relied on the following indicators: (a) delay in the coming of the rains. People could sense danger if a certain bird traditionally called *'liwero'* disappears, or when a certain tree species called *'ngubulu'* associated with drought appears; (b) when there is a sudden increase in the sale of livestock; and (c) increases in food prices as well as increase in the number of people who purchase food from shops and markets.

Identified Community/ Household Coping Strategies

Basheke and Kaijage (1984) categorized coping strategies into two groups: (A) strategies that are adopted when less severe or seasonal food shortages occur; and (B) strategies that are normally adopted during severe or chronic food shortages (Table 3). There is much in common with Eshete's household coping strategies. Although Basheke and Kaijage do not present a stage scenario, some similarities also exist. In the seasonal food shortage category, borrowing food from relatives and neighbors matches stages 2 and 3 in Eshete's model. The strategies of hiring labour, limiting social functions, engagement in petty business and migration, all features clearly in Eshete's model.

There are a few differences. Basheke and Kaijage's strategies include some reasons for choice of a particular coping strategy. For instance, households arrange to borrow food from relatives and neighbors under the pretext that children need to eat.

Additional and Emerging Household Coping Strategies

Apart from those coping strategies depicted in Table 3, there are many other strategies that exist among households. In food shortage or famine prone areas, farmers have agronomic strategies to minimize risk as food shortages set it. These include: *planting early, planting adequate acreage, weeding properly to ensure big harvest, and application of manure, intercropping, planting quick-growing drought resistant crops (cassava, sorghum, and sweet potatoes and agroforestry (where food crops are intermingled with trees for fruits, fodder and firewood)*. It is known that farmers who practice these strategies are likely to produce more food and if they store a good part of it, they will not face hunger until the next harvest.

Other coping strategies are economic in perspective, such as controlling the sale and use of grains to urban consumers. Often this strategy is prompted by the fact that towns and cities depend on the rural areas for food supplies and there is a general tendency for crop authorities, merchants and dealers in grains and other food crops to buy much from the rural areas even to the extent of hoarding to sell later in the cities. If in times of famines urban buyers are allowed to acquire any amounts of available food from the rural areas, the rural areas will remain impoverished. They will become food-poor.

The strategy of controlling sale of grains has been applied in Tanzania recently. In the 1970s and 1980s, the National Milling Corporation (NMC) was doing poorly in buying crops from the peasants and delaying in paying them. In that situation, peasants withheld grain supplies for their families. They decided not to sell the surplus to the NMC. Rather than selling to the NMC, they sold to the parallel markets where they fetched higher prices and received their pay promptly. The withholding by the peasants of their food crops in some rural areas was a coping strategy for survival.

production and supply channels to cities (Mougeot, 1994). Complementarily UA has emerged as a coping strategy and is contributing substantially to urban food security.

Synthesis

In discussing the problem of food shortages and famines and the household coping strategies in Tanzania, it is generally accepted that despite the fact that Tanzania's natural resource base is not a weak one, per se, the salient features of the environment impinging upon the problem of food shortages and famines are many:-

(i) *There are large semi-arid areas in Tanzania with erratic and unreliable rainfall, where agricultural production is uncertain, and these are also the food-shortage and famine-prone areas;*

(ii) *Surface waters are potentially scarce, hence coping strategies dependent on small scale irrigation in the semi-arid areas are few or non-existent;*

(iii) *Rapid population growth is compounding the problem of food shortages/ famines since it increases population pressure by expanding croplands and intensifying harvesting of forest products, leading to deforestation and land degradation, and finally to decreased agricultural yields;*

(iv) *Though population growth rate and population density distribution nationally is low, a number of regions have growth rates well above the national average, for some in the semi-arid areas such as Dodoma, Mara, Mwanza, Tanga, Mtwara most of which are food-deficit regions;*

(v) *The poor economic performance in Tanzania in the late 1970s, early 1980s and in the 1990s in the agricultural sector in particular, reflect past mistaken policies and are exacerbated by inflation, lack of foreign earnings, donor pressure, increasing unemployment, drought and overall neglect or small investments in the sector, discourage smallholder producers and therefore make the food shortage/ famine problems persistent.*

The analysis of the population-food shortage-famine and household coping strategies has found that there is a strong sense of intra-household interdependence relationships (Basheke and Kaijage, 1984:23). This interdependence is manifested, not only in the arrangements regarding

In the light of the findings on coping strategies currently in practice in Tanzania, it is possible for planners and other decision-makers to formulate a number of plans to support households in improving their food security. Relevant planning areas that must be considered include: assisting farmers in building grain/food storage facilities; enhancing farmer's or households' knowledge on simple food preservation methods; improvement of agronomic coping strategies; promotion of informal business activities in rural and urban areas and overall improvements of communication and transportation network especially in food-deficit and famine-prone areas.

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