NUTRITION AND THE COMMODITIZATION OF FOOD SYSTEMS IN SUB-SAHARAN AFRICA

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During the past decade, Africa, more than any other continent, has been associated with famine and malnutrition. The Sahelian drought of the early 1970s, the Wollo famine in Ethiopia, the starvation of the Karamoja people in Uganda and most recently, drought in Southern Africa, have followed each other in rapid succession. The term 'food crisis' continually crops up in the popular and academic press. An increasing number of researchers have probed possible causes; many seek a systemic reason for the present situation. One working hypothesis is that increasing commoditization of food has undermined Africa's food systems.

This paper does not purport to prove or disprove the contention that an negative relationship exists between food commoditization and nutrition. Less ambitiously, its aim is to draw attention to inter-relationships between commoditization and physical and social aspects of African food systems, tracing their possible effects on the nutritional status of the African population. In so doing, some of the complexities of developing food production and consumption in the transition from peasant

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societies to more urban-based national economies become evident. The paper is divided into three main parts: first, a discussion of conceptual categories and general background information about sub-Saharan African food systems and commodity and factor markets; second, a review of literature on rural food availability and nutrition and third, a review of literature on urban food availability and nutrition.

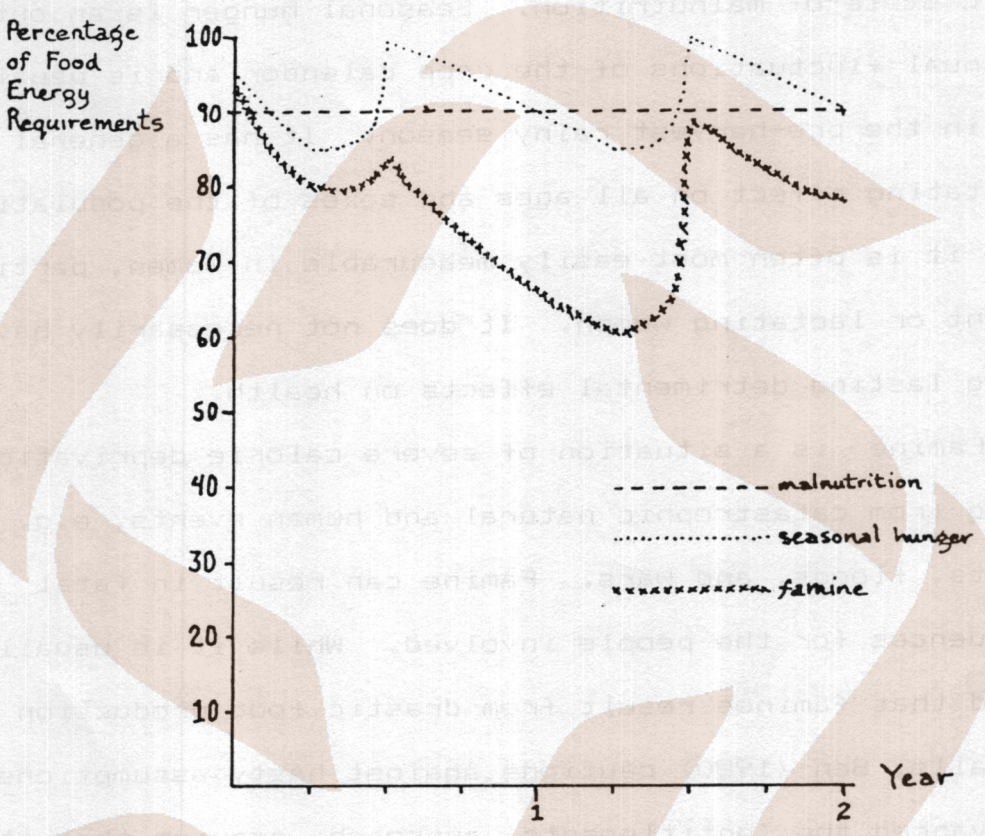
I. NUTRITION AND THE MARKET: AN OVERVIEW

1. Nutrition

The nutritional status of a population is a primary measure of economic well-being. It is a direct reflection of the effectiveness of the society's organization of production, distribution and consumption. Nutrition, or in other words, 'food adequacy' is dependent on food availability and when food availability changes, food adequacy follows suit. For the purposes of considering the present state of nutrition in sub-Saharan Africa, it is useful to distinguish three types of food inadequacy based on temporal incidence and degree of food deprivation: namely, malnutrition, seasonal hunger and famine.

Figure 1 schematically shows the differences in degree and incidence of these three types. In this paper the term 'malnutrition' refers to a chronic state of under-nutrition caused by a deficient intake of calories and/or proteins arising from a continuously inadequate supply of food. The inadequate supply may result from low production levels, unequal distribution, lack of nutrition education or a combination of any of these factors. Malnutrition is most manifest in children.

Figure 1: Types of Food Inadequacy



Their physical growth and mental potentiality can be measurably impaired by malnutrition.

'Seasonal hunger' is a cyclical dip in dietary intake, causing a temporary state of under-nutrition or exacerbating a chronic state of malnutrition. Seasonal hunger is an outcome of the annual fluctuations of the crop calender and is usually most acute in the pre-harvest rainy season. It has a general debilitating effect on all ages and sexes of the population, though it is often most easily measurable in women, particularly pregnant or lactating women. It does not necessarily have fatal or long lasting detrimental effects on health.

'Famine' is a situation of severe calorie deprivation arising from catastrophic natural and human events, e.g. droughts, floods, and wars. Famine can result in fatal consequences for the people involved. While it is usually assumed that famines result from drastic food production shortfalls, Sen (1980) cautions against hasty assumptions. He has advanced the 'entitlements' approach, arguing that starvation is often a result of mal-distribution of available food rather than food shortfalls per se.

2. Food Systems in Sub-Saharan Africa

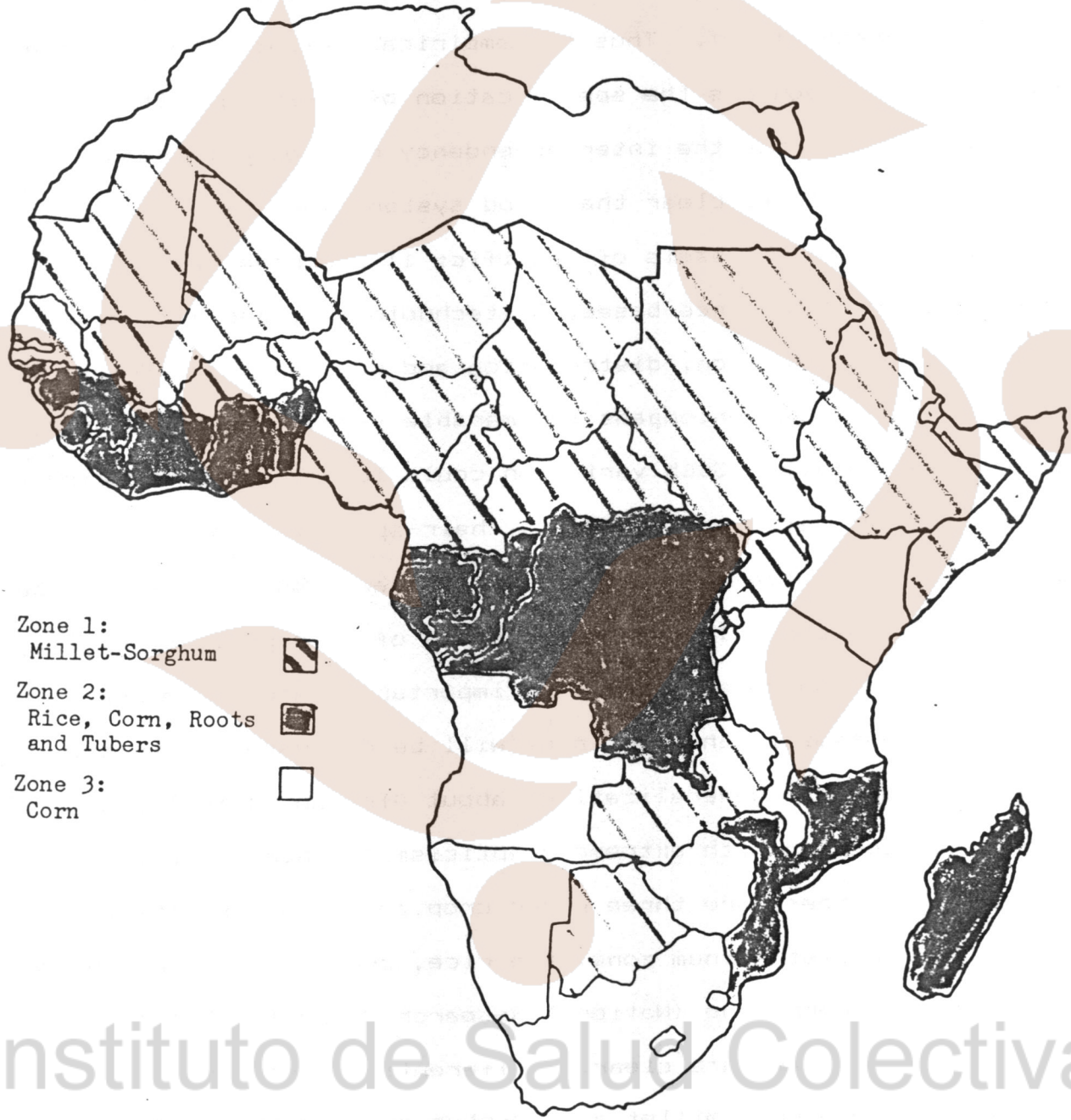
A 'food system' is a distinguishable pattern of production, distribution and consumption of food in a delimited population of people. A 'closed food system' is one in which an identifiable quantity and quality of food energy gives rise to a circular flow of human energy. In such a system, human energy expenditure, on the one hand, (part of which is involved in the production and

distribution of food) and energy intake (food consumption) on the other are balanced at a certain level of fulfillment of physiological requirements and with a certain degree of oscillation over time.

A completely closed food system is usually difficult to find at a scale of operation small enough for empirical observation (Eide and Steady 1980). Thus the empirical delineation of 'open food systems' requires the specification of defining criteria that will cut across the inter-dependency of people in food distribution. It is clear that food systems must be distinguished on the basis of specific: 1) geographical populations; 2) resource bases; 3) technologies; and 4) social relations of production, distribution and consumption. However, all four categories encompass innumerable variations throughout sub-Saharan Africa. Such variation could lead the pains-taking taxonomist into an almost infinite 'hair-splitting task'. For this reason, no attempt to catalogue African food systems will be made in this paper. Instead three zones of food production will be identified and some of the most important features common to many food systems in the continent will be discussed, with the proviso being that generalizations about African agriculture should be accepted with extreme scepticism (Richards 1983).

Broadly, there are three major crop zones in sub-Saharan Africa: the millet-sorhum zone; the rice, corn, roots and tubers zone; and the corn zone (National Research Council 1977) (see Map). The first two are clearly differentiated on the basis of rainfall and ecology, millet and sorghum being crops suitable for semi-arid areas. The third zone has been created in recent

Map of Crop Zones in Sub-Saharan Africa



history. Formerly, it too was an area of millet and sorghum, but corn took increasing precedence, largely under the influence of the food demand of mining and plantation wage labour (Miracle 1966).

Basing the categorization of food zones on the delineation of main starchy foods is related to the fact that the starchy staples form the bulk of the diet in most rural and urban areas. Johnston (1958:193) estimated that in the second zone starchy staples composed approximately 60% to 80% of people's calorie intake and in the first zone as much as 85%. Recent findings concur more or less with these figures. A 1965/66 nutritional survey in rural Kenya (Zone 3) recorded starchy staples as 72% of total calorie intake (Korte 1969:295). Hulse and Pearson (1981:88) cite FAO data showing cereals contributing the following proportions to total diet: Zone 1: Upper Volta 68%, Mali 77% and Niger 79%; Zone 2: Sierra Leone 61% and Senegal 65%. Cereal consumption in towns is lower than in rural areas but not radically different. For example, in Dakar, cereals provide 53% of the calories (Chevassus-Agnes and Ndiaye 1981:56). Recent household budget surveys reveal that roughly 30% of total food expenditure is spent on cereals and other starchy staples: Dakar (1975) 32%, Addis Ababa (1975) 25%, Mogadishu (1977) 32%, Harare (1969) 32% and rural Kenya (1974-75) 36% (FAO 1983).

In considering sub-Saharan food systems, it should be pointed out that the vast majority of food production is carried out by peasant smallholders. Much of the continent falls into Boserup's (1979 and 1970) 'female farming' zone category.

Agricultural practices are generally those of shifting cultivation with the hoe as the main tool and with human labour as the main source of energy. Animal-drawn plows and tractors are less frequent, although dominant in some areas. According to FAO data, staple food productivity per land unit in sub-Saharan Africa is low relative to the rest of the developing world and has generally tended to stagnate over the last two decades (see Appendix I). Yield estimates, however, are highly speculative in view of the variability of peasant production and the vast amount of subsistence produce that never enters the market. Nonetheless, indicators suggest that population growth is outstripping increases in food supply. Certainly, this is the view widely held by international agencies (World Bank 1981 and USDA 1981).

3. The Commoditization Process and Market Conditions in Sub-Saharan Africa

Commoditization is the process whereby more and more goods valued for their utility, take on exchange value as well. Commodities, for the most part, are exchanged in markets. Markets are merely one form of institutionalized social distribution of production. There are others rooted in inter-personal reciprocity and/or dependency relationships (often overlooked by economists), as well as forms of state distribution, notably famine relief and social welfare programs.

Inter-personal and state welfare forms of social distribution require a considerable degree of co-ordination and cooperation. The market, on the other hand lacks co-ordination and is based on competition. It involves 'anonymous' exchange --

the buyer and seller do not necessarily know each other -- unlike inter-personal reciprocity. Theoretically, there is no dependency relationship posited in the act of market exchange. On the contrary, exchange is between two 'equals', insofar as sale does not take place in the absence of agreed value equivalency.

While the market is not subjectively cooperative in nature, ironically its success depends vitally on objective cooperation, i.e. the inter-dependency of a complex social division of labour, whereby people are freed from producing all their material needs and depend on others in the market to make available commodities to satisfy their needs at a 'reasonable' price.

At higher levels of population density and scale of production, the market can become a more flexible and efficient mechanism for food distribution than either inter-personal reciprocity or state distribution which tend to be more arbitrary and unresponsive to change. But, on the other hand, the market's anonymous, competitive character can and does lead to certain individuals or groups, notably those lacking adequate purchasing power becoming disadvantaged or deprived. Inter-personal and state distributional forms that operate on a more selective individual basis can be more responsive to welfare needs, but often at the expense of aggregate production.

Obviously there is no one right way to organize societal distribution. Mixtures of market, state and inter-personal relations characterize all national economies whether they espouse socialism, capitalism or some ideology in-between.

However, when it comes to food, one of the most essential human needs, welfare is a basic issue, and state and inter-personal relations tend to make an even heavier appearance than usual.

Commoditization is of increasing significance in rural sub-Saharan Africa. This has led to a proliferation of the social division of labour and the rapid growth of urban areas. Overtime, more and more people no longer directly produce food, and so depend on the supply of food from the market, state or personal relations and friends. The increase in the number of people not producing food makes an increase in labour productivity in food production imperative to ensure adequate supply. In the absence of improvement in food productivity, the food inadequacies experienced by individuals in the population result from both food production deficiencies and impersonal market forces that pay no heed to the material needs of those without purchasing power.

Paradoxically, the market is both part of the cause and part of the solution to the problem of food inadequacy. Through its mal-distribution of products on need criteria it can cause malnutrition, whereas through its efficiency in the allocation of the means of production, (i.e. the law of value), acting as a spur to productivity it can alleviate the problem. But as the next sub-section explains, in Africa both factor and commodity markets are less developed than in any other continent. Therefore, it is likely that the market is less responsible for food inadequacy in sub-Saharan African countries than in countries experiencing a stronger market presence.

4. The Nature and Extent of Factor and Food Commodity Markets in Sub-Saharan Africa

'Factor markets' refer to commoditization of the means of production, i.e. land, labour and tools. In much of sub-Saharan Africa, exchange in means of production have been through distributional forms based on inter-personal reciprocity and dependency rather than anonymous market exchange. Thus rural factor markets are not extensively developed.

Sub-Saharan Africa has been land abundant relative to Asia and Latin America. Although most of the population lives in rural areas (roughly 80%) population densities have been low. Access to land has been largely controlled through tribal allocative mechanisms based largely on the criterion of need as defined by family size. The colonial and post-colonial states in many countries have upheld customary laws concerning land access, making land sales illegal. However, in some of the more densely populated rural areas where cashcropping has been particularly prevalent, e.g. the cocoa belts of Nigeria and Ghana and areas of Kenya, a land market has developed. 'Rural Africa is therefore likely to be experiencing some concentration and growing inequality in land usage...This process is still at an early stage in much of Africa by comparison with Asia and Latin America' (ILO 1983:54).

With labour-intensive hoe technology, the primary constraint in production that peasant households face is usually labour. The use of family labour rather than hired labour is the norm. This is related to the fact that landlessness is relatively rare in Africa causing rural wage levels to be comparativeely high

because they are not dragged downwards by the same degree of destitution that may be seen in many parts of Asia, for example. In land abundant countries, such as Tanzania and Zambia, one finds hired labour constituting probably less that five percent of total peasant labour. On the other hand, in some densely populated cashcropping villages of Nigeria where land scarcity is experienced, 40% of labour may be hired. Kenya is an intermediate case with roughly 10% hired labour (ILO 1983:53).

Historically, the procurement of female and child labour has been far more important in peasant household labour management than hired labour. Brideprice and male polygamy practices that are regulated through cultural norms have structured the local economy around the use value of female labour. The importance of female labour in peasant household production continues to this day. For example Bantje (1983a) found a strong positive correlation between the incidence of polygamy and total household acreage in a Tanzanian rural area experiencing a flush of cashcropping prosperity.

So far the rural labour market has been discussed with respect to peasant household production and the vast majority of African food and cashcrop production is produced by peasant households. However, wage labour in mines and plantations, particularly in Southern and East Africa have been an important influence on the rural society. Historically, this form of wage labour has not arisen from nor led to complete land dispossession, but rather has been based on male circular migration. African women were left in-charge of household

production in the temporary absence of their husbands. This has continued to be a pattern in Southern Africa and has led to a distinctly deprived social category of female-headed households (Gordon 1981, Koussoudji and Mueller 1983). In areas of extensive male urban migration also, rural female-headed households with severely restricted access to land and labour resources have become very common (e.g. Ghana:Bukh 1979).

Moving to a consideration of food commodity markets, it can be said that the purchased element of household food consumption varies greatly from locality to locality and between rural and urban areas, but on the whole it is low, with some notable exceptions. To cite some evidence: in 11 Malian villages 16% of total food calories were purchased, whereas in two Malian towns, Bamako and Segou, the comparative figure was 95% (Mondot-Bernard 1980:101-103). In Tanzania, 15% and 69% of cereal consumption (by weight) in rural and urban areas respectively was purchased (Tanzania Household Budget Survey 1983).

While African rural households tend towards food self-provisioning, especially in grains, there are a few rural areas where cashcrop specialization has led to household reliance on the market. In the Yoruba cocoa growing areas of Western Nigeria, a 1963/64 food survey revealed that 56% of total calories and 40% of food weight were purchased. This situation had prevailed for some time. A 1951/52 consumer budget enquiry recorded food purchases as 45% of total food consumption by weight. It should be noted that these are high figures for Nigeria as a whole; the purchased calories in total consumption for other regions was: Northern Region 25%, Midwestern Region

37%, Eastern Region 37% and the South as a whole (more urbanised) 50% (Gusten 1968:61 and 64).

This high level of rural food purchases seems to be a particular feature of Yoruba society rather than a feature of cocoa producing zones per se. Ghana's cocoa farmers have historically tended to produce the food they consumed (Johnston 1958:16). Gusten (1968:62) hastens to explain that in Western Nigeria, farmers' food production is usually sufficient to cover their own needs. 'Most farmers sell food stuffs to an extent comparable with their purchases. This rhythm of selling and buying is only partly due to the fact that after the harvest there is more food than can be eaten and usefully stored: the exchange is also between raw produce sold and processed foodstuff bought.' Female small-scale rural food industries and trading are the intermediaries between the two and this pattern links up with the fact that Yoruba women tend not to be engaged in farm labour, unlike women in so many parts of sub-Saharan Africa.

The majority of African peasant households are highly food self-sufficient. Even in urban areas, households, especially poor households, often have a high consumption rate of non-purchased food. In Dar es Salaam, for example, the percentage of household cereal consumption of subsistence origin ranges between 86.5% to 10.3% for the lowest to the highest income-earning household groups respectively, with an average of 31% (Tanzania 1983).

Despite the relatively low incidence of household food purchase, the proportion of total household expenditure devoted

to food purchase can be high. In three Zaria villages in Nigeria, 31% of monetary expenditure was spent on food (1970/1, Simmons 1976:5). Unfortunately, most published household budget surveys lump monetary and subsistence expenditure together masking the proportion of cash devoted to food. The following figures refer to monetary and subsistence food expenditures as a percentage of total monetary and subsistence household expenditure. On average the proportion of household expenditure spent on food was: rural Tanzania (1976/77) 71%, rural Kenya (1974/75) 75%, the three Zaria villages (1970/71) 45%, Zaria rural (1954) 49%, rural Sokoto and Gusau (1964/65) 68%. Comparable urban figures are: Tanzanian urban areas (1976/77) 51%, Dakar (1975) 44%, Mogadishu (1977) 54%, Harare (1969) 50% and Kaduna (1966) 61% (Tanzania 1983, FAO 1983 and Simmons 1976). It is not clear whether food expenditure is higher in rural or urban areas in West Africa, whereas in Tanzania evidently rural expenditure is higher.

Having argued that African food systems tend to have a fairly low level of commoditization in most rural areas and are often not fully commoditized in urban areas, the influence of the market in terms of beneficial or detrimental effects on nutrition are obviously more limited than might occur in other parts of the developing world which are more fully commoditized. On the other hand, this will not necessarily be the case in the very near future. African population growth rates averaging (2.7%) per annum and more significantly an annual average urban population growth rate of 5.9% are high compared with developing low-income

countries generally, which register a 2.1% population growth rate and a 3.8% urban growth rate. In view of the growing numbers of urban residents without immediate physical proximity to cultivable land, food markets will undoubtedly expand. In the absence of increases in food productivity per unit of land and labour, there are bound to be tensions in market distribution as well as in inter-personal and state food distribution, all of which will have consequences on the nutritional status of national populations.

II. FOOD AVAILABILITY AND FOOD ADEQUACY IN RURAL AREAS

1. Physical Determinants of Food Availability

Climatic variation is the most important physical determinant of food availability. Outside of the forest belt in the Congo basin and stretching across West Africa's coast and immediate hinterland, much of sub-Saharan Africa is semi-arid and arid wooded savanna which periodically experiences failure of the annual rains.

Traditional African shifting cultivation systems have many built-in safeguards against drought (Allan 1965). One of the most important is multiple and inter-cropping, a central feature of a farmer's strategy of risk-aversion that aims at maximizing the minimum expected yield on the principle that various crops and planting times will lower the possibility of total crop failure. However, multiple and inter-cropping are perhaps most successful in areas where the threat of drought is less pressing. As Richards and Sachak (1977:11) point out:

'In terms of opportunities for exploitation by subsistence cultivators there seems little doubt that the savanna/forest ecotone is the most favoured of all because of the wide range of crops which will grow here and because of the range of local adaptations possible, drawing on elements from both forest root-crop and savanna grain-crop systems...With the spread of a market economy, the introduction of irrigation and increasing emphasis on regional specialisation and monoculture Kowal and Kassam's (1973) argument that the biologically better-favoured zone for annual food-crop production lies further north in the semi-arid zone proper, appears to have considerable force.'

Reliance on the products of hunting and gathering during famine is also an important fall-back response during drought and in some areas is an integral part of dietary consumption year-round (Fleuret 1979 and Grivetti 1978). However, with increasing population densities on the land, the fallow period is decreasing and the reappearance of wild species of plants and animals during the shortened fallow is less likely.

Frequent or persistent drought necessitates repeated plantings in any one season, thereby increasing the labour input in cultivation. Since labour supply derives primarily from the peasant household and this is especially so under the physical and economic duress of a drought, drought conditions can condition household decision-making towards larger families. This in turn increases population pressure on the land and makes traditional shifting cultivation drought safeguards less possible.

The switch to cassava and other root crops can serve to reduce household labour expenditure in times of drought. Cassava, with its drastically higher yields, less labour demands and drought-resistence has historically been a 'famine' crop. Colonial governments in East Africa exhorted peasants to grow it in drought-prone areas (Bryceson 1980). Its disadvantages are

nutritional; it is lacking in protein and in some areas it requires a great deal of processing to remove the hydrocyanic acid that some strains contain.

Connected with drought is the occurence of locust attack which can leave fields totally devasted. Historically, locust attack has been a threat in East and Central Africa requiring inter-government cooperation for its prevention. Other forms of pestilence are not uncommon: rat invasions, insects, the quelea quelea bird. All of these take their total on crop production and in some years wreck havoc. Recently the beetle, Prostephanus truncatus, has been ravaging maize production in central Tanzania (Golob and Hodges 1982). The insect is harmless in its native central America and is thought to have been introduced into Tanzania with American food aid.

The incursions of drought and pestilence on food availability and general levels of food adequacy are highly influenced by animal and human parasites and disease. Whether it is correct or not to assume that sub-Saharan rural diets lack sufficient animal protein, it is undoubtedly true that the availability of animal protein is severely constrained by numerous diseases which afflict domestic animals. Tsetse is by far the most important. By restricting the areas suitable for cattle, tsetse has the additional effect of holding back increases in agricultural productivity through the spread of plow agriculture.

Lipton (1982:39) comparing rural Western Indian and Northern Nigerian nutritional case studies argues that African nutrition

is better in terms of total food intake and inter-household food distribution, but at early ages, infant and child mortality is higher due to the greater risk of malaria and water-borne infections. Surveys in various parts of Africa have revealed the widespread detrimental effects of human parasites and viral infections on the nutritional status of the rural population (Carswell et al. 1981, Latham et al. 1983, Rowland et al. 1977, Stephenson 1980, Tomkins 1978 and Whitehead 1977).

2. Market Determinants of Food Availability and the Household/Market Interface

Theoretically, the market could be the means of overcoming production variability. It could act as the mechanism through which household consumption could become more regularized. In addition, the market could encourage more variety in the diet by provisioning the foods that are not climatically suited to the local area. There is evidence that the market sometimes operates in this way.

Throughout the colonial and post-colonial period, peasants have resorted to food purchases during times of drought. To give a recent example, in the Rufiji river valley in Tanzania, people depended almost entirely on purchased food during the 1980-81 drought (Bantje 1982:4). In Kenya, a rural survey of local shopkeepers revealed that food purchases were, as one would expect, at their maximum in the three months before the harvest (Ohchere and Slooff 1981). Pastoralists are often in a better position than cultivators to buy food (e.g. Ndagala 1981:189). Their cattle are both readily saleable and can be walked (rather than carried like crops) to market.

In terms of the regularity of food supply, peasants in cash crop producing areas are often known to experience relatively little seasonal fluctuation in calorie intake (e.g. Western Nigeria: Gusten 1968:59). In Kenya, two areas of Ukamba were compared, one being heavily involved in coffee production with households purchasing a portion of their food supply and the other, a semi-arid area largely devoted to subsistence production and the consumption of home-produced food. The latter was more vulnerable to food shortages (van Steenbergen et al. 1978). But whether this fact could be attributed to greater involvement in the market or higher rainfall was indeterminable. Another Kenyan study showed that calorie intake was positively correlated with cash income and specifically income from sale of agricultural products (Keller et al. 1969:265).

In contrast, frequent cases of malnutrition were recorded in the Gezira, a cash crop producing area considered to be prosperous relative to the rest of the Sudan (Taha 1978). In a survey of rural households in Sierra Leone, there was wide variation in the extent that households engaged in cash cropping. The findings gave some tentative support to the hypothesis that production for the market has an adverse on diet (Smith et al. 1981). Haswell (1981:40) compared 1950 and 1974 data on a village in Gambia. During those 24 years, the village had become far more involved in commodity production. A process of economic differentiation was undermining the food security of a proportion of the village population, who had been placed in a position of seasonal dependence on the purchase of food from a few rich

households with greater land and labour resources than themselves. In a Malian case-study Mondot-Bernard (1980:136) reported that cash cropping was competing with food crop production, but not because of any inherent feature of cash crops. Rather it was because of the the persistence of unimproved hoe cultivation and no fertilizer usage. Technical change making higher productivity possible could have resolved the incompatibility of food and cash cropping.

It is difficult to make any conclusive statement about the impact of commoditization on nutrition. More generally, however, it is evident that cash cropping is fraught with economic pitfalls for the peasant producer. Essentially, peasants' terms of trade, the prices at which peasants sell their produce and labour power relative to the prices at which they purchase consumption goods, determine their welfare in market participation. African peasants' terms of trade have been eroding in many countries in recent years (World Bank 1981:174). But the peasants have scope for retalitory action. Unlike so many parts of Asia and Latin America, most rural dwellers in Africa have access to land. As a result, they often are in a position to decrease their reliance on commodity production and purchase of consumption goods and become more self-sufficient in the production of household needs. The 'de-commoditization' process usually does not mark an improvement in the rural standard of living. The quantity and quality of household consumption often contracts relative to what prevailed when market terms of trade were more favourable. Nonetheless, it is a defensive reaction against further incursions of the market on

the household's standard of living.

Peasants' disaffection with cashcrop production and market participation during the past decade has become glaringly apparent in declining national cashcrop exports and growing food imports, continentally. While reasons for the decline in marketed crop tonnage vary from country to country, one primary cause shared by most is the inefficient operation of national crop marketing boards as agencies of crop procurement. Over the past decade, peasants have generally been recepient to lower and lower real producer prices in official markets (van der Laan, Arhin and Hesp 1985 forthcoming, Kaberuka 1983, Clough and Williams 1983).

Any assessment of the impact of peasant commodity production on nutrition would have to dissect peasant household's decision-making regarding market participation. While the household/market inter-face could best be understood as the household's attempts at optimizing returns from given market terms of trade, it is far more complicated than that. First of all, the various members of the peasant household do not share exactly the same optimizing goals. In the main, household members are acting to maximize market returns to the household, but on the other hand, the intra-household distribution of these returns can be conflictual in nature. Second, and related to this, there are various stages of decision-making, conditionally inter-linked, but nonetheless quite separate which have different implications for the nutritional status of the household members. There are three main stages: 1) the decision for household

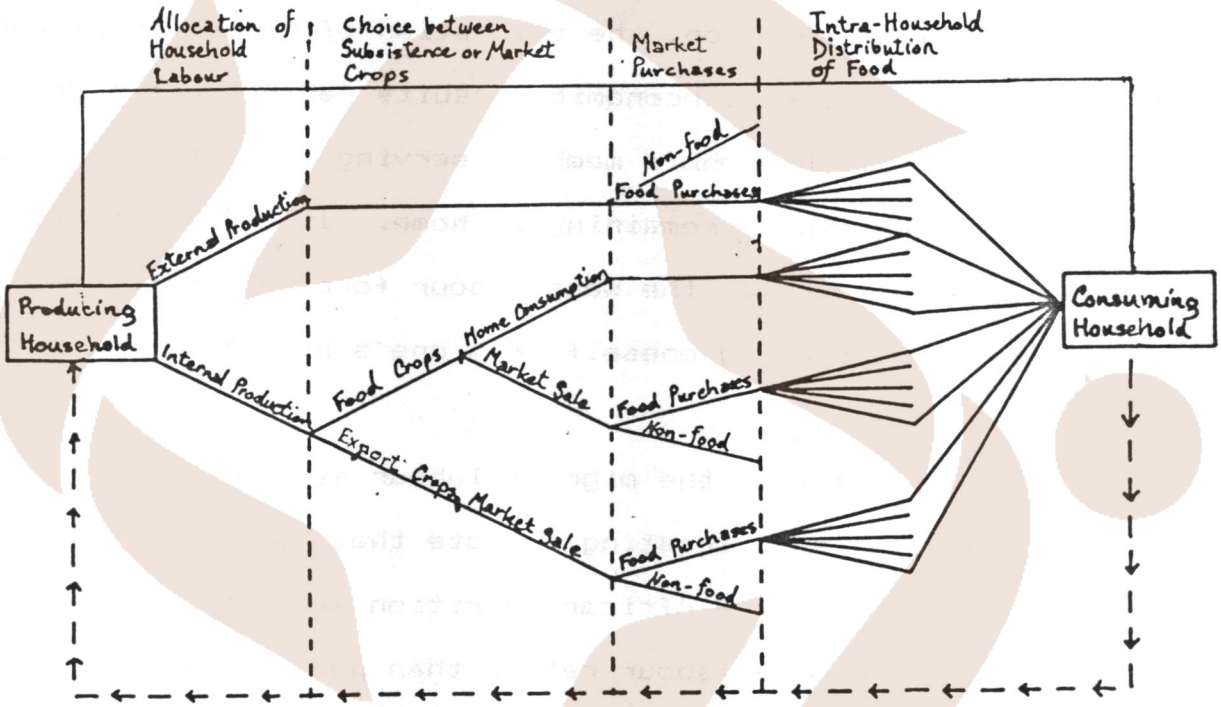
members to engage in production inside the household (subsistence and cashcrop production) or outside (wage labour and trading activities); 2) if the former is chosen, the decision to produce crops for direct home consumption or for market sale; and 3) the decision regarding how (and by whom) cash earnings are to be spent (Figure 2).

The first decision, the allocation of household labour to internal and external economic pursuits can produce a variegated pattern of some household members serving as traders and wage labourers and others remaining at home. In African rural areas, the decision to enter the wage labour force has often meant physically distancing oneself from one's household and becoming a migrant.

With respect to the migrant labour system's impact on nutrition, it is interesting to note that much of the original official concern with African nutrition was directed at plantation and mine labour rather than peasant households (Vuorela 1983). A good deal of the early concern centered on dietary standardization rather than dietary improvement. Labourers coming from a variety of geographical areas with different basic food staples had to be made accustomed to a corn-based diet to facilitate lower labour costs. Their dietary input and labour output was also at issue (ILO 1936, Richards 1939 and Charron 1944).

As for the nutritional impact of wage labour on the peasant household, one must differentiate historical periods. During the colonial period, entry into wage labour was usually in response to colonial coercive measures (e.g. taxation), and was most

Figure 2: The Household/Market Interface



frequent in East and Southern Africa, connected with the mines and plantations of those regions. Labour recruiting often took place in areas which were otherwise unsuitable for cash crop production because of poor climatic conditions or greater distances from colonial market centers and ports. In this way, wage labour became associated with relatively infertile, climatically disadvantaged regions where wage labour was the only cash earning option people had, the so-called 'labour reserves'. With the absence of a significant proportion of youthful male labour, rural household food production sometimes declined. In Gabon, for example, there was an increase in the cultivation of high yielding, but protein-poor starchy root crops, especially cassava (Rijpma 1977).

Since the independence era of the 1960s and the phasing out of the 'bachelor wage' system, wage labour has become a far more lucrative option. But there is less likelihood that substantial wage earnings make their way back to the rural household because most labour migration is now to the cities and tends to be of a permanent rather than circular nature. Both Jakobsen and Bukh (1979) record the nutritionally precarious state of female-headed rural households in Tanzania and Ghana, characterised by male out-migration with low remittance levels.

Rural wage and trading earnings tend to be far less financially rewarding than those in the city. In some studies, those in low-income village wage employment or trade have been reported to experience a lower nutritional status than those in cash cropping (Bantje 1982a and Jakobsen 1978).

The second decision, the choice between home versus market production of crops has to do with the degree of 'fall-back' subsistence production that households retain. Just as the market can be used as a hedge against annual and seasonal food crop fluctuation, so too household food production can be a risk-averting tactic against commodity price fluctuations and consumer goods availability in the market. The balance that the household strikes between home consumption and market purchase reflects not only the prevailing terms of trade, but also the anticipated volatility of the market.

In addition, the sexual division of labour and intra-household distribution of resources conditions the degree of household cash crop production. During the colonial period men were encouraged to produce cash crops and the sexual demarcation of cash cropping continues today, sometimes with the effect of eroding women's claims to cultivable land (Dey 1982 and Rogers 1980). When men predominately produce for the market, the nutritional viability of the household depends upon male sensitivity to household purchased food needs and female subsistence food production.

Overtime and under dozens of technological and market influences, households define the composition of their 'necessary' consumption of food and non-food items. In rural sub-Saharan Africa, although the purchase of consumer durables is relatively rare, articles like soap, kerosene, cloth, and cooking oil are fairly standard purchased items in peasant households throughout the continent. Peasants would feel hard-pressed without them. Thus a modicum of household cash-earning usually

has to take place in one form or another to purchase these items.

As has already been argued, a large proportion of peasant households aim to be relatively self-sufficient in food production in a normal year in addition to producing cash crops. Therefore it is only in years of bad food harvests that they have to resort to substantial food purchases. A somewhat different and more risky pattern is where the food crop is the cash crop, as often happens in semi-arid millet and sorghum growing areas that are unsuitable for any other cash crop. In this situation a decision must be taken as to how much of the food crop will be sold. The oversale of the food crop to obtain the household's requisite purchased needs can tend to frequently happen. These are often areas which have a greater tendency to need famine relief.

Furthermore, it happens that households with particularly restricted land or labour, often female-headed households, are more vulnerable to food oversale than others. Bukh (1979) documents the situation in which female heads of households are so direly in need of immediate cash that they have to sell unripened cassava at a lower price than would be obtainable if they could wait for it to ripen.

On the other hand, Jakobsen (1978:75) reports that food crop sales in a region where coffee rather than food was the main cash source for households, usually took place in relatively prosperous households, when food production over and above household food consumption needs was achieved. Thus selling food crops was an indication of prosperity and those households were

generally better off from a nutritional point of view than the households solely selling non-food crops.

The third decision concerning what will be purchased with the household's cash earnings, involves the division of labour and distribution of power in the household. Frequently in East Africa, crop marketing is in the hands of the men who then have virtually complete discretionary control over the cash proceeds from the crop. In many parts of West Africa women do engage in marketing, especially older women whose children are mature.

There is a small but growing amount of evidence showing the existence of a distinction between the purchased goods that men and women select (Carr 1984). Women tend to buy more goods for general household consumption and are more likely to be attentive to nutritional needs, especially of the children (Protein-Calorie Advisory Group 1977).

Amongst the Kusasi people of northeast Ghana, men have traditionally done the bulk of staple food production (millet) and have been held responsible for provisioning the family's food needs. With the introduction of cash cropping, they continued to be the main agriculturalists, but because cash earnings of household members are not considered part of a general household fund, men do not feel responsibility for the family provisioning of purchased staple foods. On the other hand, the ideology of motherhood i.e. the cultural importance given to the mother-child dyad places extreme responsibility on women to use their meagre cash earnings on the family's food needs, especially during the hungry season (Whitehead 1981).

Similarly, in a village survey in Northern Ghana which

considered a number of factors determining nutritional status, the trading activity of the mother was the one most significantly associated with the child's nutritional status, even though female trading activities generated less profit than men's (Tripp 1981).

Conversely, in those areas where women are not generally engaged in trading, children's nutritional status has been known to suffer as a result of the lack of female purchasing power. Jakobsen's Tanzanian survey findings reveal this most explicitly:

> 'In 89% of the families the spending of money is reserved for the husbands. The mothers who have a say in money matters (11%) are frequently unmarried or widowed. They belong to an unpriveleged economic group. Still they have relatively fewer underweight children than average... Apparently there is something in the way monetarization evolves which results in resources being drained away from mothers.' (Jakobsen 1978:53,75)

Men have a greater tendency to spend cash earnings on themselves. One of the items, that is especially popular is local brew. Since women brew the beer, this is a means through which they get access to otherwise male-monopolized village cash earnings. Unfortunately, because brewing uses up grain stocks, it can have an overall detrimental effect on village food supply and nutrition in those villages where surpluses in grain production are not achieved (Tanzania:Bryceson and Kirimbai 1980).

3. Incidence of Food Inadequacy

- Malnutrition

The African literature on malnutrition frequently points to the shortage of protein in the diet. In the Usambara

mountains of Tanzania, for example, less than half of the families surveyed covered their protein requirement by more than 90% (Poeplau and Schlage 1969:49). Other surveys indicate that malnutrition has arisen from low calorie intake, (e.g. Zambia:Wenlock 1979 and Kenya:Steenbergen et al. 1980).

For the most part, the literature concentrates on the incidence of malnutrition in infants and children. Growth stunting, as a result of malnutrition is most pronounced in the under-five age group. The particularly critical age is between six and 24 months of age, when supplementary feeding and weaning from the breast takes place. Inadequate production of breast milk in the mother, abrupt weaning and weaning foods low in protein or administered by childminders in the absence of the mother who is engaged in the fields all day puts the child at risk (Brown 1980, Cant et al. 1982, Oomen et al. 1979, Spaulding et al. 1977 and Wenlock 1980).

Some of the social factors cited in the literature as being associated with children's malnourishment are: male outmigration, especially in Southern Africa, e.g. KwaZulu (Margo et al. 1978), the Ciskei (Thomas 1981) and the Transkei (Westcott and Stott 1977); parents'low education, poor employment opportunities, polygamous families (rural Zamibia:Wenlock 1980); and inequitous food distribution within the family (rural Sudan:Taha 1978). Studies indicate that the mother's level of nutritional awareness influences the incidence of child malnutrition (Westcott 1977 and Hoorweg and Niemeyer 1980), but not always positively (Gordon 1984).

The abovementioned surveys provide evidence of the

widespread incidence of child malnourishment which contributes either directly or indirectly to the highest infant and child mortality rates in the world. The average child death rate ages 1-4 in sub-Saharan Africa is 25/1000 as opposed to 11/1000 in all low income countries (World Bank 1981:177).

- Seasonal Hunger

In most of rural Africa, the availability and variety of food is conditioned by the seasons. Many areas have two harvests, others only one, but the cycle of food availability coupled with labour expenditure in the agricultural calendar creates variable calorie intake and expenditure, with identifiable periods of caloric stress. Usually the most stressful time is during the rainy pre-harvest season, when low food stocks, higher incidence of infections and parasitic disease, and peak labour demand for planting and weeding all converge (Chambers et al. 1979, Muller 1979 and Longhurst and Payne 1981). Schofield (1974) reviewing 25 African village studies found only 85% of energy requirements being met in the wet season in comparison with 92% during the dry season. The difference was more significant for those villages with only one harvest per year.

Evidence on the seasonal effects on child malnutrition, indicate as one might expect, a decline in the rate of growth and a higher incidence of malnutrition during the rainy season (Gambia:McGregor et al. 1968 and Spaulding et al. 1977). There has been relatively little attention in the literature given to seasonal effects on adult calorie intake and

expenditure. Recently, however, an Upper Voltan study has shown that differences in daily energy output varied between 9.7 MJ (dry season) and 12.1 MJ (wet season) for women and 10.1 and 14.4 MJ for men (Brun et al. 1981 and Bleiberg et al. 1980). The women were recorded as having a mean energy output in excess of their intake, unlike the men (Bleiberg et al. 1981). Mondot-Bernard (1980) notes a similar discrepancy when contrasting male and female seasonal weight gain in Mali and explains it in terms of a lower and less variable seasonal calorie intake on the part of the women and less of a decline in female energy expenditure during the dry season relative to men.

The experience and consequences of seasonal energy stress in pregnant and lactating women is well documented. Low birthweights are concentrated in the pre-harvest period (Tanzania:Bantje 1983b and Gambia:Prentice 1983 and 1981). So too, lactational performance falls during this same period (Kenya:van Steenbergen 1981 and Kusin 1983, Gambia:Whitehead 1981).

Ethnic differences are apparent in patterns of food stress. Pagezy (1982) recorded that 68% of Bantu and 75% of pygmoid cultivators lost a significant amount of bodyweight seasonally. Evidence pointing to metabolic differences between the races, suggests that African adults can more efficiently metabolise protein than Caucasians (Nicol and Phillips 1976) and that they expend less energy when changing from a lying to a standing position (Dieng et al. 1980). A more efficient metabolism may be a genetic trait that Africans have gained or

retained due to frequent exposure to seasonal hunger and famine.

Finally, life style/food system differences can account for differences in food stress within an ethnic group. A study of the San people living in the Kalahari desert, showed that those San who derived a larger proportion of their food intake from agriculture as opposed to hunting and gathering were more prone to seasonal bodyweight fluctuation (Wilmsen 1978).

- Famine

Colonial opinion held that the incidence of famine decreased under the impact of colonial rule and increasing commoditization. This view came under severe attack in a body of literature which presents case studies with counterposing evidence (e.g. Sahel:Meillassoux 1974, Kenya:Wisner 1976, Review of African Political Economy 1979, Sahel:Franke and Chasin 1980, and Ethiopia:Seaman and Holt 1980).

While case material can prove the detrimental effects of commoditization on nutrition for a specific locality, there is a problem in extending the argument more generally to the continent as a whole, in the absence of baseline data on annual food harvests in pre-colonial Africa prior to the rise of cash cropping. There is also the anomalous fact that beginning in the 1920's and thereafter Africa experienced increasing population growth which would not tally with a higher incidence of famine (Kuczynski 1949). But again the number of variables involved in population growth and the lack of reliable census data for inter-country comparison precludes any definitive assertions one way or the other.

What is evident is that at present Africa is more prone to famine than any other continent. While distributional features exacerbate the incidence of malnutrition and death (Sen 1980), it is the erratic nature of food production in specific rural localities which is at the basis of the occurrence of famine. Famine-prone localities tend to be situated in the most semi-arid parts of the continent and often have poor transport links. Wars and political upheaval increase an area's vulnerabilty to famine.

There is a growing literature on the problems of famine relief provisioning, especially by international agencies (Biellik and Henderson 1981a, Henderson and Biellik 1981, Hogg 1982 and Seaman and Holt 1980). Seaman and Holt's position is particularly interesting because they see commoditization as generally increasing the likelihood of famine but nonetheless they argue for more market intervention at an early stage of the experience of food shortage to shortcircuit famine distress. Their argument is based on the realities of the operation of international bureaucracies dispensing famine relief. In a slow and cumbersome process, international aid agencies identify, investigate and finally proclaim that a disaster level has been reached before providing food free of charge to all claimants. In the interim, the famine has deepened and spread to far more people than would have been the case if more timely market food delivery had taken place. Mason (1977) stresses the importance of better food and nutritional surveillance in mitigating the incidence of famine.

Usually famine relief has an overall minor role in preventing starvation. For example, during the 1971-73 drought in

southwestern Ethiopia the most important factor in pastoralist survival was the sale of cattle for grain (Turton 1977). Repeated replantings of the staple food crop, famine food plantings, labour migration, etc. are all responses that the peasant community makes to circumvent famine (Bryceson 1981 and Hartog 1977).

Children tend to be the worst hit in famine. In the 1980 Karamoja famine mortality rates were five times higher whereas infant mortality rates were ten times higher than the previous year (Biellik and Henderson 1981b). Nkamany (1980) points to the practice of discriminating against children in intra-household food distribution in times of food shortage. And ultimately the process of natural selection leads to discrimination against the less robust. In a survey of 35 villages during the Sahelian famine, weight for age measurements indicated a tendency for taller children to be less seriously affected (Hogan 1977).

4. Long-term Dietary Changes related to Increasing Commoditization

Information gleaned from historical accounts can provide a basis for surmising changes in dietary patterns over time. According to van Steenbergen (1978) there has been little change in the Kamba diet of Kenya during the past 50 years. Resnikoff (1980) notes that in the mountainous Adrar region of Mauritania, the diet is uniformly meat, rice and couscous based on habit rather than any taboo on trying new foods. Similarly, taboo foods in Mbaise society (Nigeria) are now avoided more because of tradition rather than superstition. However, Nnanyelugo (1979)

found many elderly rural Nigerians avoiding taboo foods such as eggs, meat or milk.

Changing lifestyles and economic differentiation can lead to improvements or degradation of people's diets. Economic differentiation tends to polarize the nutritional status of people. In rural Zaria high income households were spending proportionally less of their income on food while upgrading their diet to include more animal protein. The converse was true for the low income households (Simmons 1976). In some rural Shona areas of Zimbabwe, fish is not eaten in the same quantities as before, because young people who used to fish now attend school (Mamvura 1982).

By far the most important dietary change over time in many African rural areas is the gradual switch in staple foods, usually from low yielding millets and sorghum to higher yielding maize or cassava (Jones 1959, Miracle 1966 and Mamvura 1982). The reasons for this are varied. In Usambara, bananas were replaced successively with potato, maize and then cassava because of population pressure and the expansion into new areas not suited to other food crops (Fleuret and Fleuret 1980). In the case of the Ghanaian cocoa growing areas, the switch from yam, traditionally grown by men to cassava, a crop formerly considered fit for consumption only during famine periods, was engendered by heavy male out-migration and a shortage of labour experienced by the women left behind (Bukh 1979). Increasing consumption of cassava over yams in the Nigerian cocoa-producing regions was related to the growing reliance on food imports from other regions. As distances over which the food supplies travelled

tended to increase, cassava, which was transported in meal or flour form, was lighter and hence cheaper to transport than yams (Richards 1983).

III. FOOD AVAILABILITY AND ADEQUACY IN URBAN AREAS

1. Urbanization and Stress on the Domestic Supply of Food

High urbanization rates exert severe stress on the domestic supply of food. In present day Africa, a relatively low proportion of the total population live in urban areas when compared with the rest of the world; a mean average of 21%, ranging from 2% in Burundi to 45% in the Congo. On the other hand, urban population growth rates are exceedingly high; 6% on average, ranging between 4% and 15% (World Bank 1981). These figures represent very rapid urbanization. In comparison, European and North American urbanization rates in the 19th century were considerably lower (e.g. France 1.0%, England 1.8%, Germany 2.5%, United States 3.5%, Canada 3.9%) (Lewis 1978:39).

Most people living in sub-Saharan African cities are migrants, whose familial links with the countryside are still evident. Extended families sprawl across rural and urban areas. In many countries, the legacy of a bachelor wage system with almost exclusive reliance on male labour has tended to marginalize women from participation in the formal wage labour force. Women are often found straddling urban and rural abodes. This pattern has implications for household survival strategies in the face of urban food shortages.

As has already been mentioned, African food production tends

to be low yielding per land and labour unit. An increasing number of non-food producers, which is what the urban population functionally represents, imposes additional stresses on general food availability.

2. Market Determinants of Food Availability and the Household/Market Interface

The two main market determinants of urban food availability are: domestic food procurement and food importation. There is considerable evidence showing that state marketing boards, which proliferated in sub-Saharan Africa during the past twenty years have geared domestic food procurement as well as food importation to the needs of the urban areas (e.g. Senegal:Caswell 1983, Tanzania:Kaberuka 1983 and West Africa:Nyanteng). The aim has been to keep urban food prices low to cater to the demands of the urban population who wield far more power than their rural kin by virtue of their geographical concentration and organizational capabilities. Peasant producer prices have consequently been depressed (Bates 1981). Despite stagnant peasant producer prices and reliance on food imports, marketing boards operational costs have ballooned, largely due to inefficiency and clientage practices. In this context, and with general price inflation in the economy as a whole, urban food prices have increased in real terms over the past decade (Ghai and Smith 1983).

Household decision-making regarding food procurement resembles that of the rural wage-earning family. In the first stage, the urban household thrusts various of its members into the labour market. Historically, men have had a better chance of being hired than women, so usually it is male members of the

household who bring back formal wages. Women as well as children are more likely to be recepient to the lower earnings of the informal sector.

The second stage of household decision-making consists of household members making cash purchases. Very often the earner spends the bulk of the money himself/herself rather than handing it over to a specific person in-charge of the domestic arrangements of the household, i.e. the so-called 'housewife'. For example, in Dar es Salaam, a 1980 household survey revealed that food was purchased in the majority of households (55%) by the male income earner rather than the unemployed mother (Mgaza and Bantje 1980:89). As in rural households, men are less likely than women to spend their earnings on household consumption needs nor would they be as conscious of their families' nutritional requirements. Men often devote a portion of their earnings to their own leisure time pursuits. In the low-income groups, this pattern of household expenditure in combination with women's restricted earning power due to job hiring discrimination, can lead to the household's nutritional well-being being jeopardized.

In the face of rising urban food costs and a growing incidence of food shortages in many urban areas, urban households tend to fall back on their rural connections. Often intra-familial exchange takes place between urban and rural branches of the extended family, with rural relations bringing food to their urban kin in exchange for urban manufactured goods, e.g. soap, cooking oil, or services such as a place to stay when seeking medical attention at the urban referral hospital or education or

job placements for their children.

But urban household members also engage in agricultural production themselves, either on the perimeter of the city or back in their home areas. Often the unemployed female members of the urban household will return to their rural birthplace during the planting through harvesting seasons, as a means of ensuring their familes' food needs.

3. Incidence of Food Inadequacy

- Malnutrition

Although seasonal hunger and famine are usually not part of the urban experience, whether or not this improves the overall state of nutrition relative to rural areas is not entirely clear. When controlling for income differences it often appears that urban and rural nutritional levels are roughly similar, although a few case studies show measurable differences. In a Southern Nigerian study of 650 households, mean daily per capita intake in low income urban households (1887 kcal) was slightly lower than in rural ones (1913 kcal), but the converse was true for high income urban households (2283 kcal) and rural households (2001 kcal) (Uyanga 1979). The 1976-77 National Nutritional Survey in Togo revealed that child malnutrition was significantly higher in the Northern rural areas than in the urban areas (Stetler et al. 1980). According to Craig and Albino (1983) when urban Zulu mothers in South Africa are asked why they do not send their infants to relations in rural areas they give the reason that the infant would not receive enough food.

In the measurement of birthweights, Bantje (1982) found

lower average birthweights in Dar es Salaam in comparison with a nearby coastal village. Contrasting middle and high income urban birthweights with rural pregnancy weight gain and birthweights in Kenya revealed rural women gaining proportional bodyweight that was only 94.6% of that of the urban women, but giving birth to babies that were 97.7% of the average urban birthweight, indicating a physiological compensation effect (Jansen et al. 1980).

Evidence on rural and urban breastfeeding habits seem to point to the importance of income rather than rural/urban differences per se (Nigeria:Abakada and Hussain 1980, Nigeria:Dow 1977, Nnanylugo 1982). Vis and Hennart (1978) argue that the potentially different breastfeeding habits in rural and urban areas has less to do with the availability of artificial formulas and more to do with the differences of geographical proximity of mother and infant throughout the day. In rural areas, women are continuously with their babies and can feed them several times of day versus an urban context when these conditions are often not met. 1973 survey findings in Doula, Cameroons associated a higher incidence of bottle-feeding with regional origin, exposure to advertising, high income status and fatherlessness (Drejfer 1980).

Economic poverty and social instability seemed to be the two over-riding causes of child malnutrition. Low income and urban price inflation are most often cited as the primary causes of urban under-nutrition (Nigeria:Osuhor and Ogbeide 1982 and Ghana:Grimble 1981, Ethiopia:Gebre-Medhin 1977 and Tanzania:Mbise and Boersma 1979). Lack of nutrition education on the part of

the mother, often as a result of being geographically removed from extended family advice was identified as a cause of malnutrition in Ibadan (Omololu 1982). Family instability is often cited, especially in southern African case studies, reflecting the social discord created by a male migration system (Zambia:Khan and Gupta 1979, Zimbabwe:Laing 1982, Uganda:Goodall 1979, Nigeria:Osuhor and Ogbeide 1982). The very widespread incidence of malnutrition in South Africa is suggested by figures given in Scragg and Rubidge (1978): 44% of 92,379 admissions to a pediatric unit in Durban between 1960 and 1975 were children with kwashiorkor and marasmus.

On the theme of the urban family, Meillassoux (1983) advances the idea that in the transition from rural to African urban areas, the population is in a physiological and social disequilibrium, which has as one of its manifestations, the poor nutritional status of the population. His argument pivots on the premise of inter- and intra-generational breakdown of the family and the role of food importation. Traditionally, the balance between food supply and population growth in rural areas was maintained around the level of agricultural labour productivity and food storage technology. In effect a closed system of energy input and output existed in the agricultural economy, with inter-generational food transfers from the adult producing generation to the non-producing generations, i.e. their children and aged parents.

In contrast, the present urban population is not subject to periodic famine, largely as a result of an external input, namely

food importation. Thus there is no longer a closed system of human energy flows, nor does the level of indigenous food production balance population growth. Urban fertility remains high because first generation urban-dwellers continue peasant practices and have large families for the sake of old age security even though it is unlikely that their children will feel the same responsibility for the maintenance of them during their twilight years as had been the custom in the rural areas. Meanwhile, the over-crowding, unemployment and general experience of slum life leads to social strife, family instability and malnutrition. In some regions, notably South Africa, the lack of intra-generational transfers, i.e. male income transfers to wives and children, exacerbates the generally low level of urban nutrition still further, especially that of children. Meillassoux hypothesizes that it will take a generation for fertility attitudes to change, and for the system to adjust to a higher level of physiological and social equilibrium.

- Seasonal Hunger and Famine

Urban food availability is less affected by the periodicity of national harvests, because of storage, and supply from various parts of the country, in addition to reliance on food importation. Thus, the urban dweller, to the degree that s/he is reliant on purchased food supply, is not likely to experience seasonal hunger. Some researchers have however noted a periodicity of food intake connected with monthly wage payments, with both the quantity and quality of food consumption peaking at the beginning of the month and gradually decreasing until the

next wage payment (Johnston 1958:205 and Leslie 1963).

In many African urban areas during the late 1970's and 1980's, food shortages and food queues have been a not uncommon occurrence, but famine, at least in the sense that is experienced in rural areas, does not generally occur. Food imports tend to mitigate the possibility of a prolonged duration of food unavailability.

4. Dietary Changes during the Process of Urbanization

There is a strong tendency for the so-called 'preferred' cereals, i.e. wheat, rice and maize, to displace more traditional African staples in urban consumption (Johnston 1958). The increasing consumption of rice in West Africa, an estimated 12 kg per capita per annum in 1960/4 to 21 kg in 1980/82, has been met with imports. The rice self-sufficiency ratio has declined from 84% in 1975 to 48% in 1982 (Nyanteng 1983:2-3). Most of the rice is consumed in urban areas at subsidized prices. Consumer food subsidies are part and parcel of most governments' income policies. In Nigeria, wheat consumption has increased substantially. Throughout the 1970s wheat imports grew at an average rate of close to 20% per annum, to become the single largest item in Nigeria's food import bill (Andrae and Beckman 1981:2). In East Africa, urban consumers tend to disdain traditional sorghum and millet and concentrate their purchases on maize and rice.

The reasons for the adoption of these cereals in urban areas has to do not only with their palatability, but also their ease of preparation and their identification with an urban lifestyle.

There also tends to be a preference for more highly milled grain, i.e. whiter wheat and maize flour, with a reduced nutritional content (Johnston 1958).

While it is generally true that with rising income, the African urban population reduces the cereal portion of their diet and tends to eat more animal protein, on the other hand, there is evidence that this tendency is not as pronounced as one might expect. For example, Dar es Salaam dietary consumption data revealed that middle-income African households' consumption bore more resemblance to low-income African households than Asian or European households of comparable income, in terms of the cereal proportion of their diet. It was only at the highest income levels that the cultural food differences between the three races blurred (Bryceson 1983:17).

IV. CONCLUSION

This paper has attempted to review some of the recent literature on African nutrition and relate it to the process of increasing commoditization in rural and urban areas. It has been argued that the market can produce all sorts of outcomes vis-a-vis food consumption and nutrition; increasing or decreasing risks and opportunities. The beneficial as opposed to detrimental impact of the market on the nutritional status of household members depends on the context within which the household exists, i.e. the level of technology, the natural resources and economic assets at the disposal of the household and the social interaction patterns between household members.

In the transition from a primarily rural, largely inter-

personal exchange economy to an urban, market-based economy, economic differentiation between households and between geographical regions and countries is bound to widen. In this process, people's nutritional status will vary, causing some to be very markedly deprived and subject to malnutrition. On the other hand, seasonal hunger and famine, nature's own brutal forms of differentiation do tend to decline with increasing commoditization.

There is little doubt that the commoditization process will continue to expand and deepen in sub-Saharan Africa in the years to come. When combined with an enhanced level of technology, this process has the potential of increasing food production and thereby providing the material basis for better nutrition. But until this stage is reached, there is a social challenge facing each nation-state: that is, how to influence the market distribution of food to guarantee nutritional needs under conditions of fluctuating and often inadequate domestic food production. Balancing economic and humanitarian imperatives is never easy and in sub-Saharan Africa of the 1980's it is particularly perplexing.

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Appendix I: Yields of Staple Food Crops

Crop	Average Annual Kilograms per Hectare 1961-63	1977-79	Index of Relative Yields (world = 100) 1961-63	1977-79	Index of Yields (1961-63=100) 1977-79
Maize (13,438 m.tons)*					
World	2,140	3,090	100	100	144
DCs**	1,197	1,509	56	49	126
Africa***	893	977	40	32	109
Sorghum (9,768 m.tons)					
World	912	1,320	100	100	145
DCs	638	965	70	73	151
Africa	751	701	82	53	93
Millet (9,178 m.tons)					
World	561	636	100	100	113
DCs	527	568	94	89	108
Africa	600	561	107	88	94
Rice (5,936 m.tons)					
World	2,026	2,612	100	100	129
DCs	1,628	2,101	80	80	129
Africa	1,249	1,419	62	54	114
Wheat (1,220 m.tons)					
World	1,179	1,784	100	100	151
DCs	998	1,443	85	81	145
Africa	785	1,084	67	61	138
Roots and Tubers (77,026 m.tons)					
World	10,000	11,000	100	100	110
DCs	7,000	9,000	70	82	129
Africa	6,000	7,000	60	64	117

Source: FAO Production Yearbooks, compiled by World Bank 1981

* Estimated average annual volume of total production 1977-79
** Developing countries
*** Sub-saharan Africa, excluding the Magreb