

## **Food Security in the context of urban sub-Saharan Africa**

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### **Abstract**

The world's population is becoming increasingly urbanised as a result of both natural increase and rural-urban migration. The percent of urban residents in sub-Saharan Africa is expected to rise from 30-47%. This rapid increase in urbanisation poses new and different challenges for food security in the region.

The three fundamental components of food security availability, access and utilisation differ in urban and rural contexts and across urban socio-economic groups. A greater diversity of both local and imported food products are available in cities although, most of the food is not produced within city boundaries. Similarly, much of the available food is processed either locally or imported in a processed form. To cater to busy urban lifestyles, cities offer access to a wide variety of food prepared outside the home; including street food and food served in restaurants and kiosks. Access to food in urban areas is dependent on cash exchange, with few exceptions, where urban food production contributes directly to household intake. Reliance on purchased food is a leading factor in household food insecurity of poor urban populations, who lack a fixed income. Although a wider variety of food is available, the food consumed in urban areas is not necessarily of superior nutritional quality and food safety is a growing concern in many urban environments.

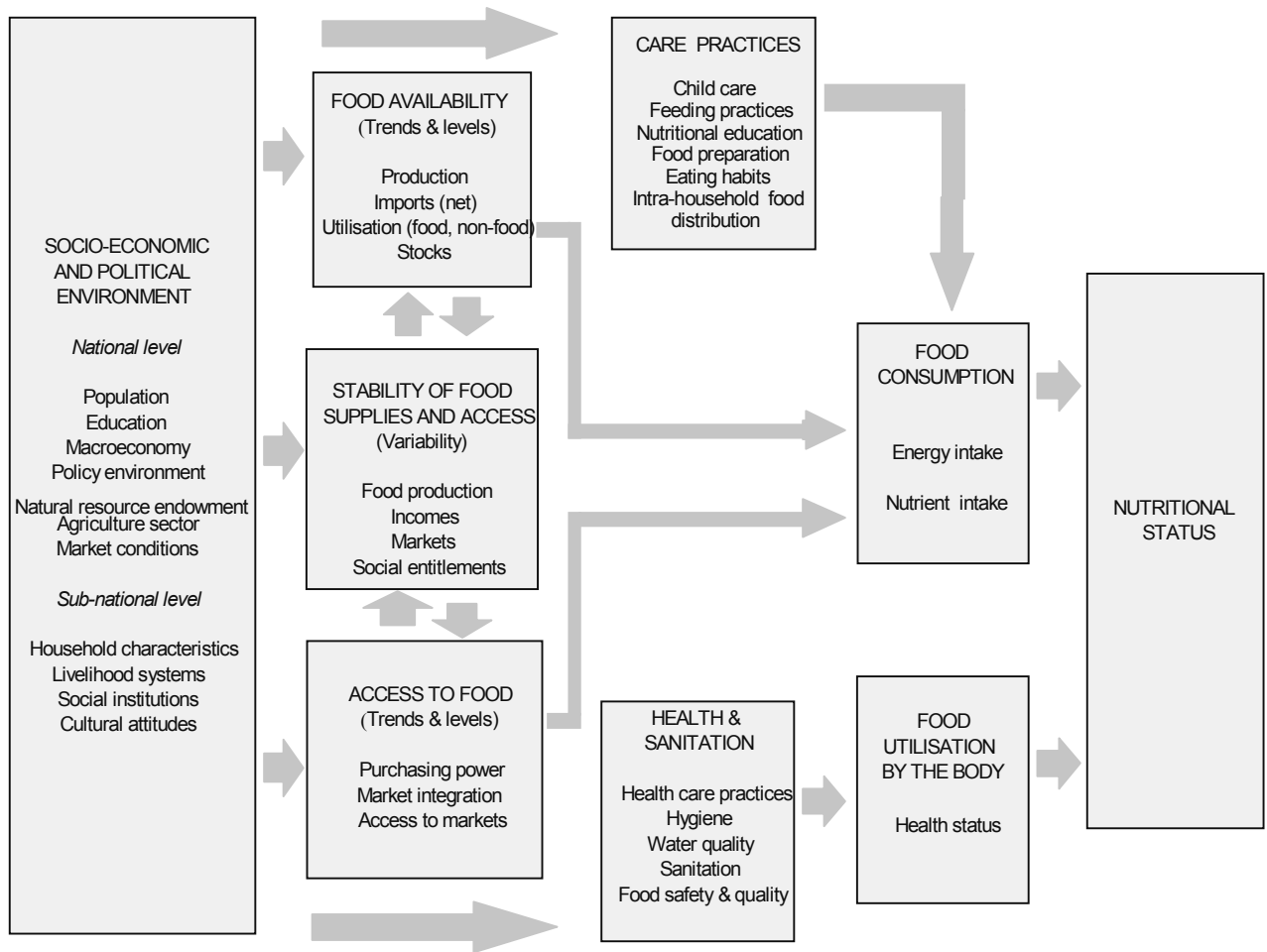
The different influencing factors which impact food security in urban populations, particularly among the urban poor should be considered when designing policies and programmes to improve food security.

### **Urbanisation trends in sub-Saharan Africa**

The world's population is becoming increasingly urbanised. In 1950, 30% of the world's population lived in urban areas, by 2002, that figure had increased to 47% of the global population. (UN Population Division, 2002). Over three quarters of the population of industrialised countries now live in urban areas, while rural to urban migration in developing countries is increasing at a rapid pace. In sub-Saharan Africa approximately 34% of the population currently lives in urban areas, by 2020 it is predicted that nearly half (46.2%) of the population will be urban (UN-Habitat, 2001). This expansion of urban agglomerations, in developing countries brings about severe challenges for assuring household food security and access to basic services such as adequate housing, water, sanitation, and education and health care facilities. There is a critical need to address issues of food security in the urban context in order to foster healthy urban environments.

### **Food Security**

Food security is defined as physical and economic access to sufficient, safe and nutritious foods which meet the individual's dietary needs and food preferences for an active and healthy life. There are three key dimensions to household food security; food availability, food access, and utilization of food by the body. The conceptual framework (figure one) demonstrates the multiple factors which influence household food security.



Source: United Nations Administrative Committee on Co-ordination, 2000

### Food security in the urban context

Each of the three key aspects of food security can be analyzed in the context of the urban environment. Food availability is mainly a function of food production and supply. Both production and supply systems are different in rural and urban contexts. Access to food also has distinct characteristics which differ from the rural to urban areas. Food utilisation, which is influenced by health status and care practices can also be considered from the perspective of an urban environment.

#### Food Availability

Food available for consumption in urban areas is primarily produced in rural and peri-urban areas or imported. Table one shows changes in the commodity composition of food availability (kg/person/yr) in sub-Saharan Africa, from 1964 to 1999. The data demonstrate an increasing supply of cereals, roots and tubers, sugar and vegetable oils, while per capita supply of meat, milk and pulses has decreased.

**Table 1: Changes in the commodity composition of food availability in Sub-Saharan Africa**

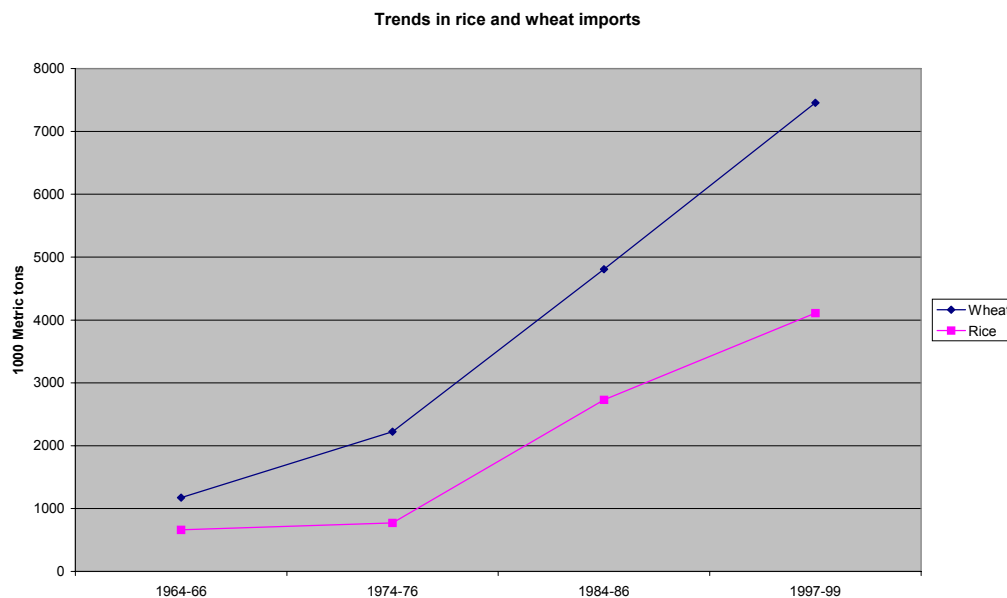
Kg/person/yr	1964-66	1974-76	1984-86	1997-99
Cereals	115	115	118	123

Roots and tubers	186	190	169	194
Sugar (raw equivalent)	6	8	9	10
Vegetable oils	8	8	8	9
Meat (carcass weight)	10	10	10	9
Milk and dairy	29	28	32	29
Pulses, dry	10	10	9	9

Source: FAO,2003

Imported foods have changed both in quantitative and qualitative terms, mainly with increased importation of staple grains, primarily rice and wheat and edible oils. Figure two demonstrates the increase in imports of rice and wheat in sub-Saharan Africa, during the past thirty years (1964-66 to 1997-99) per capita supply of rice and wheat have each increased by about 7 kg/person/yr and oil availability has increased by over 2 kg/person/yr. These changes are having an increasingly large impact on urban diets and the nutritional status of urban populations in sub-Saharan Africa.

**Figure 1**



Source: FAOSTAT

Food supplied to cities, either through national or international supply channels, determines foods available for purchase. Food supply systems can involve a complex distribution chain involving wholesalers, intermediate purchasers, distributors and vendors. On the one hand, this complex network creates jobs for urban dwellers, on the other, it increases the ultimate price paid by the consumer. The urban poor are particularly vulnerable to price changes due to limited income and cash reserves. Food availability may not be evenly distributed throughout cities. Wholesale food markets as well as discount supermarket chains are most commonly located in the city outskirts. These locations may not be accessible to the urban poor due to lack of own transportation, and inadequate municipal public transportation systems. The urban poor often are obliged to purchase food in small neighbourhood shops, which are more expensive than wholesale or supermarket outlets. In addition to being more expensive, there is limited availability of fresh meat and produce in these smaller shops.

#### ***Access to food and food choice***

For persons living in urban areas, food access hinges primarily on the household's ability to purchase food. Most urban poor neither have large food stores, nor do they have access to areas for own food

production. Urban residents in Mozambique purchase 83% of the food they consume, while families in rural areas purchase only 30%. (Garrett, J and Ruel, M. 1999). The urban poor, often pay more for food purchases than do wealthier urban counterparts, as they are obliged to buy small quantities of food daily because they do not have the resources or living conditions which permit them to purchase and store large quantities of food at home. A survey in Accra, Ghana found on average families spent 54% of their income on food and up to 60% in the lowest income bracket (Maxwell, D., Levin, C., Amer-Klemesu, M., Ruel, M., Morris, S. and Ahiadeke, C., 2000).

### *Relationship between food access and urban dietary patterns*

Various factors contribute to the changes in dietary patterns seen in urban areas. There are larger numbers of women in the workforce with less time to prepare meals for the family, commuting distances are great, and a substantial amount of time is spent commuting to and from work, living spaces are smaller and often not equipped with kitchens or outdoor cooking spaces, and lastly, there is decreased access to natural fuel sources. All of these factors influence how and why food is accessed in the urban context. Due to the fast paced urban lifestyle, many urban consumers rely on pre-prepared or convenience foods.

### *Street foods*

Street foods play a prominent role in food access strategies of the urban poor. Street food purchases are particularly high in urban areas of Africa and Asia. A study in Accra, Ghana found 32% of the household budget went to purchase street foods; half of this budget went to food purchases for children, who are often given money and decide on their own which type of food to purchase (Maxwell, D., Levin, C., Amer-Klemesu, M., Ruel, M., Morris, S. and Ahiadeke, C., 2000). A study in Kenya compared the frequency and types of street food purchased by socio-economic status. Persons living in slum areas consumed street foods more often than families living in a low-middle income neighbourhood, the fact that street foods were inexpensive was a major purchasing incentive. (H van 't Riet, A P den Hartog, A M Mwangi, R K N Mwadime, D W J Foeken, W A van Staveren, 2001).

There are certain general dietary trends associated with urbanization, while other changes seen are country specific. The cost of traditional staple foods is often higher in urban areas, while the cost of processed food is lower, contributing to the shift in dietary patterns observed in urban areas (Ruel, M., Haddad, L. and Garrett, J. 1999). Often the more traditional foods consumed in rural areas are substituted for processed and imported foods. One generalized example of this is increased consumption in urban areas of wheat and rice, in countries where more traditional grains such as millet, barley and tubers, were previously predominate (De Lisle, H. 1991). Diets in urban areas are based more heavily on processed and pre-prepared foods generally contain more fat, sugar, salt and preservatives, and have less fibre and often lower micronutrient content. Reasons for the shift toward processed foods in urban areas include convenience, availability and price. Bread for example, is prepared fresh daily and sold universally in local shops and on the street. Refined white rice is both inexpensive and relatively quick and convenient to prepare.

A study conducted in Tanzania to evaluate food consumption patterns among urban and rural populations found the most commonly eaten foods among urban populations included bread, cookies, vegetable oil, beef and milk while the list of the most commonly consumed foods in rural areas was substantially different and included sweet potatoes, cassava leaves, cassava and papaya (Mazengo, M., Simell, O., Lukmanji, Z., Shiirma, R. and Karvetti, R. 1997). Table two demonstrates large differences between the consumption patterns of rural and urban residents in Cameroon (Mennen, L., Mbanya, J. Cade, J., Balkau, B., Sharma, S., Chungong, S. and Cruickshank, J., 2000). Both of these examples show an urban tendency to consume foods with greater energy density, but potentially fewer micronutrients. There is a need for further analysis of the differences in dietary patterns in rural and urban areas as well as demonstration of the impact these changes are having on the nutritional status of children and adults from different urban socio-economic strata.

**Table 2: Comparison of the most commonly consumed foods in urban and rural men and women from Cameroon**

Urban men	Urban women	Rural men	Rural women
Irish or sweet potato	Irish or sweet potato	Plums	Plums
Beignets	Beignets	Mango	Mango
Cocoyam	Cocoyam	Cocoyam	Lemon fruit
Boiled Plantain	Mango	Lemon fruits	Cocoyam
Fried Plantain	Boiled Plantain	Cassava	Maize and vegetables

### *Utilisation*

The primary factor effecting food utilization is individual health status. Illness and disease can lead to loss of appetite and poor absorption of the nutrients ingested. Child caring practices are another important component of food security for children as they are reliant on parents and other caretakers to provide safe and nutritious food of adequate quantity and quality. Environmental contamination is a large factor contributing to poor food utilization. The safety of food in the urban environment is a subject of concern. Street foods are often prepared under unhygienic conditions, and can contribute to outbreaks of foodborne illness.

The health status of any group will be influenced by access to services, including primary health care and education, as well as potable water, sanitation systems and general environmental conditions. Analysis of data from recent DHS surveys conducted in sub-Saharan Africa, confirm greater access to electricity and potable water in urban compared to rural areas, though service provision gaps between countries are considerable. For example, in urban areas of Gabon 90% of the population has access to electricity; however the average for all of the surveys reviewed was 50%. As could also be expected, access to sanitation is also greater in urban compared to rural areas. This data is not stratified by urban socio-economic status and thus is reflective of the situation of all persons living in urban areas.

Poor slum areas are the least serviced in terms water and sanitation facilities, crowding is also much more extreme in these environments. Open sewers and stagnant water, lead to concentrated exposure to unhealthy waste. Pests such as flies, mosquitoes and rats are drawn to waste heaps and contribute to the spread of disease and can also contaminate food sources. Children are often at increased risk of exposure to the pathogens present in the environment due to their exploratory play behaviours. Diarrhoeal disease prevalence is a good general indicator of overall environmental hygiene and food safety. The following table illustrates the higher prevalence of diarrhoeal disease in the urban populations of low socio-economic status.

**Table 3: Diarrhoea prevalence in lower and upper urban socio-economic groups**

Country/year	Prevalence of diarrhoea in the past two weeks	
	Urban Low SES	Urban high SES
Tanzania, 1991-2	18.2	7.0
Ghana 1993	19.4	13.6
Senegal 1992-3	15.7	11.9
Zambia 1991	26.3	11.9

**Source:** Original data from DHS surveys. SES analysis performed by IFPRI, in Ruel, M., Haddad, L. and Garrett, J. Some urban facts of life: Implications for Research and Policy *World Development* 27: 11;1917-1938

## HIV/AIDS

HIV/AIDS is predicted to have a long-term impact on food security in sub-Saharan Africa. In 2000, the HIV/AIDS pandemic was estimated to have affected, 36.1 million people, seventy percent of whom (25.3 million) live in sub-Saharan Africa (FAO,2001). HIV/AIDS has affected each key dimension of the food security continuum. In the sub-Saharan countries most significantly effected, 20-25% of the productive agricultural labour force has died (FAO, 2001). In these countries, there has been a reduction in national agricultural productivity. Access to food becomes more difficult in households where one or more of the productive members can no longer bring in income. Frequent bouts of diarrhoea and other infections which characterise AIDS, have a dramatic impact on the individual's ability to utilize the food consumed.

## Nutritional status can be used as an outcome measure of food security

As illustrated in figure one, nutritional status is the ultimate outcome measure of food security. The information available on the nutritional status of urban populations in sub-Saharan Africa is not yet fully comprehensive. Particularly lacking are anthropometric indicators stratified for different socio-economic groups and indicators for micronutrient malnutrition and nutritional status of adults. When urban populations are grouped together as a whole, the higher income brackets skew the overall picture to being one which is almost always brighter for urban compared to rural residents. While access to services and amenities may indeed be greater in urban areas, the urban poor are exposed to uniquely urban problems such as, insecure living tenure, air and noise pollution, exposure to open sewage and crime. Most of these features disproportionately affect the poor and can have a significant impact on food security and nutritional well-being.

### *Nutritional Status of children under five years of age*

The most commonly collected indicators of nutritional status are anthropometric measurements<sup>1</sup> of children under five years of age. Children are more vulnerable to infection and their rapid rate of growth is easily affected by poor nutrition, thus measures of children's nutritional status are a good barometer of overall community health. The table below lists prevalence of high or very high rates of underweight and chronic malnutrition (stunting) in urban areas of sub-Saharan Africa for which there are available data. The table shows that many urban areas of sub-Saharan Africa have a high or very high prevalence of underweight children, reflective of overall poor health and/or inadequate food intake. Stunting, is a measure of chronic food deprivation or chronic poor health, this appears to be less of a public health problem in the countries for which data was analyzed.

**Table 4: Countries with High or Very High rates of Underweight and/or Stunting in Urban Areas**

Country	Urban Underweight prevalence above 20% (Weight-for-age < -2 SD)	Urban Stunting prevalence above 30% (Height -for -age < -2 SD)
Benin (1996)	24.4	
Burkina Faso (1998/99)	26.2	
Chad 1996/97	33.1	
Comoros 1996	25.0	
Ethiopia (2000)	28.4	
Guinea (1999)	21.9	

<sup>1</sup> Anthropometric indices are calculated from combinations of height-age, weight-age or weight-height, which are stratified by age and gender. The indices are commonly expressed in Z scores (standard deviation scores) with the Z score cut-off point being -2 SD. Classifications for high and very high prevalence rates for each indicator have been suggested by the Centres for Disease Control (CDC).

Madagascar (1997)	35.6	44.6
Mali (1995/96)	31.7	
Mozambique (1997)	20.0	
Niger (1998)	35.3	31.2
Nigeria (1999)	26.7	41.6
Tanzania (1996)		31.3

### *Nutritional status of adults*

There is very little information on the nutritional status of adults in urban areas of sub-Saharan Africa. In general, countries which have recently undergone rapid economic transition demonstrate an accelerated shift in adult BMI, with overweight replacing thinness. The trend usually begins with the wealthier sections of society, as the transition continues, the poor also become overweight (WHO, 2000). Although there is little data on this trend in sub-Saharan Africa, it is a pattern emerging throughout Latin America and Asia. With increasing urbanization and economic development the same trend observed in other parts of the world could be anticipated, although the prevalence of HIV/AIDS in the adult population, may counteract this phenomenon.

Two features which contribute to the increase in obesity in urban areas are changes in diet, some of which have been documented in the sections above and a decrease in physical activity. Moving from a rural to an urban environment involves changing habitual patterns of exercise, due to less agricultural activity and different demands on time. Daily rural chores such as collecting water and firewood, no longer exist, or involve much less physical activity in urban areas. The structural layout of many cities is not conducive to exercise, there are few sidewalks and limited parks and other green spaces. Levels of air pollution, traffic and crime further inhibit urban dwellers motivation to exercise.

### **Conclusions**

The factors which influence food security differ across urban and rural environments, urban planners and policy makers should recognize these differences when designing programmes to meet the needs of the urban poor. Lessons from successful agricultural and nutrition related policies and programs in other regions can be useful in highlighting best practices.

A concerted effort is needed to make the urban environment healthier for the growing number of urban inhabitants. Macro level policies related to agricultural production and the infrastructure necessary to ensure an adequate and safe supply of food to cities are warranted. Existing social programs can be reviewed and prioritized in order to provide the most beneficial services to the urban poor. Dealing with the diverse range of municipal problems is a daunting challenge. City funds spent on poorly targeted food supplementation programs may better serve the needs of the poor through improvements in water, sanitation and education services. More research is needed in this area to determine the most beneficial allocation of funds.

Changing dietary patterns and increasing sedentary lifestyles will continue to gain importance due to their significant influence on the nutritional status of urban populations. Consumption of fresh fruits and vegetables is an issue which spans the entire food security chain. Availability and access to fresh produce should be encouraged through designation of urban agricultural areas, improved urban-rural linkages and nutrition education programs. The particular strategies used by the urban poor to access food, including frequent small purchases from local shops and reliance on street food vendors should figure into municipal strategies.

It is imperative to continue to monitor the health and nutritional status of children and adults in urban areas. There is a great need for more detailed information on the nutritional status of the urban poor. As the HIV/AIDS pandemic continues, it will be important to monitor the impact this is having on the food security of urban households and on the nutritional status of urban households effected by this crisis. An increasing number of data points over time will enable an assessment of trends in nutritional status and help planners and programmers better analyze the changes taking place.

City planners will also need to focus attention on strategies to promote physical activity. Urban residents need to be encouraged to exercise, both through promoting healthier environments in which to do so and reinforcing the positive health benefits of regular exercise. These actions should be combined with educational campaigns and community activities to advocate exercise.

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