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ASSESSING URBAN FOOD SECURITY:

ADJUSTING THE FEWS RURAL VULNERABILITY ASSESSMENT FRAMEWORK TO URBAN ENVIRONMENTS

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LIST OF ABBREVIATIONS:

AED:	Academy for Educational Development
BARA:	Bureau of Applied Research in Anthropology, University of Arizona
CARE:	Cooperative Assistance and Relief Everywhere
CSO:	Central Statistical Office, Zambia
CVA:	Current Vulnerability Assessment, FEWS
FANta:	Food and Nutrition Technical Assistance Project, AED
FAO:	Food and Agriculture Organization, United Nations
FEG:	Food Economy Group
FHANIS:	Food, Health, and Nutrition Information Systems, Zambia
FIVIMS:	Food Security and Vulnerability Information and Mapping System
FNS:	Food and Nutrition Service, USDA
HLS:	Household Livelihood Security, CARE
IDP:	Internally displaced person
IMPACT:	Food Security and Nutrition Monitoring Project, AED
FEWS:	Famine Early Warning System
LCMS:	Living Conditions Monitoring Survey, Zambia
LSA:	Livelihood Security Assessments, CARE
LSMS:	Living Standards Measurement Survey, WB
M&E:	Monitoring and Evaluation
MSU:	Michigan State University
NFSM:	National Food Security Measure, FNS/USDA
NGO:	Non-governmental organization
PAPSL:	Participatory Assessment and Planning Sustainable Livelihood, UNDP
PPA:	Participatory Poverty Analysis
SIDA:	Swedish International Development Agency
UNDP:	United Nations Development Program
UNICEF:	United Nations Children's Fund
USAID:	United States Agency for International Development
USDA:	United States Department of Agriculture
VA:	Vulnerability assessment
VAM:	Vulnerability Assessment and Mapping, WFP
WB:	World Bank
WFP:	World Food Program, United Nations
WRI:	World Resource Institute
ZCCM:	Zambia Consolidated Copper Mines, Ltd

GLOSSARY:

In the food security and vulnerability literature, terms can have multiple and even contradictory meanings. This paper attempts to be consistent with FEWS terminology. However, the definitions were sometimes altered to provide greater clarification or to incorporate useful insights of others working on food security. This brief glossary of terms is presented up front in an effort to avoid confusion and provide a quick point of reference.

Food security – FEWS defines food security as having at all times both physical and economic access to sufficient food to meet dietary needs for a productive and healthy life. Food security is comprised of three pillars or basic elements: food availability, access and utilization. This definition is consistent with USAID (IMPACT, 1997) and World Bank (WB, 1986). In contrast, Maxwell's (December, 1995) definition includes food availability and access but utilization is not explicit. His definition includes a sustainability dimension.

Famine – FEWS defines famine as an extreme collapse in the local availability and access to food that causes a widespread rise in mortality from outright starvation or hunger-related illness. It is not the same as food insecurity, but it is related. It is generally a cumulative process rather than one catastrophic event, and it affects a large number of people simultaneously.

Food security factors – human, material and institutional resources that contribute to or impede a household's ability to achieve food security.

Shock – A shock is an event that has an impact on a household's food security, and is normally transient. A shock can be viewed as a rapid divergence from the norm of a given factor. For example, while households may have adapted to high food price levels or a series of gradual price increases, a sudden upward surge in the price or hyperinflation compromise household income and hence food security. Shocks can be idiosyncratic or covariant. They also are referred to as an income shock or event.

Idiosyncratic shock – a shock that affects an individual household such as a death in the family or loss of employment (Mutangadura and Makaudze, 1999).

Covariant shock ? a shock that affects a community or a whole set of households such as a drought or inflation (Mutangadura and Makaudze, 1999).

Coping strategy – a mechanism (either a new activity or an intensification of an existing activity) to deal with short-term insufficiency of food such as reducing the size of a meal or the number of meals per day.

Adaptive strategy – an evolving long-term or permanent change in the way a household and its members acquire sufficient food or income such as migration or establishing a new business.

Vulnerability – Moser says that it is "the insecurity of the well-being of individuals, households or communities in the face of a changing environment." It is the risk of, or susceptibility to, food insecurity, and can result from either chronic or acute or transitory conditions. While poverty and food security are static measures, vulnerability is dynamic. Vulnerability captures the process of moving in and out of food insecurity or poverty (Moser, 1996; Ndung'u and Maxwell, 1999). Vulnerability is composed of two factors: 1) risk or exposure to a shock and 2) the ability to cope with, and recover from, that shock (Lipton and Maxwell, 1992). Vulnerability requires measuring not only the threat but also resilience. Consequently, vulnerability is closely linked to resources, assets, and strategies. Moser, Ndung'u, Maxwell and others note that it isn't always the poorest of the poor who are most vulnerable.

Food economy groups – broad categories of populations or households that share the same livelihood strategy.

Food entitlement indicator – an indicator of the ability to access food such as the price of millet in Niamey, Niger.

Ward(s) – neighborhood(s) or district(s) within a city. *Ward* is used so as not to be confused with the common administrative unit, district, which tends to cover much larger areas.

Megacity – population over 10 million (WRI, 1999 and Brennan, 1999).

ASSESSING URBAN FOOD SECURITY:

ADJUSTING THE FEWS RURAL VULNERABILITY ASSESSMENT FRAMEWORK TO URBAN ENVIRONMENTS

1. Introduction:

This paper aims to sensitize FEWS field staff to urban food security issues and to build their capacity to guide, design, and implement urban vulnerability assessments (VAs) and food security monitoring. There is a growing recognition of the need to address urban food security issues and evaluate the appropriateness of FEWS rural-centric food security assessment and famine early warning tools for urban areas. This paper, however, does not attempt to go as far as establishing a FEWS guidance manual or recommending specific preferred assessment tools, sets of standard indicators or a monitoring plan. The material presented here is meant to provoke further thinking and experimentation on the part of FEWS field staff, and, in doing so, lead to the development of a more refined framework and guidelines. The scope is broader than FEWS applications. As such, government agencies, non-government organizations (NGOs), and donors who are working on urban poverty alleviation and food security issues may also find this information useful.

The paper includes key findings of a review of the current literature and thinking on urban food security, risks, and coping mechanisms, as well as some assessment methods and tools. It also offers suggestions and precautions for the selection of useful monitoring indicators and measurement tools. Conceptual differences in rural and urban food security and vulnerability issues are highlighted, and the practical implications of these differences are noted.

2. The Need for Urban Food Security Assessments:

2.1. Urbanization of Africa:

African early warning activities have historically focused on rural areas and agricultural production as a reflection of African demographics and food security risks in the 1980s when early warning efforts first evolved. Food insecurity and famine were felt to be problems largely resulting from the unavailability of food. In keeping with this orientation, emphasis in early warning has to date stressed rural food security and monitoring of factors that contribute to the success or failure of seasonal agricultural production, the mainstay of rural households. Remotely sensed and ground-based data on meteorological and crop and rangeland conditions

provide early indications of potentially food-insecure areas. In time, Sen's (1981) theory of entitlements was broadly adopted, and attention spread to issues of food access and early warning monitoring incorporated food price data as well. While poor rural households confront many of the same risks today as they did 20 years ago – with the exception of the HIV/AIDS pandemic – Africa's urban populations have mushroomed and, as a consequence, new food security issues and threats have emerged.

The percent of Africa's population living in urban areas[1] grew from 27 percent to 38 percent between 1980 and 2000, and is expected to reach nearly 50 percent by 2020 (see Table 1). Among FEWS countries,[2] the estimated urban population in 2000 is at least 40 percent of the total population in Mauritania, Mozambique, and Zambia. Projections indicate that by 2020 Kenya, Mali, Tanzania, and Zimbabwe will join this group. In fact, if trends continue, Mauritania, Mozambique, and Zambia will be more urban than rural in 2020.

Table 1: Urban Population Data for FEWS Countries

Country	Population 2000 (1000s)	Urban Population 2000 (1000s)	Percent Urban		
			1980 (%)	2000 (%)	2020 (%)
Africa	**814,871**	**309,651**	**27**	**38**	**49**
Burkina Faso	12,367	2,226	8	18	31
Chad	7,204	1,729	19	24	34
Eritrea	3,758	714	14	19	29
Ethiopia	64,883	11,679	10	18	29
Kenya	30,433	10,043	16	33	48
Malawi	11,240	1,686	9	15	26
Mali	12,577	3,773	18	30	43
Mauritania	2,567	1,489	27	58	71
Mozambique	19,673	7,869	13	40	55
Niger	10,581	2,222	13	21	32
Rwanda	7,867	472	5	6	10
Somalia	11,741	1,492	22	27	39
Tanzania	33,486	9,376	15	28	42
Uganda	22,714	3,180	9	14	23
Zambia	9,038	4,067	40	45	55
Zimbabwe	12,534	4,387	22	35	49

Source: World Resources Institute. (1999). 1998-1999 World Resources: A Guide to the Global Environmental. Washington, DC, World Resources Institute. Total population figures calculated from existing data. For definitions of urban and rural see above WRI source and United Nations Population Division. (forthcoming). World Urbanization Prospects: The 1996 Revision." New York, UNPD. "FEWS countries" refers to countries where FEWS has a full-time staff. Southern Sudan, a "FEWS country," is excluded because data are available only for Sudan as a whole.

[1] The definition of an urban area varies from country to country. The reader should consult World Resource Institute or United Nations Population Division for further details. See references.

[2] FEWS countries refer to those countries where FEWS maintains full-time staff. Southern Sudan, also a FEWS country, is excluded because data are available only for Sudan as a whole.

Unfortunately, the urbanization of the continent does not necessarily mean economic opportunity and prosperity for the majority of Africans. On the contrary, global poverty is becoming more African, more urban, and more feminine. Fifty percent of the world's poor and 40 percent Africa's poor live in urban areas (Rabinovitch, Nov 1999). These demographic statistics and trends suggest an increased need to address urban food security issues, and evaluate the appropriateness of the FEWS's rural-centric food security assessments[3] and famine early warning tools for the urban environment. This exercise is especially relevant and timely for FEWS countries with large urban populations, e.g, Mauritania, Mozambique, Zambia, Zimbabwe, and perhaps Kenya.

2.2. Appropriateness of Current Vulnerability Assessments for Urban Environments:

Famine is an unlikely outcome of urban food insecurity: FEWS Current Vulnerability Assessments (CVAs) and early warning activities applied in rural settings aim to take stock of realized shocks in order to predict the likely outcome of those shocks in terms of the ability of the population to meet their food needs during the current consumption or marketing period so as to enable response agents to take action and prevent a serious deterioration in the food security of the rural population, and, in the extreme, to avert famine. FEWS then regularly monitors food security shocks and attempts to anticipate potential outcomes of those shocks. In urban areas, famine is rarely a threat. Instead, urban centers experience economic decline and social unrest. In the extreme, famine is replaced with riots and mayhem, similar to that experienced in Jakarta after the collapse of the Asian market.

Remote sensing plays a smaller role in urban food security monitoring: In rural areas, household income and food security are tied to land and food production and are dominated by weather and hydrological conditions through their influence on agricultural production. While it is true that many factors such as land, capital, and labor resources contribute significantly to the long-term income-earning capacity of a household, no other variable has as powerful and pervasive an influence on short-term changes in household income-earning capacity or livelihoods as does weather. Without doubt, weather and other hydrological conditions are the most important sources of transient risk in rural settings. As a result, a FEWS CVA starts with agricultural production, and food security monitoring relies heavily on remote sensing, satellite imagery, and rainfall data. In urban environments, household income is tied to labor, and employment opportunities are typically outside the agricultural sector and hence are not dominated by weather. Instead, livelihoods depend on the strength of the economy and the numerous factors that underlie economic performance. An exception would be the enclave or sole-employer economies such as mining communities where the international price for the mined mineral plays a singularly important role in determining residents' livelihoods. Just as rural CVAs start with agricultural production assessments, an urban vulnerability assessment might logically start with employment potential (current or recent changes in employment), and by taking the pulse of the vitality of the urban economy.

Seasonal factors play a smaller role in urban food security: By definition, the FEWS CVA addresses transient or seasonal food insecurity, not chronic food insecurity or poverty. Actions

[3] FEWS uses the title current vulnerability assessments (CVA) for its food security or vulnerability assessments that cover a specific marketing season.

stemming from these assessments focus on helping rural households bridge short-term food gaps, whether the actions take the form of general food relief for the entire affected population, supplemental feeding programs for vulnerable groups (pregnant of lactating women, children, the elderly, and the infirm), seed distributions, food-for-work activities, or some other short-term assistance program that reinforce local coping strategies. Over time, recurrent issues brought out through the CVA exercise suggest crisis prevention measures and potential interventions to be incorporated into contingency plans.

In contrast, seasonal factors generally play a smaller but not insignificant role in determining urban food security. Unlike rural households that acquire a large share of their annual income through one of two harvests per year and then consume their food stocks over the following months, urban households earn income continuously throughout the year, and there is no equivalent point in time from which to gauge food security for an extended period of time into the future. Taking food security readings at the beginning of the marketing season, as is done with the rural CVA, is not as informative in urban settings. Consequently, the value in conducting distinct chronic and short-run or current assessments is limited.

This explains why most urban vulnerability assessments (but not FEWS CVAs) to date are executed with an aim to identify both chronic and transient factors, and the results tend to feed into a longer-term policy prescription, safety net design and programming. These social welfare strategies, however, do not rule out the temporary assistance programs for urban populations such as targeted feeding programs, emergency fuel coupons, education and health service vouchers, and micro credit for rebuilding businesses.

Dominant urban livelihood strategies are less homogeneous: Because agro-ecological factors determine a rural household's resource base and dominate livelihood choices, rural household livelihood strategies are often geographically homogenous or clustered into a few food-economy groups according to agro-ecological characteristics and limited economic opportunities. For example, most smallholders in a given area produce one or two basic or dominant food crops such as maize or millet. They may also be involved in livestock or cash crop production such as tobacco, cotton, or cashews. Usually one cash crop dominates in a region. In some instances, the majority of smallholder households depend on wage employment at nearby large-scale commercial farms. But, within a region, the opportunities are generally limited. Consequently, the degree of food insecurity and risks of various income shocks are shared by a large number of households or even an entire district. Having only a few food economy groups allows analysts to generalize or aggregate their findings, and to calculate a reasonable estimate of the food-insecure population. In contrast, economic opportunities in urban centers tend to be more diverse, making livelihood strategies more fluid and complex – even if a particular household's ability to exercise these options is extremely limited. As a consequence, urban households do not tend to fall neatly into a small number of meaningful geographic clusters that help to characterize a limited number of livelihood strategies or food economy groups – a basic part of the FEWS rural CVA. Furthermore, households are less economically interdependent, and the risk of shocks and degree of food insecurity are more unevenly dispersed throughout the urban population. With the exception of macroeconomic shocks such as spiraling inflation there are few shocks that are simultaneously experienced by the majority of urban households. The inability to generalize about households can increase the complexity of the monitoring system.

Costs of monitoring and response in less in urban areas: Although the diversity of livelihood strategies and coping mechanisms of urban dwellers confounds the process of food security monitoring, the geographic concentration of urban households can reduce the costs of implementing surveys or other monitoring tools. Survey costs are lower and logistics are simpler in urban as compared to rural settings. Households in need of assistance are more readily assessable, and accessible in that the cost of administering food distribution, health care, and safety net programs per household is also likely to be lower.

In conclusion, the differences between rural and urban food security issues suggest that the FEWS CVA method is not directly applicable to urban environments. Taking food security reading at the beginning of the marketing season, as is done with the rural CVA, is not as informative in urban settings. In addition, there is often no dominant seasonal risk to monitor. An urban VA need not be executed every year as is done with the CVA. Although the overarching food security conceptual framework still holds, there is a need for development of some specific urban assessment and monitoring tools to more accurately and appropriately capture relationships between food security shocks and vulnerability to food insecurity.

3. Urban Food Security:

Food security assessments and monitoring are concerned with identifying households that are food insecure or likely to become food insecure over some given period of time. For rural areas, this timeframe is usually the agricultural marketing season[4]. In both rural and urban settings, a household's ability to achieve food security is derived from the household's human, material, and institutional resource base, which are often collectively referred to in the literature as "food security factors." Examples of these factors include the educational and employment status of household members; possession of land, livestock, and physical structures; existence health-related infrastructure; access to formal food-for-work (FFW) and credit programs; and access to informal savings and work-sharing associations. These factors help define a household's food security status.

In contrast, vulnerability is a more fluid concept. A household's vulnerability to food insecurity is derived from its exposure to food-security shocks (e.g., drought, inflation, etc) and its ability to cope with, and recover from, these shocks. What differs across rural and urban settings is the nature and prevalence of these food-security factors. Rural and urban households also differ in terms of their exposure to shocks that threaten their food security – both in terms of the probability of an event and its magnitude, and their options for coping with these shocks. Expanding the scope of vulnerability assessments to include urban areas means clarifying these differences and becoming sensitive to key food-security issues that are typically urban.

While each urban center has a unique combination of economic opportunities and demographics that defines a unique set of appropriate assessment and monitoring tools, it is possible to make some generalizations about urban food security. The following section summarizes what the literature reveals about urban household characteristics that are related to food insecurity, or

[4] Or what FEWS and others refer to as the agricultural marketing or consumption season – from the beginning of one harvest season until the next.

urban food security factors, common risks or shocks that leave households vulnerable to food insecurity, and coping strategies. A number of the observations made below hold for rural settings as well, but the summary presented should help FEWS field staff conceptualize food security issues from an urban perspective.

3.1 Food Security Factors:

As mentioned earlier, food security factors are the human, material, and institutional resources that contribute or impede to a household's ability to achieve food security. Table 2 lists broad categories of these factors and illustrates in which form they would likely contribute to food insecurity. The presence of these factors signals potential vulnerability to food insecurity. The information is presented up front as a means to orient the reader. Each food security factor is then discussed in detail in the following sections. While it is acknowledged that there is great variation across countries, the material presented represents the general tendencies uncovered through the review of the literature. An attempt was made to illustrate the range of variation as well.

Household demographics: As in rural areas, the size of the household and the dependency ratio[5] are negatively associated with food security. Exceptions to this role would include very small households comprised of one or two elderly people or a solitary widow. Child-headed households are nearly always food insecure. Households headed by disabled persons, widows and single parents tend to be food insecure as well. Households headed by women are more often food insecure than those headed by men. Because women's wages and incomes tend to be lower than men's (Anker, 1998; and Mehra and Gammage, 1999), such conclusions about gender may be confounding income and gender effects.

Lower educational levels and illiteracy are directly related to food insecurity. This is usually measured just for the head of household, but the educational status of other household members, especially income earners, is also important. Ruel and Garrett (1999) found that the nutritional status of children under 23 months of age was positively and significantly related to their mother's education level, and another study found that it was closely related to their mother's knowledge of child nutrition and care (Maxwell, 1996a). While the education of income earners is important for gauging the income earning potential of a household, women's educational attainment has a larger effect on the quality of care and child nutrition. Participants of community surveys in Ghana and Zimbabwe said that households with absent or irresponsible fathers or parents as well as those with bad management skills were most inclined to be food insecure (Maxwell, 1996 and 1996a; and Matshalaga, 1997).

There is some disagreement over the influence of time in residency on household food security. Bart (1994) found that the length of time in residency was positively associated with good food security status. In time, households develop effective income generating strategies, form strong

[5] The dependency ratio is defined as the ratio of non-working age members of a household to working-age members. Non-working age is variously defined but less than 11 or older than 60 would represent the typical African context, especially for poor households. Less than 14 is another commonly used cut-off point.

Table 2: Factors Signaling Potential Urban Food Insecurity

Factors Contributing to Food Insecurity
Demographic Factors
High dependency ratio
Low educational level of household head and mothers or caretakers
Female or child-headed household
Households comprised of only one or two individuals
Length of time in residency
Employment and Income Factors
Unemployment of working age members
Single income source (income not diversified)
Underemployment of working age members
No urban agriculture
Wealth and Asset Factors
Asset poor
Lack of diversity in assets, especially liquid assets
Limited or no savings
Formal Social Assistance Factors
Limited or no access to formal assistance programs
Informal Social Assistance and Network Factors
Limited or no relation to social or reciprocity networks
No informal transfers from rural relatives
Health Factors
Inadequate access to clean water, sanitation
Inadequate access to health care
High level of persistent health hazards
High incidence of illness and death
Environmental Factors
High cost of living
High incidence of crime
Concentration of refuges and internally displaced people
Seasonality

social networks, and their obligations (remittances) toward rural kinfolk lessen. While other researchers agree that over time urban households' affiliation with rural kinfolk weakens, they argue that in-kind rural-to-urban flows and this decreasing trend has a negative effect on urban food security. In this scenario, urban-to-urban exchanges do not replace lost rural-to-urban flows. Internally displaced persons and refugees form a special case. While they are often the poorest and most food insecure members of an urban population, their presence can also exert a significant shock or in some instances a prolonged negative influence on the host population.

Household employment status: Urban households' livelihoods are generally heavily dependent on employment outside the home, and much more so than rural households. This is particularly true of large industrialized or capital cities with constrained land access and more lucrative non-farm employment opportunities. In contrast, residents of small towns situated in the midst of rural areas often remain highly dependent on agriculture. However, some large cities can accommodate urban agriculture. In Kampala, many households derive a significant share of their total household income from agriculture.

Sources of income and employment are more diverse in urban areas. Household members tend

to have more education and training and are, therefore, able to collectively undertake a wider range of unskilled, semi-skilled, and skilled jobs. In addition, the more complex urban economy offers a greater variation in employment options. The result is that the mix of income-earning activities within a household is more diverse as is the mix of income-earning activities across households. The greater diversity implies that there are fewer clear demarcations of food economy groups or that homogeneous groups are smaller. Different households employ different sets of livelihood strategies. Maxwell (February, 1998) noted that households in Accra and Kampala adjust to rising prices of basic necessities by taking on more self-employment activities such as petty trade, food vending, and other forms of informal employment. In general, households with more diversified income are more inclined to be food secure and able to better cope with shocks.

The vast majority of the urban Africans work in the informal sector (including self employment). The informal sector accounts for a much as 40 percent of urban workers in Kenya and 90 percent in Freetown, Sierra Leone (Ruel, et al, 1998). Included among the many informal employment options are petty traders, prepared-food venders, domestics, farmers, apprentices, and the self-employed. Many people engage in these activities on a seasonal, part-time, or temporary basis. In fact, income streams from what is considered permanent formal employment can actually be irregular or seasonal. Civil servants are often paid sporadically, construction workers secure more contracts during the dry season, and market venders' daily earnings tend to drop off when it rains. Moser (1996) notes that labor has become more casual for both men and women, particularly among the poor and food insecure. As economies slow down and structural adjustment streamlines public sector payrolls, people shift from formal to informal employment and from full-time to multiple part-time employment.

Several studies revealed that underemployment more than unemployment limits a household's ability to earn income and hence achieve or guarantee food security (Sutter and Perine, 1998; Ruel, et al, 1998; Maxwell, 1996 and 1996a). It is not uncommon for members of middle-income and poor households to undertake several income-generating activities, all of which may be less than full time. Unadjusted salaries and lengthy payment arrears force many civil servants who are part of the formal sector to seek additional employment in the informal sector. Survey respondents from a number of different countries said they needed better employment options, not merely more employment opportunities. This adds another dimension to the problem of measuring whether households have adequate employment because underemployment is harder to define and measure than unemployment. These findings suggest the need to better qualify what is meant by employment.

Where unemployment of young adult men is high, young adult male household members can be a drain on household resources. Besides constituting an extra mouth to feed, unemployed males have a tendency to drink, take drugs, and become involved in gangs, crime, and other deviant activities that cause stress within the household unit.

Official measures of household employment are notoriously inaccurate. Employment is poorly defined, and often in terms that do not correspond to local conditions, e.g. only a small portion of urban dwellers can describe themselves as salaried and even wage laborers. Informal employment is normally not counted in official employment statistics. These statistics

frequently miss seasonal, part-time, temporary employment, and underemployment. Yet these forms of employment are the most common sources of income for the poorest of poor and most food insecure. In fact, most Africans find employment in the informal sector. The informal sector employs approximately 80 percent of the total urban workforce in Zambia. Surveys also tend to overestimate the income-earning significance of the household head and underestimate that of other household members. Regardless of the actual magnitude, men as well as women often view women's income earning activities as marginal to the household's earning capacity and second to housekeeping responsibilities. Yet, it is women's income that is more closely linked to food purchases and food security (Bonnard, 1999; and Diskin, 1995).

Urban agriculture: It is difficult to generalize about urban agriculture across Africa. The opportunities for, and the role of, urban agriculture in urban food security vary across cities. In some towns and cities, gardening and even farming is a standard practice. These farming households may be transitioning from rural to urban lifestyles, and involvement in agriculture represents a major income-earning activity. Households in smaller, more-rural centers tend to fall into this pattern. For these households, an expansion in production or rise in produce prices represents an increase in income and an improvement in food security.

In other urban centers such as Harare, households practice agriculture or gardening in an attempt to compensate for insufficient or deteriorating incomes. For these households, urban agricultural activities are a coping strategy. The expansion of production in this case represents an income-compensating stream that mitigates a potentially larger decline in food security, and hence the expansion is not necessarily an increase in income or an improvement in food security, but rather a consequence of a successful coping strategy. Maxwell, Levine, and Csete (June, 1998) note that home gardens in Kampala only really expanded in response to the economic crisis of the 1970s and 1980s. They found that children of these households had better nutritional status, which suggests that gardening can be an effective coping strategy. In contrast, opportunities for agriculture are diminishing in Accra, Ghana as non-agricultural enterprises and residences convert arable peri-urban and urban lands (Maxwell, 1996 and 1996a). In this case, the reduction in area under cultivation represents a potential rise in food insecurity for some households.

Households engage in urban agriculture, which includes crops, agroforestry, livestock and aquaculture for household consumption, sale and other forms of revenue generation (e.g., processed food products). The share of income derived from urban agriculture can be high. Bart (1994) notes that it can furnish as much as one third of a household's staple foods and the International Development Research Centre (IDRC) claims that in some African cities 80 percent of household food needs are derived from home production (IDRC, 1994). Gardens are also an important source of micronutrients and provide households with a diverse group of foods for combating common micronutrient deficiencies such as Vitamin A, Vitamin C, or iron deficiencies.

Urban gardening is generally a woman's activity, which probably stems from African women's traditional role in the provision of food for the family (Matshalaga, 1997; and Nugent, 1997). Gardening also affords women a flexible schedule and an income-earning option that is located

close to their home – important considerations in balancing work and childcare responsibilities. Men, particularly in West Africa, cultivate urban commercial vegetable gardens.

Because land and water are scarce in cities, secure land tenure and access to clean water are key constraints to home gardeners. Rents and water fees can be prohibitively expensive. Thievery is also a problem in some urban centers and where gardens are located far from the house. In the latter situation, households sometimes assign members to stand guard duty or they share guard duties with other households that have plots in the same location.

Assets: Few urban households own land or homes. The poor are mostly renters or squatters with tenuous property rights. Those who do own property can earn rental income or utilize some space for gardening or other new business ventures. Urban dwellers tend to possess more consumer items such as televisions, radios, refrigerators, bicycles and furniture than rural residents. The possession of assets – particularly liquid assets – is positively correlated with food security. The possession of assets is generally positively correlated with food security. The greater the store of wealth and the more diverse the store of wealth, the less vulnerable a household is to food insecurity. Moser (1996) notes that assets are a "buffer against vulnerability." Possession of a dwelling or plot of land helps a household remain financially afloat in difficult times. Tenure security permits investment and, consequently, expansion of the productive capacity of that asset and the income-generating potential of the household.

Savings: More urban households save, maintain bank accounts, and belong to savings and microfinance clubs than rural households. This is not to say that rural households do not save, but rather that it is more common for urban households in the majority of country scenarios reviewed. While urban households save in the form of cash, rural households can also stock grain and accumulate livestock as a store of wealth. Households with either form of savings tend to be more food secure than those without convertible assets.

Formal social assistance or direct transfers: Urban households tend to have greater access to safety net programs or formal assistance such as school lunch programs; supplemental feeding for infants, small children, and pregnant and lactating women; health or school fee wavers; FFW; and cash-for-work (CFW). Access to services is sometimes provided by employers. In the Copperbelt Province of Zambia, miners receive housing allowances and on-site services (Hansungule, et al, 1998), although both the numbers employed and the level of benefits have been decreasing. Despite the fact that formal employment with pensions and other benefits is declining in most African countries, there are still more formal employment options in the city as compared to rural areas.

Informal social networks or reciprocity networks: Community organizations, clubs, and associations as well as family and community support are all part of the social or reciprocal networks. While savings clubs fall into this category, households that save individually on their own or with a formal or informal banking agent are not included in this group. What is relevant here is the household's reliance on a social network such as burial and rotating funds, cooking clubs, or neighborhood and religious associations. One study found that money and credit available to urban households through participation in savings and other associations tends to support consumption expenditures, and that there are few and very limited sources of business

credit available (Sutter and Pervine, 1998 and Rutahakana and DeVries, 1998). The latter would help urban households build their productive capital and income-generating capacity.

The literature is mixed as to whether urban or rural households have greater assess to social networks, or which way (i.e., rural to urban or urban to rural) the assistance more commonly flows. Supporting the notion that rural-to-urban flows are heavier, Mutangadura and Makaudze (1999) observed that more than 60 percent of urban households surveyed resorted to asking for assistance from rural relatives. However, they noted the AIDS epidemic is altering traditional reciprocity between urban and rural branches of a single extended family. Rural residents who face mushrooming obligations toward their neighbors who have suffered dramatic income losses due to AIDS, are less willing or able to provide support their urban relatives. Taking the alternative view, a study conducted by the Zambian Central Statistical Office (1998) found that urban households were more likely remit income to their relatives than rural households: 62 and 57 percent of urban and rural household, respectively. The proportion of households receiving remittances was 47 percent for urban and 56 percent for rural. Finally, Smit (1998) observed that low-income migrant households in Durban, South Africa, maintain both rural and urban homes as a means of reducing risk with the rural home functioning as a safety net. The literature suggests that across Africa there is great variation in the direction, form, and function of remittances. What is consistent across countries is that remittances are an important variable in the food security equation.

Moser (1996) states that much of social assistance is not automatic but rather conditional. She says that participation in, and reliance upon, informal social network is dependent on member households' capacities to reciprocate. As communities become impoverished and social capital is consumed but not replenished, the capital stock erodes and the network eventually breaks down. On an individual level, when a household borrows money from a savings club but fails to repay its loan, other member households have to choose between absorbing the bad debt or banishing the delinquent household from the club.

Access to clean water and adequate sanitation: The quality of water and sanitation affect food security through food utilization. Disease inhibits the proper utilization of ingested foods and results in inadequate nutrition. The difference in household access to clean water and sanitation between affluent and poor wards (city districts or neighborhoods) within a city is staggering (Bonnard, 1996; and Moser, 1996). In informal settlements of Nairobi, 94 percent of all households have no sanitation and 60 percent have no direct access to a toilet (Alder, 1995). In a study of 12 cities, Wegelin and Borgman (1995) found that water vender prices (what the poorest actually pay) were between 4 and 100 times the public water fee for piped water.

Insufficient sanitation leads to poor water quality (Rutahakana and DeVries, 1998; Sutter and Perine, 1998; and Brennan, 1999) and a higher incidence of common environmentally-induced diarrheal diseases as well as cholera, tuberculosis, typhoid, and other infectious diseases. While mortality rates are lower in urban areas, morbidity is higher (Ruel, et al, 1999). This finding reflects the greater exposure to disease, contaminants, and pollutants counter balanced by greater access to health care – at least for those who can pay (Bonnard, 1996; and Tacoli and Satterthwaite, 1999). Frequent illness translates into higher medical costs and more absenteeism on the part of the infirm and the caretaker. Constant physical stress brought on by illness or the

extra burden of providing care makes working household members less productive and less able to earn income. Many widows, despite the difficulties they endure, are not willing to move back to the place of origin in rural areas because they do not want to be "inherited" by their in-laws families thus losing the autonomy that they've gained in urban areas.

Cost of living: The cost of living is usually higher in urban as compared to rural areas (Satterthwaite, 1997). Distances to work are farther and time schedules are less flexible, making urban residents more dependent on transportation. High school fees and costs of school supplies constitute substantial inflexible or inelastic expenditures because most urban households are reluctant to forgo their children's education. Therefore, increases in the costs of education compromise household food security (Moser, 1996). While rural households tend to pay for household energy use in terms of time (i.e., fuelwood collection), urban households have to buy fuelwood, gas, oil, or electricity. They have to pay for water and sewage as well, and the prices poor urban households pay are frequently much higher than the more affluent households. In addition, poor households buy food in smaller quantities and hence at higher prices. The cost of local food is higher in urban areas than in rural areas. According to Asaduzzman (1989) food expenditures are 30 percent higher in urban areas than in rural areas. Urban households responding to FHANIS (1998) surveys ranked food expenditures as number one in terms of the size of the budget share. In Accra and Kampala, households spend 75 percent of their incomes on food (Maxwell, February 1998). FAO reports that poor urban families spend as much as 60 to 80 percent of their incomes on food, and Akindès (1999) estimated a food share of 58 percent in Bouaké, Côte d'Ivoire.

Compared to their rural counterparts, urban households consume more diverse diets (Akindès, 1999). This implies a slightly more complex method of monitoring food prices. They eat fewer but better calories (Bart, 1994; and Von Braun, et al, 1993). Their diets have a higher protein and micronutrient content. Many urban households rely heavily on convenience foods and street food – that which is prepared and sold by street vendors. Street food can be cheaper than homemade meals, especially when the time spent in shopping and meal preparation is taken into account (Ruel, et al, 1999). Generally, there are economies of scale in the preparation of traditional meals – it's cheaper per person for larger families. Some households sell prepared foods so that they can afford cheaper bulk purchases and retain a portion of the food for household consumption. In extremely densely populated urban areas, space is highly constrained such that setting aside room for a kitchen or cooking area is a luxury.

Within a given country, food budget shares tend to be larger in smaller as compared to larger cities. While urban households can often find substitute foods when prices of one commodity rise, they have limited or no access to "free" or wild foods unlike their rural counterparts. Moreover, there are fewer imported substitutes than in larger cities that are customarily ports of entry and preferred markets for large-scale commercial traders. Although rural households tend to pay more for imported processed food and consumer goods, these items are frequently optional purchases or non-necessities and account for a small portion of a household's overall budget.

Perception of crime: Crime is more of a community rather than household characteristic, but the perception of crime alters a person's perception of his/her opportunities. In general, cities are

associated with more crime than in rural areas. Crime tends to affect women more than men. Women, including female household heads, modify their day-to-day behaviors such as where they work, when they commute to and from work, and when they do their household chores based on their perception of the risk and type of violence prevalent in their communities. These adjustments can constrain their ability to earn income and their utilization of social infrastructure (water sources and community clinics). Moser (1996) noted that urban women in Zambia, Philippines, Ecuador, and Hungary felt the need to alter their behaviors in response to a growing incidence of crime in their cities.

At the other extreme, one WFP (1998) vulnerability assessment found that Indonesian rural households were growing in size as urban residents fled crime and increasing economic hardship in the cities.

Seasonality: Seasonal weather and agricultural production patterns are the most influential factors in rural areas. This is less true for in urban areas, but some seasonal patterns do exist, especially for smaller urban areas that tend to remain closely linked agriculturally and with the rhythm of surrounding rural areas. Certain sectors and employment categories may also exhibit seasonal patterns. Residents of Accra reported that incomes from fishing, agriculture, prostitution, and crime were affected by seasonal patterns, but not necessarily the same pattern (Rutahakana and DeVries, 1998; Maxwell, et al, 1996 and 1996a; and Sutter and Perine, 1998). The revenue of market venders and local transporters (e.g. rickshaw and wagon drivers) declines during periods of heavy rain. In extreme cases, rains and mudslides destroy market sales and informal businesses as well as homes that are constructed from weak materials or precariously situated.

3.2. Food Security Shocks:

As defined earlier, a shock is an event that has an impact on a household's food security, and is normally transient. It can be viewed as a rapid divergence from the norm of a given food security factor. Table 3 lists a series of negative urban food security shocks. The information is presented up front to provide orientation for the reader.

A food security shock, or income shock, is an event that compromises a household's food security. A shock can also be viewed as a sudden significant divergence from the norm of a given factor. While households may have adapted to high food price levels or a series of gradual price increases, a sudden upward surge in food prices or hyperinflation is more difficult to absorb and seriously compromises household income and hence food security. The magnitude of the impact of the shock varies across households. For example, heavy rains in an urban center could result in localized extensive damage to businesses and homes located on fragile slopes, cause small reductions in income of petty traders whose customers prefer to stay indoors during the storms, and actually bolster taxicab operators' incomes.

Table 3: Negative Urban Food Security Shocks

Food Security Shocks
Inflation
Food price increase
Transportation costs increase
Devaluation
Company closure
Structural adjustment
Change in policy and regulation
Layoffs
Divorce or separation
Illness of working member
Death of working member
Prolonged illness that diverts household resources
Socio-economic decline
Civil conflict

An important distinction to make for food security monitoring is that shocks can be idiosyncratic or covariant (Mutangadura and Makaudze, 1999). An idiosyncratic shock affects an individual household such as a death in the family or loss of employment, and a covariant shock affects a community or a whole set of households such as a drought or inflation. Early warning and relief programs are oriented toward covariant shocks because it is often easier to identify and group affected people, and the cost of providing relief per person is low due to economies of scales. Safety net, poverty reduction, and welfare programs are oriented toward covariant shocks as well, but some also address idiosyncratic shocks. Table 4 lists a series of common shocks and indicates whether they are idiosyncratic or covariant. The discussion that follows explains and clarifies the classification scheme.

Inflation: Inflation is one the most commonly cited covariant shocks. Mutanagdura and Makaudze (1999) observed that many urban households in Zimbabwe identified inflation and devaluation as the most important factor contributing to their food insecurity.

The consumer price index (CPI) is comprised of weighted prices for a standard group of basic consumer items, but the formulaic consumer basket of goods does not necessarily represent consumption patterns of the poorest, and most commonly food insecure, households. Therefore, inflation, which is based on the CPI, may be a good indicator of the poorest households' vulnerability to food insecurity.

Table 4: Classification of Urban Food Security Shocks

Shock	Idiosyncratic[1]	Covariant[2]
Inflation		X
Food price increases		X
Basic non-food price increases[3]	X	X
Exchange rate devaluation/depreciation		X
Policies and regulations		X
Unemployment	X	X
Crime	X	X
Illness/death	X	X
Separation/divorce	X	
Social and economic decline	X	X
Conflict		X
Natural Disasters		X

[1] Affects individual households.
[2] Affects a large number of households simultaneously.
[3] Some non-food items are important in the budgets of only a small number of households.

Rising food prices: Like inflation, food price increases are covariant shocks. Food price increases are looked at separately from inflation for two reasons. First, although food prices are clearly relevant to food security, food is only one component of the consumer basket of goods that underlies the standard calculation of the CPI and inflation. In the African context, food prices – and particularly grain prices – are major determinants of the rate of inflation, but this is not true in all cases. Second, national marketing information systems and FEWS are currently monitoring prices of basic grains as indicators of food access so that food price data are generally readily available.

Food accounts for a large portion of a low-income household's budget (see cost of living under food security factors section), and poorer households tend to purchase food in small quantities at higher prices. As a consequence, price increases for basic food commodities are a greater concern to poorer as compared to better-off, but still poor, households. For the latter group, these items constitute a relatively smaller portion of their total budgets and they can more easily absorb cost increases. When these households make budget cuts, it is frequently in the form of a reduction or elimination of non-essential non-food items and consumer goods (WFP, 1999; Ruel, et al, 1998). Yet, Ruel and Garrett (1999) found that community-level prices exerted a strong influence on household-level food security in both rural and urban areas in Mozambique. Matshalaga (March, 1997) found that there was a specific income (Z$935/month) under which households found it difficult to accommodate food price increases. He also found more women than men in Dzivarasekwa, Zimbabwe, said that high commodity prices were responsible for food insecurity. Since women's incomes are often lower than men's, this observation may be confounding the influence of gender and income. Also, women do more food purchasing than men and, therefore, are more inclined to note the impact.

Depending on the local custom and diet, basic grains, root crops, and/or tubers constitute a significant share of a low-income household's food budget. Therefore, the prices of such commodities are useful in monitoring food security. However, these crops are often not monitored by local agricultural marketing systems. In addition, urban diets are more diverse suggesting a need to monitor the prices of a wider variety of food commodities or even street

foods in some instances. This discussion implies that single crop (usually grains) monitoring schemes can miss some food price shocks that have important implications on the food security of poorer households.

Devaluation/Depreciation: Devaluation (or depreciation) is a covariant shock. Households are affected by currency devaluation or depreciation through increases in the prices of imported commodities, e.g., gasoline, or imported rice consumed by most West African urban dwellers. As such, the effects of a devaluation shock mirrors that of inflation, only the upward pressure on prices is largely confined to commodities that are imported or produced using imported materials or inputs, which are more important to urban as compared to rural consumers. Generally, a larger share of urban as opposed to rural household budgets is spent on imported items. But, depreciation also raises the local currency cost of imported agricultural inputs and the local currency price of agricultural exports. It's extremely difficult, if not impossible, to generalize about the incidence and magnitude of the effects.

Policies and Regulations: To review all of the possible policies and regulations that a government could enact that could have food security ramifications would require volumes of description and analysis. Moreover, the review would undoubtedly conclude that there are some winners and losers resulting from each policy option. Still, specific policies and regulations can have significant poverty and food security ramifications for large groups of people. Devaluation and structural adjustment, discussed above, were formal safety net and assistance programs. Urban beautification campaigns have at times resulted in governments clearing – even bulldozing – informal market stalls and destroying the livelihoods and limited capital base of poor urban dwellers. Enacting new holidays and imposing curfews constricts informal market opportunities. Burning urban maize plots to fight malaria reduces a health risk while imposing an income shock on those who rely on urban gardening and consumers if restrictions place upward pressure on food prices. While the government tends to impose new policies and regulations for the "public good," there are often important unintended social costs. Tacoli and Satterthwaite (1999) note that in urban areas there can be large negative impacts of "bad" government. An urban vulnerability assessment needs to account for impending policy change or unexpected enforcement of existing policies. For this reason, policies and regulation are included here as covariant shocks but the effects cannot be generalized.

Unemployment: Unemployment can be viewed as an idiosyncratic shock when one household member of an individual household loses a job. It can be viewed as a covariant shock, cut when many people are affected. For example, when the government retrenches numerous civil servants all at once, or when a factory or a mine closes and terminates employment for a significant portion of the local population. Mutangadura and Makaudze (August, 1999) note unemployment is a primary idiosyncratic shock for urban households in Zimbabwe. In contrast, Zambian mine closures caused rapid widespread unemployment or a covariant shock. In the case of Zambian miners, hardships incurred due to a loss of employment are amplified because housing and other basic services are tied to their place of employment.

Disease, epidemics, and pandemics: Illness, disease, and death are more commonly experienced as an idiosyncratic shock. Prolonged illnesses are particularly serious if the infirmed is an income earner. Prolonged illnesses such as AIDS are also associated with heavy drains on

household resources, both financially and in terms of time. A death entails not only burial expenses but also significant additional expenses in the form of accommodations and food for the bereaved family and friends who pay their respects. Relatives and sometimes the broader community have to bear the costs associated with orphans. Moser's study of urban Zambia, Philippines, Ecuador, and Hungary and two other surveys of Zimbabwean urban households found that illness is a common, and in some instances the primary, income shock experienced by urban households (Moser, 1996; Matshalaga, 1996; and Mutangadura and Makaudze, 1999).

Some scholars claim that in Sub-Saharan Africa infectious disease epidemics such as malaria and HIV/AIDS now cause higher levels of mortality than natural disasters (Lyerly, 1996). In fact, after conflict, AIDS is one of the principal causes of child-headed households, and child-headed households are among the very poorest and most food insecure. UNDP (1999) reports that one in four sexually active Zimbabweans are HIV positive. The similar figure for Zambia is one in five (UNICEF, 1999). In a number of countries, life expectancies are declining as well. For example in Zimbabwe the life expectancy has dropped from 60 in 1991 to 49 in 1994. While the deaths resulting from malaria are more common in rural areas, AIDS deaths are generally more common in cities. The incidence of disease frequently follows seasonal weather patterns. Epidemics and pandemics can be considered covariant shocks because a large number of households are directly or indirectly affected.

Divorce or separation: Divorce and separation act as idiosyncratic shocks since they do not occur on a wide scale. Women are more seriously affected by divorce and separation than men because they are often dependent on men to earn a significant share of the household income, and they usually continue caring for the children once the couple has separated.

Crime: Crime acts as a food security shock when urban households are subjected to income and asset losses due to thief and vandalism. In this case crime is an idiosyncratic shock. When riots erupt or gangs take control of wards, crime becomes a covariant shock.

General economic and social decline: Cities are more prone to social deterioration than rural areas. During periods of economic decline, there is more crime, domestic conflicts, and other deviant behavior. Usually, it's men who exhibit these behaviors, but in some instances women do as well. Moser (1996) found that drinking and domestic violence intensified economic decline and despair. When constrained household budgets are squandered on alcohol and other vices, this creates an environment of crisis, trauma, and constant interference with normal daily routines that compromises women and children's health and ability to work and function effectively. While the socioeconomic decline is general (covariant), the crises are generally experienced on the individual household level (idiosyncratic).

Conflict and large population influxes: Conflict frequently inhibits movement and trade, elevating prices and depressing incomes. During conflict, internally displaced persons (IDPs) tend to flee rural areas and flock to urban centers. Resultant pressures on local infrastructure (e.g., water and sanitation), resources (e.g., land and fuelwood), and prices are experienced by the whole community and hence are covariant.

During conflict, many households will absorb dislocated family and friends or send emergency remittances. Many of these new household members will not be able to contribute to the household's income and will inadvertently act as yet another drain on household income. Stress resulting from the absorption of new household members is an idiosyncratic shock.

Natural disasters: Natural disasters are usually covariant shocks. Earthquakes, heavy rains, mudslides, and flooding destroy whole markets and blocks of houses that are constructed from weak materials or precariously situated. Outbreaks of infectious disease are common with heavy rains, flooding, and sewage overflows.

3.3. Urban Coping Mechanisms:

Coping mechanisms or strategies are fallback mechanisms to adjust to short-term insufficiency of food. Reducing the size of a meal, skipping a meal, or selling a household item are common examples. Coping mechanism can be expressed as unique or specialized behaviors exhibited only during times of stress, or as an intensification of normal behaviors. They vary from household to household, region to region, and also change over time. Coping mechanisms express a household's resilience to food security shocks. Consequently, they play an important role in reducing household vulnerability to food insecurity because vulnerability is comprised not only of the likelihood, extent, and magnitude of a food security shock, but also of the household's ability to manage the shock. In fact, Moser (1996) envisions households as "shock absorbers" that reduce the vulnerability of the individual members who join or form part of them. In some cases, households can restructure from a small nuclear family to a large extended family, adding new members when resources are plentiful and sloughing off members when resources become constrained (Maxwell, 1995; Akindès, 1999; and Smit, 1998). Increasingly, however, households are called upon to absorb a rapidly growing number of orphaned or abandoned children, mostly extended family members.

As part of their study of food security in Zimbabwean cities, Mutangadura and Makaudze (1999) presented a well-organized grouping of coping strategies according to the type of shock or constraint that the strategy aims to overcome. A slightly modified version of their model that incorporates other findings from the literature is presented on Table 5.

Watt's (1983) household model of response underlies FEWS's rural CVA approach and is also valid for urban settings with some minor modifications. Figure 1 presents the Watt household response model[6]. It illustrates how donor responses, levels of vulnerability, and coping strategies correspond. Households coping strategies are shown to be progressive, increasing in severity from short-term reversible coping behaviors, to divestment of non-productive assets, to divestment of productive assets. The final stage is outmigration or disintegration of the household. The FEWS CVA Guidance Manual (see references) contains Figure 1 and a more detailed summary of the model. Figure 2 presents the model adapted for urban settings. The order and severity of coping mechanisms were chosen to reflect common findings in the

[6] Watts, MJ. (1983). "Silent Violence: Food, Famine, and Peasantry in Northern Nigeria." Berkeley, University of California Press.

literature. They are not fixed for all urban populations, and still subject to debate. This figure is only meant to illustrate how the rural model can be adapted to an urban setting.

Table 5: Coping Strategies that Compensate for Food Price, Income, and Labor Shocks

Type of Shock		
Rise in food prices: maintain food consumption	**Loss of income: raise or supplement income**	**Loss of labor: Extend or increase labor**
Substitute with cheaper commodities (porridge instead of bread)	Diversify income	Reallocate intra-household labor
Substitute with poorer quality (broken rice for whole rice)	Reduce non-essential expenditures, walk to work	Work extra hours
Reduce consumption of the item	Initiate or expand home-based employment	Initiate or expand home-based employment
Replace food item with indigenous/wild vegetable	Send the women and children to work	Take on extra work or employment
Send children or others to live with others	Use of savings	Change job to earn more or gain more time
Protect/buffer one member's consumption by reducing consumption by another	Acquire loans from relatives	Use labor in gardening or agriculture production to reduce need for cash income
Have small family	Sell non-productive assets	Send the non-working members to work
Arrange bulk purchasing of food with several other households to reduce household costs	Sell of productive assets	Send children to work
Increase consumption of street food	Migrate in search of new jobs	Request remittances from relatives
Grow own food	Acquire loans from informal money lenders and banks	Have relatives come and help
Beg	Beg	Send children to relatives
Steal	Engage in corruption	Withdraw children from school to assist with workload and save money
	Commit crime	Form new household or combine household with another
Adapted from UNAIDS, 1999; Mutangadura and Makaudze, 1999; and finding of other studies listed in references		

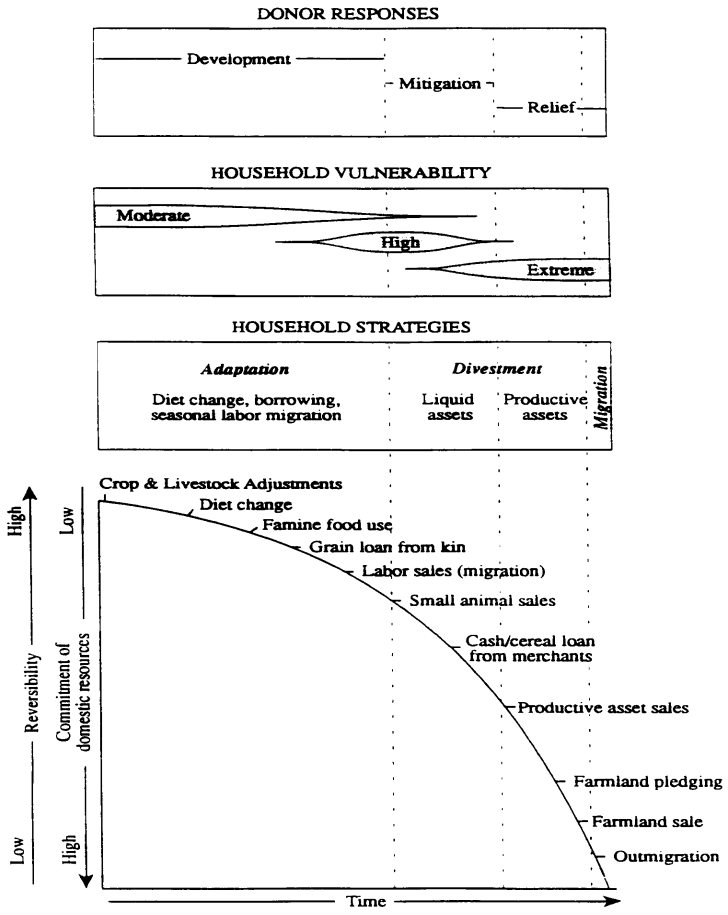
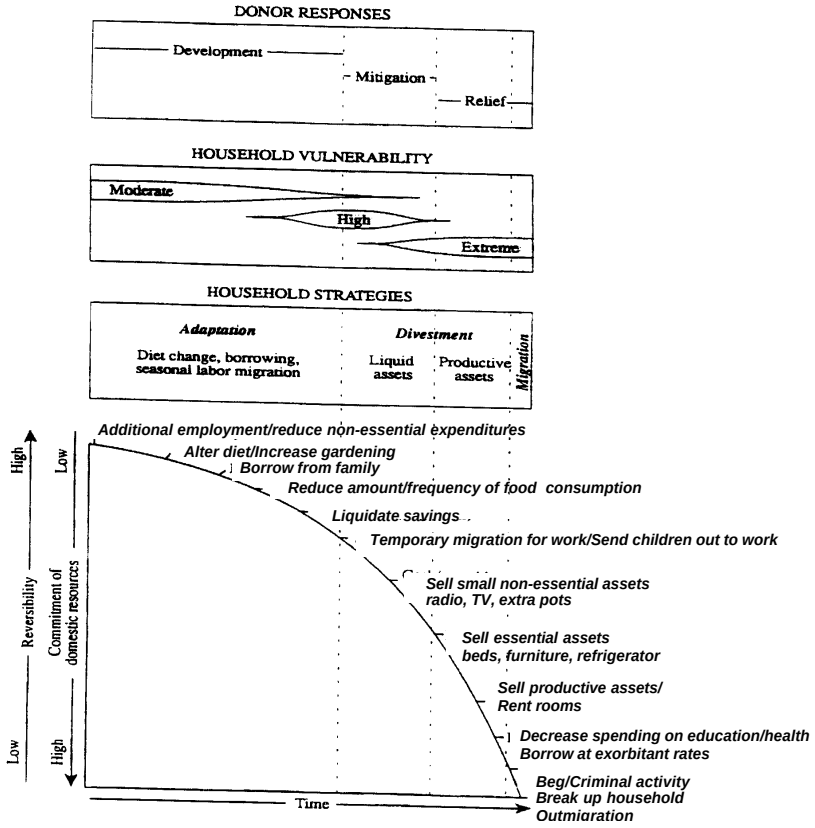


Figure 1: Watt's[7] Model of Household Response, Rural Households

[7] Watts, MJ. (1983). "Silent Violence: Food, Famine, and Peasantry in Northern Nigeria." Berkeley, University of California Press.

Figure 2: Watt's Model of Household Response, Adapted for Urban Households



Changes in household consumption patterns are some of the most common coping mechanisms for both urban and rural households. These changes are readily reversible and generally considered less severe in the short run. They include altering the composition of meals by reducing the amount of sauce, meat, or dairy products while maintaining the amount of starch; substituting a cheaper starch for a more expensive one; keeping recipes the same but buying poorer quality cheaper ingredients; reducing the size or frequency of meals; and redistributing (rationing) food among household members. All of these measures can be applied to some household members, while protecting the food consumption of other more privileged members – children or the major breadwinner. Women frequently compromise their own nutrition in order to buffer their children from hunger. Some households reduce the number of people present at meals or avoid cooking so as not to attract free-loading visitors and neighbors. Switching to street food can cut costs, free up labor used in domestic food preparation tasks for greater involvement income-earning activities, and avoid free-loaders. Maxwell (1995) notes that limiting the portion size of a meal was one of the most common coping strategies reported and is usually not considered severe. Skipping meals altogether is considered more severe.

Where land and space is available, households reduce their purchases of food and cultivate home gardens and other city plots. At the same time as they are altering dietary patterns, they reduce non-essential non-food expenses. Some households resort to scavenging as a means to reduce costs.

If food insecurity persists, households have to adopt other more costly and less reversible strategies. Urban households liquidate savings, borrow from relatives, and sell small household items (e.g., radio, extra pots, or clothes). Working members of the household look for second, third, and even sixth jobs. Common informal activities include petty trade, selling home-cooked foods, working as a security guard in the evenings, etc. Women enter the labor market where they hadn't been before, and many start their own small-scale businesses. Young girls are removed from school in order to take on household chores that their mothers can no longer manage because they are working longer hours. Parents are forced to send their children out to find employment. Households that own their homes can rent out rooms.

As the food security situation deteriorates, households divest of larger consumer items (e.g., bicycles, appliances or furniture) and even productive assets. Desperate, households borrow at extremely high interest rates from moneylenders and formal credit agencies. They send members of the household to live with relatives or friends, and take children out of school. Some individuals ultimately resort to corruption, crime and prostitution, and some abandon the other household members.

Mutangadura and Makaudze's (1999) study of urban areas in Zimbabwe includes a chart of coping strategies ordered by increasing severity, which they refer to as the "Stages of Loss Management Chart." Table 6 mirrors the basic layout of that chart, but is generalized to include the findings from a large number of urban studies. This is another way of viewing the information contained on figure 2.

Duration distinguishes adaptive strategies from coping strategies. The former are long-term or permanent changes in the way a household or its individual members acquire adequate food or

income such as outmigration or new business initiatives. An example of an adaptive strategy can be drawn from Zambian mineworkers in Copperbelt Province who face

Table 6: Urban Coping Strategies Ranked According to Severity

Stage	Coping Mechanisms
Reversible mechanisms, disposal of non-productive assets, and cuts in consumption	1. Seek additional employment opportunities 2. Initiate new self-employment activity 3. Send women to work who normally don't work (reduce dependency ratio) 4. Sell non-productive household items such as radio, TV, extra pots 5. Initiate urban agriculture or switch to production of low-maintenance food crops in home gardens or urban plots 6. Initiate or expand home-based employment 7. Reduce non-essential expenditures 8. Switch from modern to traditional medicine 9. Liquidate saving accounts or stores of value (livestock, jewelry) 10. Tap into obligations from extended family 11. Borrow (family, friends, or informal lenders) 12. Reduce consumption (size and frequency of meals) 13. Change the composition of meals (more lower-quality cheaper foods) 14. Consume less balanced, less diverse meals 15. Young men begin to disassociate from household (reduce dependency ratio)
Disposal of productive assets, and deeper cuts in consumption	1. Sell livestock 2. Sell productive assets such as land, equipment, tools 3. Rent out rooms 4. Borrow at exorbitant rates 5. Further reduce consumption, education, health 6. Decrease spending on education, withdraw children from school 7. Send children out to work (reduce dependency ratio) 8. Send children to live with relatives (reduce dependency ratio) 9. Scavenging 10. Temporary migration to find paid work 11. Apply to formal assistance programs 12. Corruption
Destitution	1. Depend on charity 2. Break up household 3. Distress migration 4. Criminal activity
Adapted from Donahue, 1998; Mutangadura and Makaudze, 1999; and findings from studies in reference list	

retrenchment and prolonged layoffs from the mines, the region's major employer. They are increasingly seeking land for cultivation in surrounding areas. In general, these minors do not want to return to their place of origin and be reunited with their extended families, but rather remain closer to urban centers and reap the benefits of greater access to services, education, and markets (Hansungule, Feeney, and Palmer, 1998). This lifestyle change is considered an adaptive strategy.

3.4 The Role of Shocks and Coping Mechanism in Vulnerability Assessments and Monitoring:

Identifying shocks and coping strategies in the process of conducting a vulnerability assessment is extremely helpful in that these strategies flag illustrative and practical monitoring indicators and thus act as a link between food security assessment and monitoring activities. Determining the relationship between food security shocks and household coping strategies is at the heart of early warning activities. Shocks expose households to the risk of becoming food insecure. They make households more vulnerable to food insecurity. Some shocks are acute – bulldozing petty market stalls, mudslides, and most idiosyncratic shocks, providing little advanced warning. Other shocks are slower or more cumulative – galloping inflation – and the food security effects can be anticipated farther in advance.

Households employ coping strategies in an attempt to mitigate some or all of the potential negative effects of the shock. Recourse to coping strategies is a signal that a shock has occurred. On the one hand, coping strategies are behaviors that mitigate or reduce food insecurity in the short run (Moser, 1996). On the other hand, exhibiting coping strategies indicates that household food security was and may still be threatened, depending on the effectiveness of the coping strategies. Engaging in petty trade to earn extra income for food is clearly a coping strategy that reduces food insecurity in the short run and even in the long run if the behavior does not compromise the health of the household member bearing the extra work burden. In contrast, skipping meals signals a household-level food deficit and continuing food insecurity, even if those who are consuming less successfully buffer other household members, e.g., mothers often reduce their food intake so that their children can consume more.

Tracking indicators derived from less-severe coping strategies provides a barometer of changing food security conditions. Knowing how households are apt to respond to shocks offers valuable insights on appropriate prevention, mitigation, and relief interventions. Although some coping strategies generate secondary private costs (e.g., hunger through skipping or reducing meals) or social costs (e.g., over harvesting fuelwood) and should, therefore, not be reinforced or promoted but rather discouraged or replaced with less destructive alternatives, most coping strategies signal excellent policy intervention focal points. FEWS has considerable knowledge and experience with coping strategies of rural households. However, determining which coping strategies are most important to urban populations is a critical step in expanding FEWS's mandate to assess and monitor the food security status of urban populations.

4. Assessment Approaches:

This section gives a brief overview of several of the main approaches to assessing urban food security, poverty and vulnerability. This section is not meant to be exhaustive, but rather illustrative.

4.1. Status of Urban Food Security Assessments and Monitoring in Africa:

While poverty and food insecurity are actually two different states or conditions (Lipton and Maxwell, 1992 and Ndung'u and Maxwell, October 1999), they are closely linked and one often implies the other. Bodies of knowledge and research on poverty and food insecurity are mutually reinforcing and overlap considerably. The collective body of literature is extensive, but heavily focused on rural areas. This is particularly true for work on food security. The International Food Policy Research Institute (IFPRI) has a long history of studying factors that underlie household food insecurity as well as the influence of government policies and programs on food consumption patterns and nutrition. More recently, the Institute has become involved in reviewing and validating the effectiveness of various income and food security measures. Michigan State University (MSU) has also experimented with alternative income measures (Rose and Tschirley, 2000) in an effort to assist USAID Missions and USAID-funded NGOs in monitoring the outcomes of rural-based Title-II projects. In the 1980s, CARE pioneered work in household livelihood studies (HLS) that other NGOs, and the Bureau of Applied Research in Anthropology (BARA) at University of Arizona later adopted and modified. Save the Children Fund/UK developed a systematic method and computer software program (RiskMap Programme) that classifies populations according to food economy groups, establishing baseline conditions or norms for each group, and tracking deviations from these norms as a basis of determining household food security status. This approach incorporates both food availability and access. The Food Economy Group (FEG), which broke with Save/UK, also uses this method. All of these efforts have to one degree or another added to the general body of knowledge of rural food security issues and most have pushed the analysis of rural economies beyond agricultural production, but they have maintained a strong rural focus.

4.1.1. Shifting to Urban Environments:

The newer body of work on urban poverty, living conditions, and food security includes characterizations of poor and food-insecure households, identification of household coping strategies, and qualification and enumeration of the poor. Monitoring urban food security is still a relatively new and unexplored area. The application of early warning to urban settings is even less evolved. In fact, the logic and value in applying early warning tools to an urban context is still under review.

IFPRI researchers are increasingly taking an interest in urban populations with their work on urban gardening (Maxwell, et al, 1996, 1996a, 1997, and 1998) and comparative studies of urban and rural food security in Mozambique (Garrett and Ruel, 1999; and Haddad, et al, 1999). CARE is becoming known for its growing experience in urban food security and application of its HLS approach to urban settings. BARA, with support from the National Science Foundation, has begun an effort to create Internet accessible food security and natural resource baseline data sets for urban areas in six African countries: Botswana, Tanzania, Mali, Niger, Senegal, and Morocco. Remote sensing information is used in developing a sampling frame and for assessing changes in ground cover (e.g., deforestation, urban sprawl, etc). The BARA's database will cover three major areas: livelihoods strategies, including informal employment; resource use; and the access to credit and formal assistance.

Consumption-based measures of poverty and food insecurity: In urban contexts, poverty studies, which are largely concerned with constructing consumption-based poverty lines and enumerating the poor, have a longer history than food security studies[8]. The World Bank (WB) has conducted poverty profiles and assessments and Living Standards Measurement Surveys (LSMS) in a series of countries, principally in an attempt to identify and map the household-level income effects of policy reforms and structural adjustment programs (Wratten, 1995). Although not limited to one standard assessment method, the World Food Program (WFP) has used this consumption-based approach in conducting vulnerability assessments or what it refers to as Vulnerability Assessment and Mapping (VAM). Major criticisms of assessments that depend on income or consumption-based poverty lines are that they use a single "money-metric" indicator of poverty or food insecurity, they are weak in identifying underlying causes, and they fail to account for sociopolitical dimensions of resource access (Hammer, Pyatt, and White, 1999).

Using Informal and Qualitative Measures: More recent assessments have adopted less-formal and more-rapid research techniques. A number of approaches combine two or more methods such as community resource mapping with application of a formal questionnaire. Garrett and Downen (2000) point out that quantitative tools can measure the severity of food insecurity using specific indicators such as nutritional status while qualitative tools allow for exploration of behaviors, coping strategies, and priorities. Beebe (1995) recommends triangulation[9] of research techniques, and an iterative process between surveying and analysis. These approaches place more emphasis on the factors contributing to poverty, household behaviors, and risks.

Recently, some researchers have begun to apply mixed methods to the study of poverty and food security in urban areas. A number of WFP VAMs use informal and semi-structured interviews in purposively selected wards of a city (WFP, various). Mutangadura and Makaudze (1999) used key informant, community participation, focus groups, and formal survey techniques in their study of food security and vulnerability in urban centers in Zimbabwe. As a result, their findings are rich with descriptive information on food security factors and shocks as well as household coping strategies and community sociopolitical dynamics.

National Food Security Measure: For more than a decade, the Food and Nutrition Service (FNS) of United States Department of Agriculture (USDA) has been supporting the development and refinement of a National Food Security Measure (NFSM) that is now included in the US census. The NFSM measures a household's perception of its food security status. Several scholars, mostly nutritionists and anthropologists, have attempted to apply this measure to targeted poor and disadvantaged populations such as inner-city residents of Hartford, Connecticut, (personal interview with Hemmelgreen), Appalachians and rural Zimbabweans (personal interview with Holben), Samoans residing in Hawaii, and Canadian Inuits (personal interview with Bickel). Proposals for two separate pilot studies on the application of NFSM to USAID performance monitoring are currently being drafted (personal interview with Swindale). Several of these

[8] One example of a consumption-based approach is to calculate the income required in order to purchase a predetermined minimum food consumption requirement (calories per day per adult equivalent) times the average number of adult equivalents in a household. Then, calculate the share of the total budget available for food purchases by subtracting an estimate of the non-food budget share from the total budget share (e.g., 100 – 30 = 60). Using the monetary and percentage values for consumption, convert the total income share (100 percent) into monetary equivalents. This becomes the poverty line.

[9] Covering the same issue or set of questions, multiple research techniques or interviewing multiple respondents provide a mechanism for cross checking and convergence of findings.

applications of the NFSM constitute only one part of a broader study into the causes and outcomes of household food insecurity, but the NFSM alone is strictly a subjective measure of a household's perception of hunger. It does not provide insights into the causes of food insecurity, or household strategies and choices of coping mechanisms.

Food, Health and Nutrition Information System (FHANIS): Zambia's Food Health and Nutrition Information System (FHANIS) covers 10 cities or major towns[10], all along the rail line. It is comprised of formal and informal survey techniques. The survey is conducted every six months – at harvest and during the hungry season. First, a formal household questionnaire is applied to a stratified sample of approximately 1,300 households with assistance from NGOs and community-based organizations working in the study areas. Second, informal or participatory methods are employed at the community level to determine the availability of key services. Key informant and group interviews are conducted to determine common livelihood strategies and coping mechanisms and to establish a community-defined wealth classification and ranking scheme. Third, secondary health and price data are collected from health clinics and local markets, respectively. For each application of the survey, a report containing summary tables of data and a limited discussion of the results is produced. Results of the survey are also shared with participating communities. The monitoring process is relatively rapid, taking one to two months from data collection to dissemination of results.

The system provides information for technical discussions among the staff of various food-security related governmental and non-governmental agencies that result in the drafting of recommendations to a Steering Committee comprised of policy makers and high-ranking officials from within the government and the international community (United Nations agencies, donors, and NGOs). In this way, FHANIS is a tool for action.

Food Security and Nutrition Profiles: Mozambique's Food Security and Nutrition Profiles were first applied to rural areas. Recently coverage was expanded to urban centers and methods were revised borrowing from the experience of FHANIS. The profiles rely on triangulation of several research methods including secondary data, key informant and group interviews, focus groups, and simple formal household questionnaires. The intention is for the profiles to feed directly into policy analysis and program planning and implementation.

Asset Vulnerability Framework: Poverty work of the WB has also broadened to include more informal, participatory, and multi-pronged approaches to studying urban poverty and food insecurity. While there has been a surge in WB staff applications of participatory methods, the most relevant and highly developed method is Moser's Asset Vulnerability Framework. Moser developed this method to assess urban household vulnerability, response, and policy prescription (1998). The idea underlying her framework is that households and their respective communities have categories of assets – labor, housing, social and economic infrastructure, interhousehold relationships, and social capital – and each asset category is vulnerable to shocks that will elicit a certain set of household and community coping strategies. These strategies can serve as indicators of vulnerability. In turn, the source of vulnerability implies a set of appropriate policy prescriptions.

[10] Livingstone, Lusaka, Kabwe, Ndola, Kitwe, Luanshya, Chingola, Mufulira, Chililabobwe, and Kalulushi.

The Asset Vulnerability Framework relies on a mix of qualitative and quantitative methods. Moser (1996) used rapid appraisals coupled with formal questionnaires in her study of poverty in four cities, one in Zambia, Ecuador, Philippines, and Hungary. She used a two-stage method: the first was contextual and second was based on formal surveys of the community, a sample of households, and a subsample of households with more detailed questions on perceptions. Using the results of her research, Moser created several matrices charting out basic shocks, indicators, and policy options.

Cumulative Food Security Index: Maxwell (1995) used an index of coping strategies as a indicator of household food insecurity. Focus groups revealed a set of typical local coping strategies along with an agreed upon severity ranking scheme that was worked into a formal questionnaire and then administered to a random sample of the target population. In his study, the coping strategies were all consumption based – altering the quality and amount of the diet. Compared to standard methods based on income and consumption data, the index method is less expensive, less time consuming, and less dependent on sensitive household information such as income, consumption, or expenditures. The index can be easily combined with other standard food security and nutrition indicators as well as rapid appraisal methods to gain a more indepth understanding of household behaviors and their consequences on nutritional status as well as to provide a cross check of the results.

CARE's Household Livelihood Security Assessments: In 1994, CARE adopted the Household Livelihood Security (HLS) approach as its basic framework for program design, analysis, and monitoring and evaluation (M&E). The HLS approach was not designed to explain the causes of food insecurity or predict household behaviors. Rather, it acknowledges the three elements of household food security – availability, access, and utilization – and emphasizes the interdependency of factors contributing to food security and achievement of good nutritional status. The aim in conducting a Household Livelihood Assessment (HLA) is to identify avenues of assistance and key interventions as well as appropriate indicators for effective M&E. Although HLS was originally developed for rural contexts, it is used in urban environments as well.

While the underlying HLS conceptual framework is unchanging across countries or programs, the implementation of HLAs varies considerably. Some assessments are highly qualitative (Bangladesh) using a combination of key informants, focus groups, and group interviews (Drinkwater and Rusinow, 1999). This type of HLA tends to reveal indepth knowledge of local conditions and participant behaviors, but is not necessarily representative of the broader target community. Other HLA methods are more quantitative (Tanzania) and rely on the application of formal questionnaires, but not to the exclusion of informal techniques. While this type of HLA tends to be more representative, it is also more costly and usually less rich in household behavioral information. IFPRI and CARE have recently been collaborating on food security research and developing monitoring and evaluation methods.

Community-Based Assessment: On the other extreme from formal household surveys is Bart's (1994) community-based approach. He claims that urban vulnerability is best gauged according to community-level characteristics including rates of malnutrition, access to services, income opportunities, food availability, institutional capacity, and common livelihood threats and

shocks. Community-based assessments employ community profiles and resource mapping, group and key informant interviews, and secondary data. Nurick and Johnson (1998) used participatory methods and community mapping to derive community ranked indicators of the quality of life within the community. Often, community or ward-level data is available, and if not, easier and less costly to collect than household-level data.

UNDP's Participatory Assessment and Planning Sustainable Livelihood (PAPSL) is another community-based approach. The aim of PAPSL is to develop community profiles and empower constituents through a participatory process of drafting policy priorities and community action plans. Qualitative community-level characteristics (indicators) are used to gain insights on local livelihood strategies and to help guide the process. Indicators include asset ownership, access to basic services, standard health and nutrition statistics, and categorical information on income and poverty. PAPAL relies on static measures and does not account for food security risks and hence vulnerability.

4.2. Lessons Learned for FEWS Field Staff:

This paper does not attempt to present a standard preferred approach to urban vulnerability assessments, but rather to raise and present the key issues that are essential to developing an approach. The capacity, commitment, cooperation, and resources of each FEWS country situation will dictate what approach is feasible and appropriate. In fact, for some countries with only a small portion of the total population residing in towns and urban areas, an urban VA would probably be unnecessary. Nevertheless, this review did uncover useful information on innovative and effective means of investigating food security and vulnerability in urban environments. The lessons learned are presented here in the form of a useful general approach to assessing urban vulnerability. This general approach represents a hybrid of the many that were reviewed.

4.2.1. An Overall Approach to Assessments and Monitoring:

Similar to rural CVAs, urban vulnerability assessments would be carried out by a group of collaborators. The number and range of collaborators will depend on local capacity and interest, and will not necessarily correspond to those involved in the rural CVA exercise. For example, FEWS, the National Early Warning Unit (NEWU), and WFP conduct the rural CVA in Zimbabwe, but a much larger group of representatives from local and international entities have expressed interest in collaborating on issues and programs related to urban poverty and food insecurity. Thus far, the NEWU and WFP are not among these collaborators.

Vulnerability mapping: It is best if the VA team starts with a review of available secondary data and literature on food security. This includes government reports, WB-supported poverty assessments and LSMS and LCMS survey outputs, university research findings, CARE's HLS and FEG food economy studies, if such information is available. WB, UNDP, IFPRI and universities have recently implemented surveys in a number of FEWS countries. It might be possible to retrieve from these data sets ward-level data on a whole series of food security

factors. If possible, the available data and other information should be mapped. The location of markets, water sources, and health clinics should be noted as well.

Urban centers are often segmented into communities or wards that can be characterized by the presence or absence of key food security factors (see section 3.1 for examples of food security factors). Informal settlements tend to have few basic services such as water, sanitation, and electricity, and the residents are often poorer and more transient than residents of other well-established wards within the city. Oftentimes, an urban center will have a ward where most residents are employed at a nearby factory, have access to land and cultivate gardens, or are exposed to extremely high incidences of crime. Spatially displaying this information helps identify these common characteristics and potentially vulnerable communities and groups with communities. This type of representation aids in exposing heterogeneity across wards and hence the need for ward-specific food security indicators or a wider array of indicators. It should be noted, however, that the focus on spatial characterizations should not mask important temporal influences where they exist.

As part of the mapping process, the VA team can also engage in exploratory discussions with key informants from ministries and public agencies; universities; WB; IFPRI; UN agencies; projects related to nutrition, poverty, and food security; and the broader community working on food security and related topics. Conducting informal interviews and discussions with local residents is also important. All of these discussions will help fine tune the team's knowledge. The vulnerability map can be used as a conduit for discussion among these various key informants. The VA team can also use the opportunity to acquire new data for, and get feedback on, the vulnerability map.

The overriding aim of developing the vulnerability map is to become more familiar with the food security issues particular to the urban area(s) selected for the assessment. For example, some cities are characterized by a single source of employment (mines), while others are more diverse. Some cities have large refugee and IDP populations who are often clustered into distinct communities or wards. The team will attempt to identify key factors that contribute to food insecurity, primary shocks, and common coping strategies. If sufficient information is available, the vulnerability map can serve as a baseline for future comparisons.

This first step (the vulnerability mapping) also allows for the identification of certain poorer, more vulnerable wards or groups of households within wards upon which the VA team could focus their monitoring activities and from which a purposive sample could be drawn if a formal survey is to be conducted. Purposive sampling can help limit costs – in terms of both money and time. Any logistical concerns related to the implementation of subsequent stages of the VA can also be addressed at this point.

The definition communities need not correspond to official administrative subdivisions (e.g., wards), but the creation of new VA-specific boundaries should only be undertaken with considerable thought and caution. Adherence to official subdivisions is more easily understood by policy makers, administrators, and other development workers. In addition, different sources of data are more apt to correspond to standard official boundaries. Whether the VA should use a classification according to community characteristics, food economy groups, or livelihood

strategies depends on what kind of data are available, who will use the information, and how it will be used, e.g., programming and targeting community or household-level assistance. This suggests that it may not be appropriate for FEWS to standardize one method for FEWS countries.

Depending on local interest and resources available, the VA exercise could terminate with the construction of the vulnerability map. FEWS does not usually undertake primary data collection other than direct observation during periodic field visits, although FEWS representatives provide technical assistance to others initiating primary research activities related to food security and early warning. FEWS representatives should be encouraged to take field trips inside the capital city or to other urban centers to familiarize themselves with the issues and keep their analysis grounded in reality.

Food Security Monitoring: The next step for a FEWS representative would be to help set up an urban food-security monitoring system. One way of conceptualizing urban food security and selecting appropriate indicators is to start with the basic three pillars of food security – availability, access, and utilization – identify variables related each pillar, and then determine sources of data to monitor those variables. This framework is summarized in Table 7.

The type of monitoring system depends on the resources (including data) available and local interest. If resources are plentiful, it may be possible to implement a price or other indicator data collection system, regular rapid appraisal mechanism, or formal household survey. It could even be possible to set up a system like FHANIS of Zambia or the Food Security and Nutrition Profiles of Mozambique. Although FEWS does not undertake primary data

Table 7. Food Security Monitoring Conceptual Framework:

Pillars of Food Security		
Availability/Sources of Supply	**Access/Income**	**Utilization**

1. Commercial flows from rural areas
2. Net imports
3. Informal flows from rural areas
4. Urban gardening
  a. For home consumption
  b. For the market
5. Policies/regulations effecting food supply
	1. Sources of employment
	  a. Primary sources
	  b. Additional sources
	2. Reliability of employment
	  a. Full or part time
	  b. Seasonality
	3. Food costs
	4. Essential non-food costs
	  a. Consumption
	  b. Own business
	5. Policies/regulations effecting access
		1. Access to water
		2. Access to sanitation
		3. Access to health facilities
		4. Exposure to contaminants
		5. Epidemics and pandemics
		6. Policies/regulations effecting food utilization

collection, FEWS representatives can provide guidance in the types of questions to include in a questionnaire that would effectively capture changes in key income sources and the intensification or moderation of local coping strategies. The discussion below assumes that resources will be limited and there will be no primary data collection, which is probably the most likely scenario for most FEWS countries. Under this scenario, sources of regular secondary data will need to be identified. Table 8 includes a list of possible indicators and likely sources of accompanying data.

In most cases, monitoring coping strategies such as those including on Tables 5 and 6 requires primary data collection. This is not the case for food security shocks, although data available will vary considerably from country to country, and urban center to urban center. For this reason, indicators presented on Table 8 correspond largely to food security shocks. Also, these indicators provide more advanced warning than indicators based on coping strategies, at least more severe coping strategies. However, shocks alone provide little information on entry points for contingency planning, migration strategies and assistance.

Monitoring will be dependent on secondary sources of data. Although many of the sources of urban data will be different from those with rural data, not all sources will be mutually exclusive, e.g., the Ministry of Agriculture (MOA) often collects food prices in urban as well as rural markets. But, a FEWS representative is bound to need to make many new contacts.

Table 8: Indicators and Sources of Data for Monitoring Food Security Shocks

Type of Shock	Indicator Data	Possible Sources of Data
Macroeconomic Environment		
Devaluation	Exchange rate	Ministry of Planning, Finance, or Trade; central bank; IMF, WB
Economic environment	Exchange rate, interest rates, important macro policy concerning trade, prices, labor, tenure	Ministry of Planning, Finance, Trade, Commerce, or Labor; central bank; IMF, WB; trade unions and associations.
Inflation, cost of living	CPI	Ministry of Commerce, Finance, or Planning; Central Statistics Office; IMF; WB
	Food prices (including livestock and fish), in markets and supermarkets, CPI for specific commodity groups, prices in markets located in more food insecure wards	Ministry of Agriculture or Commerce, Agricultural Market Information System (AMIS), Central Statistics Office, commodity exchange
	Prices for significant non-food items (fuel, transportation, etc), CPI for specific commodity group	Ministry of Commerce, Finance, Planning, Transportation, or Public Works; Central Statistical Office; IMF; World Bank
	Rents (houses, apartments)	Ministry of Housing, Social Services or Commerce, Central Statistical Office
	School fees, school enrollments	Ministry of Education; WB; UNDP; UNICEF
	Utility rates (water, sewage, electricity), CPI for specific cost group	Ministry of Public Works, or Water and Sanitation, power company, local government councils
	Wage/income to key price comparisons	Ministry of Agriculture or Commerce, Agricultural Market Information System (AMIS), Central Statistics Office, commodity exchange; Ministry of Commerce or Labor, trade unions, ILO, UNDP, surveys
Employment	Formal (un)employment figures	Ministry of Commerce or Labor, Trade Unions, ILO, UNDP
	Informal employment	Ministry of Commerce, market association or union; surveys
	Proportion of full- verses part-time employment	Ministry of Commerce, market association or union; surveys
	Major industry income, output, commodity prices	Ministry of Commerce or Trade; trade association; IMF; WB
Socio-political environment	Number of people living on the streets, social disruptions, crime rates, demonstrations, riots	Ministry of Social Welfare or Justice; police; Embassies; newspapers
Microeconomic Environment		
Small business income	Rents (shop space, market stales)	Ministry of Commerce
	Major input prices	Ministry of Commerce, Central Statistics Office
	License fees	Ministry of Commerce, trade organizations
	Market stall fees	Ministry of Commerce, trade organizations
Policy and regulations related to commerce	Changes in policy and regulations that affect business and trade	Universities; economics institutes; IMF; WB

continued next page ->

Type of Shock	Indicator Data	Possible Sources of Data
<- continued from previous page		
Income/wealth	Wage rate	Ministry of Commerce or Labor, trade unions, ILO, UNDP, surveys
	Asset sales (TV, ratio, bicycle, furniture, and appliances)	Central Statistics Office; WB; survey
	Type of housing/roofing	Remote sensing
	Requests for formal assistance, enrollment in formal assistance programs (free food, school lunch, FFW, CFW, etc)	Ministry of Social Welfare; NGOs
	Urban agricultural production	Central Statistics Office; Ministry of Agriculture; university; seed and input suppliers; remote sensing
	Consumption loans	Informal credit societies; banks; NGOs
	Food flows from rural relatives	Ministry of Agriculture or Commerce, surveys
Personal stress	Divorce rates, numbers of orphans, homelessness	Ministry of Social Welfare or Justice; women's groups; community and religious centers
Health		
Formal social services	Decrease in government spending on health services, number and distribution of services or centers	National budget, Ministry of Finance Planning, or Health, nurses or doctors association
Epidemic, contamination, pollution	Incidence disease, wasting, relevant deficiencies or other health related conditions	Ministry of Health, WFP, UNICEF, NGOs, community clinics, specialized programs (Vitamin A and other health campaigns)
HIV/AIDS	Rates of infection, rates of death in sexually active age group, numbers of orphans	Ministry of Health, UNICEF, UNAIDS, NGOs, local AIDS program

4.2.2. Issues in Implementation and Indicator Selection:

This section highlights some basic observations and lessons learned through this review of poverty, food security, and vulnerability assessment and monitoring tools. The intention is to provide FEWS representatives with some suggestions of what to consider when they begin to include urban areas in their assessments, monitoring, and reporting.

Frequency of vulnerability assessments: Unlike the rural CVA, it is not always necessary to conduct an urban vulnerability assessment every year. Largely because agriculture-based rural economies are dominated by lumpy earnings (i.e., harvests) and the influence of weather and hydrological conditions, the rural CVA focuses on transient or seasonal food insecurity, not chronic food insecurity or poverty issues. In contrast, income is more regular and seasonal factors usually play a smaller role in determining urban food security. Consequently, the value derived from conducting distinct chronic and short-run or current assessments for urban areas is limited. Of course, if the economy of an urban center is dominated by agriculture or some other seasonal phenomena, more frequent assessments may be necessary. Another instance where more frequent monitoring or assessments are necessary is when urban-rural linkages are strong. The recommended frequency of an urban VA is a function of the rate of political and macroeconomic

change such as growth, inflation, or transition from a planned to market-based economy or from war to peace.

Frequency of reporting: The FEWS representative will need to decide how often to collect or assemble data on the selected indicators. Some indicators are nearly static (access to basic services) and may be collected only every few years. Others may change infrequently such as minimum wages and will only need to be updated periodically, i.e., when wage policies are adjusted. Still other indicators change rapidly (food prices) and should be collected regularly, e.g., monthly.

Level of reporting: The level of reporting will depend on the type of indicator and on data availability as well as how the information will be utilized. For a baseline vulnerability map, ward-level (administrative level 3) data are sufficient. In a sense, the ward replaces the rural district or administrative unit used in CVAs. If there are important distinct communities or vulnerable groups within a ward, more disaggregated data may be warranted.

Triggering indicators or thresholds: Trigger indicators or indicator threshold values signal the need for a more detailed food needs assessment of the city or specific wards. Most likely candidates for trigger indicators would be community health statistics such as incidence of wasting (weight for height) among infants or children under five years of age. Stunting (height for age) is an indicator of chronic malnutrition and is more useful in characterizing wards for the VA exercise rather than for ongoing monitoring activities. Several individuals working on poverty and food security issues in Harare suggested tracking the school truancy rates because children who went without food tended to be absent from school. Threshold values reflect the seriousness of a food security shock and signal situations that household will likely find unmanageable – very high rates of unemployment, a drastic rapid increases in food prices, or a sudden rise in indicators of malnutrition among children.

Income/employment indicators: Both income and employment are common indicators of food security, but income indicators are difficult to define and measure. Both have to be interrupted with care. Individuals are reluctant to disclose information about their employment and income. Many poor households that live from day to day do not know their total household income. Official measures of household employment are notoriously inaccurate. Employment is poorly defined, and often in terms that do not correspond to local conditions, e.g. only a small portion of urban dwellers can describe themselves as salaried and even wage laborers. Informal employment is normally not counted in official employment statistics. These statistics frequently miss seasonal, part-time, temporary employment, and underemployment. Another problem is that some income-earning activities such as petty trade can be full-time steady businesses for some households but periodic coping strategies for others. In general, unless it is possible to determine the type, frequency, and the intent of income-earning activity and link this with food security, income measures should be avoided or used with extreme caution and always paired with other corroborating indicators. Arriving at this type of information may only be possible through formal or informal interviews.

Price indicators: The selection of price indicators should reflect the expenditure pattern of poor food-insecure households or those vulnerable to food insecurity. The set of price indicators should almost always include the basic grain price or staple food of the potentially food insecure population, e.g., maize for Southern Africa and rice for West Africa. This is sometimes referred to as a "dominant food source indicator." Food expenditures normally represent the largest share of poorer urban households' budgets. Demand for basic grains tends to be inelastic – changing little with increases in prices – but as the budget share swells, expenditures on other important foods such as vegetables and meat contract. Consequently, grain prices often gauge the quality of the diet rather than the volume of grain consumed.

Basic grain prices are usually readily available from the Ministry of Agriculture or the local agricultural marketing information system. In most urban areas, there is a small manageable number of wholesale markets through which nearly all of the grain sold within the city enters the urban marketing systems. If retail prices are relatively constant throughout the city, there is no need to collect prices from small retail markets or stands. Conversely, if there is considerable variation in retail food prices across wards, prices will need to be collected from more markets or retail stalls.

Commodity prices have different consequences for different households. It should not automatically be assumed that as food prices rise, urban food access declines. Households without urban agricultural plots are forced to absorb the price rise. Households with subsistence plots are partly buffered from price rises through their own production. In Harare, it is not unusual to find urban agricultural households that produce as much as 6 months of their own grain requirement. Finally, urban households that produce for the market can actually gain income from a price increase and improve their food security. The VA can help clarify which scenario holds for each group.

Because urban diets are varied, it is advisable to monitor a set of food prices rather than just the primary grain price. Some reasonable choices are alternative grains or bread, vegetables that are common ingredients in local sauces, chicken or fish that form the basic source of protein, and breakfast foods.

Nonfood items can be monitored as well. School fees, housing costs, water fees, energy (fuelwood, gas, or paraffin) prices all represent important expenditure items. Most of these fees and prices are available from a combination of ministries, agencies, or commercial sources (see Table 4). A disaggregated CPI often makes categories corresponding nicely with these expenditure groups.

Consumer Price Index (CPI): The consumer price index should be used cautiously since it is usually calculated from a basket of goods that may not be indicative of the expenditure pattern of poorer households, unless disaggregated for specific income levels. Often the CPI is reported in component expenditure categories as well. Using the basic food, fuel, and utility rate CPI subcategories is likely to be more illustrative than the general CPI. The component index on lodging rents is likely to misrepresent poorer households expenditures on housing, both in quality and budget share.

4.2.3. What FEWS Representatives Can Do Now:

Assessing and monitoring urban vulnerability is, of course, of greater interest to FEWS representatives working in countries with significant urban populations such as Zambia, Zimbabwe, Mozambique, Mauritania, and Kenya. It is hoped that those with the greatest interest in initiating work on urban food security will find this review helpful in identifying useful resources and potential collaborators, and in formulating a food security monitoring framework for urban centers in their respective countries. The following are steps that FEWS representations can take immediately on their own initiative to begin incorporating urban populations into their assessment and monitoring activities. Each step can be further modified as more knowledge is gained. T he steps are meant to be preliminary and evolutionary.

- Make a list of urban centers that should be included in a vulnerability assessment. At this point, the list should be free of cost and logistical concerns even if the urban VA will cover only the capital city.
- Using the lists and tables of food security factors, shocks, and coping strategies included in this report, note which items are relevant to each urban center on the list.
- Using the list of indicators on Table 6, select a set of representative indicators that are likely to be available.
- Using the "Possible sources of data" column on Table 6, make a list of potential contacts and collaborators. Indicate what type of data or information they could provide or how they might contribute in the execution of an urban VA or monitoring activities.
- Begin to make contacts with the aim of identifying who is working on urban poverty and food security issues: who has data, who has produced relevant reports, who would be interested in participating in a VA, who has a good working knowledge of urban food security issues, and who would use FEWS urban reporting products.
- Begin to collect and archive urban data.
- Add an urban section to the CVA.
- Add an urban section to the Monthly Report.
- Where an urban food security information system already exists, e.g., Zambia and Mozambique, become involved in related technical discussions and attempt to gain access to the data and other information. FEWS representatives could contribute to the system through their skills and experience in food security monitoring, reporting, and mapping.

FEWS representatives from different countries could be encouraged to share experience on good or even best practices in assessing urban vulnerability. The shift to covering urban food security is a learning process and the experimentation and experience from the field can provide important insights for the development of more sophisticated and standardized approaches.

5. Conclusions:

As mentioned at the onset of this paper, African early warning activities have historically focused on rural areas and agricultural production as a reflection of African demographics and food security risks in the 1980s when early warning efforts first started. In keeping with this orientation, emphasis in early warning has to date stressed rural food security and monitoring of factors that contribute to the success or failure of seasonal agricultural production, the mainstay of rural households. Remotely sensed and ground-based data on meteorological, crop, and rangeland conditions as well as food price data provide early indications of potentially food-insecure areas. While poor rural households confront many of the same risks today as they did 20 years ago, Africa's urban populations have mushroomed and, as a consequence, new food security issues and threats have emerged. Consequently, there is a need to address urban food security issues, and evaluate the appropriateness of the FEWS's rural-centric food security assessments and famine early warning tools for the urban environment. This exercise is especially relevant and timely for countries with large urban populations.

Differences between rural and urban food security issues suggest that the FEWS CVA method is not directly applicable to urban environments. Unlike rural households that acquire a large share of their annual income through one of two harvests per year and then consume their food stocks over the following months, urban households earn income continuously throughout the year, and there is no equivalent point in time from which to gauge food security for an extended period of time into the future. Taking food security readings at the beginning of the marketing season, as is done with the rural CVA, is not as informative in urban settings. In addition, there is often no dominant seasonal risk to monitor. An urban VA need not be executed every year as is done with the CVA. Although the overarching food security conceptual framework still holds, there is a need to develop some specific urban assessment and monitoring tools to more accurately and appropriately capture relationships between shocks and vulnerability to food insecurity.

This paper has attempted to introduce and sensitize FEWS field staff to urban food security issues and to build their capacity to ultimately guide, design, and participate in urban VAs and carry out food security monitoring. It does not attempt to establish a FEWS guidance manual or to recommend specific preferred assessment tools, sets of standard indicators, or a monitoring plan. Rather, the material presented here is meant to provoke further thinking and experimentation on the part of FEWS representatives, and, in doing so, lead to the development of a more refined framework and guidelines. Given the importance of urban populations, FEWS representations are encouraged to begin incorporating urban populations into their assessment and monitoring activities.

This paper aims to present a general review and summary of the current thinking on urban food security issues and methods. The scope is broader than FEWS applications. As such, government agencies, non-government organizations (NGOs), and donors that are working on urban poverty alleviation and food security issues may also find the information useful.

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