

Sustainable Food Systems

A Case-Study of Washington, DC, and Nairobi, Kenya

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Abstract: Washington, DC and Nairobi, Kenya may not seem to have much in common. These two young cities, however, are both the product of precise planning—Washington was the haven of the nation’s founding fathers, and Nairobi was strategically plotted by colonists as an ideal outpost along a railroad. These cities provide the basis for this case-study, which will discuss issues of food insecurity, nutrition, and health by analyzing and comparing food systems in Nairobi, a regional hub in a developing nation, and DC, the capital of a post-industrialized country. The aim of this project is to glean some insight into what it means to be “sustainable” in an urban environment and how sustainability efforts affect urban food systems. To answer these questions, this project will draw from literature on demography, urban design, environmental studies, and primary research. It will discuss the sustainability movement and how this affects food systems. It will also compare and contrast how residents of Nairobi and Washington attain food and the possible impacts of these processes on sustainability, health, and nutrition education. Qualitative analysis will highlight how some urban organizations and residents are attempting to improve the sustainability of these food systems. Ultimately, this capstone will show that, while food systems can differ in developing and post-industrialized urban environments, there are facets of sustainability prevalent in each of these vastly different cities that can add insights into the sustainable food movement and its potential to improve urban food systems.

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I. Introduction

The cities of Washington, DC in the United States of America and Nairobi, Kenya are both relatively young. Washington was built in 1791 after America's founders, distrusting the persuasive influence of a major city on the federal government, decided that it needed a space of its own; thus, only ten years after the birth of the United States of America, the nation's capital was finally moved there.¹ The city of Nairobi, Kenya was also a planned city. Rather than forming naturally due to its location on a major waterway, like so many grand ancient and modern cities, Nairobi was strategically chosen, due both to its reasonable climate and central location, as a stopping point along the Uganda Railway, which then ran from the port city of Mombasa, Kenya to what is present-day Kisumu, Kenya.² Although originally smaller in size than the ancient coastal city of Mombasa, Nairobi eventually became the capital of colonial Kenya in 1907,³ much as Washington, DC was later made the capital of the USA while grander cities existed then and still do today.

These two young cities, both planned with precision, thus prove useful in comparing and contrasting certain aspects. While one is found in a developing nation, Kenya, and the other in a post-industrialized nation, the USA, their relative youth and a more thorough knowledge of both cities makes these well-suited to a case-study for this paper, which will discuss issues of food insecurity, nutrition, and health by analyzing and comparing food systems in Nairobi and Washington, DC. In Kenya, for example, recent research now shows that a lack of access to healthy food and education on nutrition in the country is leading to new health concerns that

¹Zachary M. Schrag, *The Great Society Subway: A History of the Washington Metro*. Baltimore, MD: The Johns Hopkins University Press, 2006.

²O.A. K'Akumu and W.H.A. Olima, "The dynamics and implications of residential segregation in Nairobi." *Habitat International* 31, (2007) 87–99.

³*Ibid.*

were previously thought to be only “Western” afflictions, such as obesity and diabetes. These issues certainly also affect residents in Washington, DC, which although a relatively affluent city, maintains a staggering rate of food insecurity among certain sectors of its population.

While there is certainly validity in the question, “Is there enough food to go around?” relevant studies have also shown that distribution of food is the greater issue and that access to food among certain populations remains the more decisive factor in determining levels of food insecurity. Thus, this paper will also look at issues surrounding the food distribution system, which can include food security, access to food, education on nutrition, and sustainable agriculture, and how these issues particularly affect urban environments, such as Nairobi and Washington. Through this research and the comparison of a city in a developing nation and a post-industrialized nation, this paper will address the broad question of what can one learn about sustainable agricultural and food distribution methods in urban areas. The focus will remain mostly on urban environments because as the world’s population expands ever more rapidly, so also does the population living in cities. This trend, according to a publication by the United Nations Population Division,⁴ is due to the fact that the vast majority of this growth is projected to occur in the cities. According to the same source, the amount of people living in urban areas has already surpassed the population of those living in rural areas and will only continue to grow; in fact, it estimates that the percentage of the world population living in urban areas will reach a staggering 70% by 2050.

These trends thus indicate the importance of the analysis of urban systems and possibilities to increase efficiency and sustainability. Determining how cities are “fed,” meaning how food is attained and distributed in cities, is a very important aspect of sustainability efforts

⁴ Department of Economic and Social Affairs, Population Division. “Urban and Rural Areas 2007.” *United Nations*, 2008. http://www.un.org/esa/population/publications/wup2007/2007_urban_rural_chart.pdf

because food systems account for a large portion of energy and resource use, as well as waste production. It is important to consider how these cities source their food further impacts sustainability, and, as alluded to above, the type of food consumed and nutrition education have major impacts on human health and well-being. This finding shifts the argument from one focusing on environmental quality to a more holistic perspective that acknowledges that access to nutritious foods is linked to environmental quality, human health, and social justice.

The aim of this paper is to thus glean some insight into what it means to be “sustainable” in an urban environment and how sustainability efforts affect urban food systems. To answer this question, this paper will draw from literature on demography, urban design, environmental studies, and primary research. It will discuss the sustainability movement and how this affects food systems. It will also compare and contrast how residents of Nairobi and Washington attain food and the possible impacts of these processes on sustainability, health, and nutrition education. Qualitative analysis will also highlight how some urban organizations and residents are attempting to improve the sustainability of these food systems. Ultimately, this paper will show that, while food systems can differ in developing and post-industrialized urban environments, there are facets of sustainability in each of these vastly different cities that can both add insights into the sustainable food movement and can be improved upon in the future.

II. Background: Urban Environments, Health, and Sustainability

A. Urban Planning in the U.S.

As is discussed in Dannenberg, et al.’s book *Making Healthy Places*,⁵ the concept of designing communities and cities based on the intersection between the environment and human

⁵ Frumkin et al., “An Introduction to Healthy Places.” In *Making Healthy Places: designing and building for health, well-being, and sustainability*. Dannenberg et al. Washington, DC: Island Press, 2011.

health is not a new concept, but rather has been in existence for thousands of years. The authors discuss the widely accepted notion that the birth of modern public health concerns began with industrialization and the ill effects it brought to those living in industrialized areas of Western cities. To address these effects, which included diseases such as cholera and forms of diarrhea, officials thus often focused on improving the “built environment,” which the authors define as consisting of, “those settings designed, created, and maintained by human efforts—buildings, neighborhoods, public plazas, playgrounds, roadways, and more.”⁶ Improvements of these physical features that took into account the surrounding environment, such as proximity to factories and other aspects of urban life, thus became necessary and led to important developments such as separated water systems and waste management facilities. The authors also discuss how eventually the birth of the field of epidemiology led to greater insights into the ways in which environmental factors could affect human health and well-being, and more than a century later brought about the environmental justice movement, which sheds light on the fact that disenfranchised and disadvantaged social groups often are disproportionately exposed to harmful environmental conditions. Such issues of environmental justice are obvious in the conditions faced by those living in cities in developing nations, but are also present in cities such as Washington, DC.

These issues, which highlighted the interrelated nature of public health and environmental concerns, also contributed to the birth of modern urban planning. In the U.S., increased immigration in the second half of the 19th century nearly tripled the size of the U.S. population from 1860-1910 and led to an increase of the city-dwelling population from,

⁶ Frumkin et al., *op cit.*, p.5.

“6,217,000, to 41,999,000 — a jump from 19.8 percent to 45.7 percent of the total population.”⁷

This enormous jump in population led to a crisis in urban areas, which were not well-equipped to handle the new masses. This rapid population increase in the U.S. exacerbated the issues cities were already facing due to industrialization, and led to city planning initiatives. Dannenberg, et al. also discuss how factors such as the settlement house movement in cities and Progressive Era reforms and civil engineering projects, which resulted due to these issues, helped focus health and environment concerns on city planning initiatives. These initiatives, also propelled by aesthetic goals promoted by landscape architect Frederick Law Olmsted and planners of the Chicago World’s Fair,⁸ led to a formalization of the field through the First National Conference on City Planning and the Problems of Congestion held in Washington, DC in 1909, which led to the creation of what is presently known as the American Planning Association and to the development of the professionalization and technicalization of urban planning.

In order to counteract the health problems caused by industry in urban areas, zoning emerged as a formal tool for planners during this time period. Before the creation of formal zoning codes, land used for industrial purposes could be interspersed throughout areas that were also residential and commercial. When a zoning plan in Euclid, Ohio prevented the development of land for industrial purposes, however, the constitutionality of zoning was challenged and ultimately proven to be a valid practice by 1926 U.S. Supreme Court Case.⁹ The introduction of zoning guidelines, which following this case became widely adopted in the planning of U.S. cities, also happened to coincide with the market proliferation of the automobile. Urban health

⁷ Stuart Meck and Rebecca Retzlaff. “A Familiar Ring: A Retrospective on the First National Conference on City Planning (1909).” *Planning & Environmental Law*, Commentary, (April 2009).
<https://www.planning.org/centennial/aprilpelcommentary.htm>

⁸ Carolyn Cannuscio and Karen Glanz. “Food Environments.” In *Making Healthy Places: designing and building for health, well-being, and sustainability*. Dannenberg et al. Washington, DC: Island Press, 2011. p. 19

⁹ Cannuscio and Glanz, *op cit.*, p.21

fears, the increased mobility of many Americans due to the advent of the automobile, and the decline in immigration led to zoning regulations that promoted the popularization of the suburb in the U.S. Dannenberg et al.¹⁰ and other urban planning scholars refer to the rapid growth of the American suburb as “urban sprawl.” The preeminence of the suburban lifestyle was promoted until modern planners began to widely recognize the unsustainable practices encouraged by the suburban lifestyle, such as increased commutes, which in turn led to increased fossil fuel emissions and less exercise, as well as the individualistic, rather than communal, attitude that was promoted by the suburb. Planners thus sought to redress these problems through the advent of New Urbanism, which is an urban design movement that began in the late 1980s and was formalized in 1993 with the creation of the Congress for New Urbanism.¹¹ The New Urbanism movement seeks to promote “neotraditional” development of urban areas that, in contrast to suburban sprawl, focuses on the re-creation of urban communities that are relatively self-sufficient. In Dannenberg, et al., New Urbanism is defined as “a return to traditional planning principles...that focuses on neighborhood centers, locates needs of daily life within a five-minute walk, connects narrow streets in a gridded network, and provides sites for special buildings such as city halls, churches, and libraries.”¹² This form of development or redevelopment thus focuses on recreating urban spaces as self-sufficient locales in which community members can move about easily and freely and regularly interact. This movement also takes into account the impact of the environment on the well-being of citizens, a factor that is also emphasized by the “Smart Growth” movement, which also began in the early 1990s and was proposed by the American Planning Association.

¹⁰ Cannuscio and Glanz, *op cit.*

¹¹ “CNU History.” *Congress for the New Urbanism*. <http://www.cnu.org/history> (accessed November, 2012).

¹² Ewing et al. “Transportation and Land Use.” In Dannenberg et al, *op cit.*, p.152

B. A Colonial Creation: the development of Nairobi

Many of the major cities in the U.S. developed by happenstance, often the result of their location along major waterways that enabled transportation and commerce, and thus urban planning became a priority a century or more after their birth. Nairobi, like some other colonial cities that are located in developing nations, however, was chosen and built, rather than left to develop naturally. The distribution of Nairobi's human population draws its roots from the city's colonial legacy. Nairobi was founded as a stopping point along the Uganda railway, which stretched from coastal Kenya to the present-day city of Kisumu.¹³ The city grew once the railway headquarters were moved to Nairobi,¹⁴ and continued to thrive as the British Empire expanded and European colonization was encouraged. The British brought a sizeable Indian population from their colony there and thus housing in Nairobi was not only segregated in terms of African or European ethnicity, but also Asian. European settlers were given large parcels of high quality land, typically on higher elevation and with better soil, while African workers had the worst land. Recent surveys¹⁵ of the city's cultural distribution show that even post-independence, large majorities of ethnically African, Asian, and European residents still live in areas historically relegated to those of their ethnicity.

Following World War II, many colonial cities, still under the drip of colonial powers, instituted master plans that institutionalized this segregation. In some cases, initiatives even included plans to clear slums and relegate residents to new suburbs or even new towns to make room for economic ventures or to establish buffer zones between neighborhoods inhabited by

¹³ O.A. K'Akumu and W.H.A. Olima, "The dynamics and implications of residential segregation in Nairobi." *Habitat International* 31, (2007) 87–99.

¹⁴ *Ibid*, p.90

¹⁵ *Ibid*

different ethnic groups that colonials thought would discourage the spread of disease.¹⁶

Following independence, some scholars assert that little changed other than the names of those holding power. In his review of “Urban Planning and the Post-Colonial State,” Akin L. Mabogunje, who has been recognized for his analyses of urbanization and urban issues in Africa by organization such as the Woodrow Wilson International Center for Scholars, makes the rather candid observation that,

Since political independence there is a growing class bias in the development of African cities. The former European reservations in all countries of Africa outside of South Africa have been taken over by the new political, bureaucratic, and business elite who have maintained or improved their high standards of housing while the majority of the urban population continue to inhabit squalid, overcrowded, and poorly serviced shantytowns.¹⁷

This remark shows that even immediately following independence, little in the way of formal planning was accomplished to significantly benefit the well-being many citizens residing in urban areas of Sub-Saharan Africa. Mabogunje also states that even government-sponsored attempts to build supposedly low-income housing and estates proved rather unsuccessful, in part due to the commoditization of land at the level of low-income residents who could still not afford the formalized housing even at more “accessible” rates. He also describes more recent efforts that have unsuccessfully tried to squelch informal economic activity, which even today remains the lifeblood of many developing cities. In addition, within many Sub-Saharan African cities such as Nairobi, transportation planning has not been heavily formalized and regulated in the same way it has in the U.S. For example, at the time of Mabogunje’s writing, the *matatu*, which

¹⁶ Mabogunje, Akin L. “Urban Planning and the Post-Colonial State in Africa: A Research Overview.” *African Studies Review*, Vol. 33, No. 2 (Sep., 1990), pp. 121-203.

¹⁷ Mabogunje, *op cit.*, p.141

is a small Nissan van privately owned and financed by informal entities, was a primary mode of transportation because formal transportation remained too expensive for the masses, and the situation remains as such today.

Today, Nairobi remains relatively ethnically segregated both in terms of housing and wealth distribution. The rapid expansion of the city within the past several decades, however, has led to a seemingly more random distribution of people and wealth. An oft cited example of this mismatch is the fact that the Royal Nairobi Golf Course, which is visited by the country's statesmen and elites, is within walking distance from Kibera, a neighborhood considered East Africa's largest informal settlement, or slum.¹⁸ Similarly, Kibera is in the same district as the affluent suburbs of Karen and Langata, while Kawangare, also a slum, is located just miles from the affluent neighborhood called Westlands. In his analysis, Mabogunje ultimately concludes that underdeveloped local government and administration is a source of frustration for urban planning goals. He cites the inability of governments to effectively tax their populations as a hamper to raising adequate revenue. In addition, he states that a lack of political autonomy and fiscal authority further hamper administration efforts. He ultimately recommends a thorough review of the performance and efficacy of administrations, as well as a paradigm shift that encourages contextually appropriate planning strategies.

Such a consideration of situation-appropriate planning has also been explored by more recent literature in urban planning and architecture. In her analysis of urban planning in the global South, Vanessa Watson of the University of Cape Town's Department of Architecture explores such a paradigm shift. As discussed above, a majority of the world's population now lives in urban areas, and Watson predicts that 90% of future global population growth will

¹⁸ Erica Hagen, "Putting Nairobi's Slums on the Map." *The World Bank Group*. <http://wbi.worldbank.org/wbi/devoutreach/article/370/putting-nairobi%E2%80%99s-slums-map> (accessed September 3, 2012)

continue to occur in cities, a trend known by Watson and many other scholars as the global demographic transition.¹⁹ She states that one of the major problems with such growth patterns is that much of the rapid urban growth will occur in cities in developing countries that are ill-equipped to handle it. The direct result of such growth over the past half-century has been the creation and explosion of “slums” in these cities. She claims that these trends are only exacerbated by the globalization of economies, which has benefitted some populations in developing nations while harming others and widening the income gap. Watson argues that modern urban planners in the developing world are situated in the middle of a “conflict of rationalities” in which the “logic of governing” and the “logic of survival” overlap. She states that while governments strive to formalize and extend control over portions of the “informal” city, the informal sectors struggle to simply survive and carve out a role while excluded from the formal economy. Watson argues that instead of trying to regulate the urban poor dwelling in informal settlements and displace them through the implementation of projects, their “survival” efforts should be enhanced and planners should attempt to work with this informality. Furthermore, Watson claims that such attempts at, “the marketisation and privatisation of services and infrastructure,”²⁰ are thus ill-founded in neo-liberalism and inherited from often Northern contexts. Watson thus encourages innovative planning approaches that take into account the interface between these “conflicting rationales.”

To address the need to find this interface, Watson recommends drawing from existing urban planning theory; however, she also warns that existing planning theories are often insufficient because they originated and were primarily created with Western cities in mind. She also states that while development theory has sought to address the problems of cities in the

¹⁹ Vanessa Watson. “Seeing from the South: Refocusing Urban Planning on the Globe's Central Urban Issues.” *Urban Studies* 46, no.11 (2009): p.2263

²⁰ Watson, *op cit.*, p.2268

global South, there remains a large divide between development and urban planning theories. To address this divide, Watson ultimately recommends the integration of both planning and development theory into interventions that incorporate both informal and formal mechanisms to create hybridized land markets. She cites a case-study of Enugu, Nigeria where such efforts were made when government and community leaders collaborated in allowing groups to attain formal land titles for land procured through informal “customary” means over time. She also states that these community leaders took initiative in making certain processes more formalized, such as ensuring a form of land tenure. It is thus important to acknowledge both urban planning efforts in both the “global North” and “global South” and to recognize that population growth and globalization are changing norms and demanding that urban planners implement innovative means to account for such rapid growth and its consequences on the urban environment and human welfare. Considering traditional urban planning and its role in shaping cities in both developing and post-industrialized states, as well as the role that modern urban planning has played in these areas, is a necessary step in order to move towards more sustainable cities.

III. Food Access Issues in Urban Food Systems

A very important facet of urban planning, which has only been recognized as a veritable subset within planning, is the urban food system. Many within sustainability-focused urban planning movements have even begun to refer to this subset as the “food environment,” such as one would refer to planning construction and management of existing structures as the “built environment.” The food environment plays a very important role in cities, particularly as a public health issue, and thus deserves greater recognition and integration into public policy.

A. Food Insecurity in the U.S.

iv. Food Procurement in the U.S.- From Small Stores to Supermarkets

During the first half of the 20th century, urban retail was dominated by small independent stores, especially in the food sector. By the 1950s, however, the landscape of the retail market had changed such that the supermarket share of the food sector jumped from 35% to 70% between 1950 and 1960.²¹ In addition, this change was likely facilitated by the changing nature of American cities. In much the same way that middle-class families fled urban neighborhoods throughout the 20th century due to public health concerns and the advent of the automobile, so, too, did supermarkets correspondingly flee urban areas. The fact that many upper- and middle-class families were leaving urban centers likely made it difficult for many supermarkets to thrive in newly economically depressed areas, a situation compounded by a lack of urban supermarket investment during the 1970s and 80s. In addition to such demographic changes, the food retail industry also was changed by new technology, such as the development of Universal Product Codes, and intense competition between supermarket chains in the 70s and 80s.²² A series of “price wars” and hostile takeovers through leveraged buy-outs forced smaller, less competitive chains out of business in urban areas.²³ Furthermore, while supermarkets were being driven out of the inner-city areas, many new stores were being built in suburban areas where returns on investment were expected to be higher. This phenomenon has led to a situation in which many urban areas lack access to sources of nutritional foods, which are most often supermarkets.

²¹ Elizabeth Eisenhauer. “In poor health: Supermarket redlining and urban nutrition.” *GeoJournal* 53, no. 2 (2001): p.127

²² Eisenhauer, *op cit.*, p.127

²³ Eisenhauer, *op cit.*, p.128

v. Food Access in the US

Dannenberg's *Making Healthy Places* also includes an analysis of the role of food systems in urban development. Carolyn Cannuscio and Karen Glanz, the authors of this chapter, discuss the paradox that overweight or obese individuals often suffer from undernourishment as the result of their lack of consumption of healthful foods. This seemingly nonsensical situation, they assert, is often due to the fact that those in poverty lack access to sources of healthy food, such as the typical grocery store, and instead live near only take-out restaurants or corner carry-out stores. This lack of access leaves the residents living in what has been termed a "food desert." The United States Department of Agriculture considers²⁴ a food desert to be, "a *low-income census tract* where a substantial number or share of residents has *low access* to a supermarket or large grocery store...to qualify as a food desert tract, at least 33 percent of the tract's population or a minimum of 500 people in the tract must have low access to a supermarket or large grocery store." While Cannuscio and Glanz accept this definition of a food desert as an area marked by a dearth of food options such as supermarkets, they clarify that these areas often not lacking access to food altogether, but rather lack access to healthful food and instead are teeming with what they refer to as "low-quality food options."²⁵ For example, many food deserts often have multiple convenient stores and many restaurants, but these vendors are often tied to higher prices and less nutritious foods.²⁶ The researchers thus propose the use of the term "fresh food access" as a more precise description of the issue. The prevalence of such food deserts and the fact that highly caloric and nutritionally devoid foods are more plentiful and inexpensive has unfortunate consequences on the communities they affect. Cannuscio and Glanz draw positive

²⁴ Economic Research Service. "Food Access Research Atlas: Documentation." *US Department of Agriculture*. <http://www.ers.usda.gov/data-products/food-access-research-atlas/documentation.aspx> (accessed March 2013)

²⁵ Cannuscio and Glanz, *op cit*, p.55

²⁶ Michele Ver Ploeg, et al. "Access to Affordable and Nutritious Food—Measuring and Understanding Food Deserts and Their Consequences: Report to Congress." *USDA*, Administrative Publication No. AP-036, (June 2009)

links between food insecurity, which they define as, “the limited or uncertain availability of nutritionally sound, safe food,” low income levels, and the likelihood of being overweight.²⁷

The USDA’s Economic Research Service has compiled data on areas in the U.S. that qualify as food deserts according to the technical definition provided above.²⁸ In DC, nine such areas, or “tracts,” exist. In 8 of these 9 districts, a staggering 100% of residents are determined to have low access to supermarkets providing fresh food options. The Service also collected data on the percentage of residents in these food deserts that qualified as “low-income,” or “those with annual incomes less than 130 percent of the Federal poverty line.”²⁹ Within these 9 districts, 7 had percentages of over 15% that met this definition of low-income, and in one district, almost 78% of residents were considered as low-income (see Figure 1 for graphic). These statistics illustrate the fact that food deserts often disproportionately harm the urban poor.

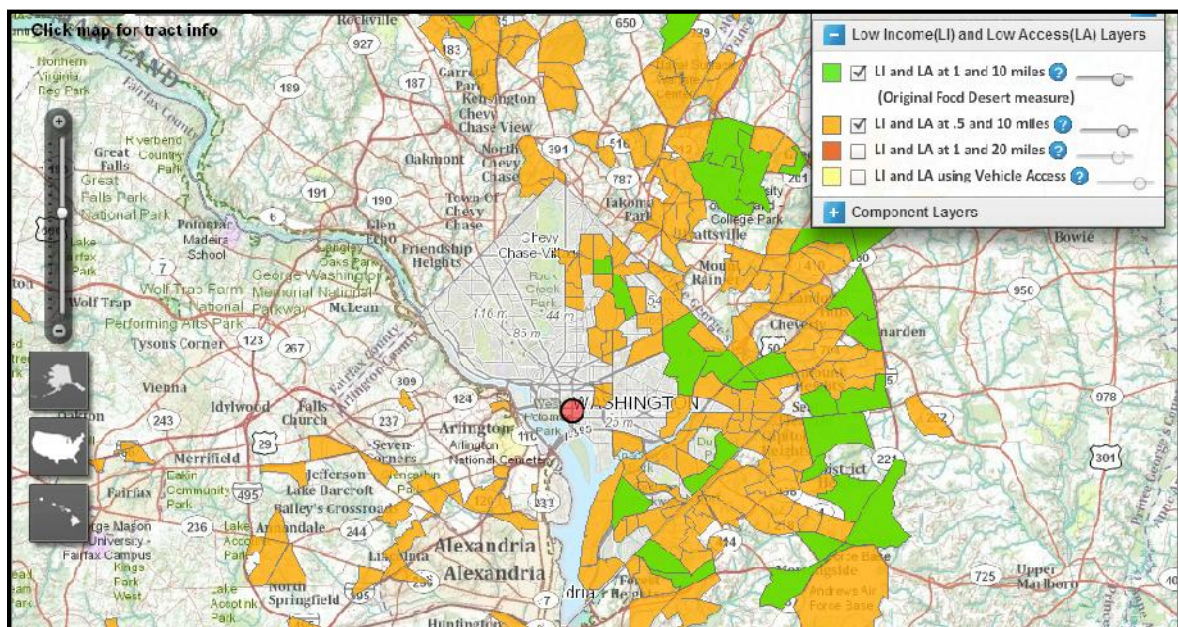


Figure 1. Food Deserts in Washington, DC (as depicted by green polygons)

²⁷ Ver Ploeg, et al., *op cit*, p.53

²⁸ Economic Research Service. “Food Access Research Atlas: Download the Data.” *US Department of Agriculture*. <http://www.ers.usda.gov/data-products/food-access-research-atlas/download-the-data.aspx> (accessed March 2013)

²⁹ Mark Nord. “Characteristics of Low-income Households with Very Low Food Security.” *USDA ERS, Economic Information Bulletin No. 25*, (May 2007) http://www.ers.usda.gov/media/196569/eib25_1_.pdf

In a 2009 U.S. Department of Agriculture (USDA) Report to Congress, researchers found that at the time of the study:

Of all households in the United States, 2.3 million, or 2.2 percent, live more than a mile from a supermarket and do not have access to a vehicle. An additional 3.4 million households, or 3.2 percent of all households, live between one-half to 1 mile and do not have access to a vehicle.³⁰

These figures, as well as those on food deserts in DC mentioned above, illustrate the fact that special concern should be extended to low income areas with low access. This additional attention is necessary because low access often disproportionately affects the poor, who may lack access to cars or other means by which to reach supermarkets. The study also found that in high income areas, the average distance to supermarkets was slightly greater than in lower income areas. This fact may be the result of neighborhood design, particularly in suburban areas, that facilitate the creation of large plots of land for individual residences and are in fact designed to favor the use of the automobile. Thus, low-income individuals and families residing in generally higher-income areas may face even greater difficulties in traveling to the supermarket.

Furthermore, it is clear that food access is a social justice issue. An interesting finding of this report is that the demographic group with the worst access to supermarkets purely based upon the factor of physical distance is non-Hispanic Whites; however, when accounting for other variables, minorities often fare worse than Whites, particularly in urban areas. While some studies have shown mixed results, the USDA's report on food access found that, "segregation by race and income are associated with limited access,"³¹ although this is true to a lesser extent in rural areas. The report refers to the association between economic and racial segregation and low

³⁰ Ver Ploeg, *op cit.*, p.III

³¹ *Ibid*, p.44

access to healthy food sources as a “contextual effect,” which the report defines as a situation in which, “complex social and physical contexts are greater determinants of health outcomes for the low-income population of the United States than for the European counterparts.”³² Although this report does not investigate why this effect may be more pronounced in the US than in Europe, it briefly suggests that residential segregation based on economic and racial factors may be more pronounced in the US and that American modern planning has not attempted to compensate for this contextual effect to as great an extent as European planners. The USDA’s report references one study that refers to this relationship as “deprivation amplification,” a situation in which an individual’s risk for health complications such as obesity increases when factors such as low-income and lack of nutrition information are amplified by the issue of low access to nutritious foods. The authors of the report explain that this situation is compounded by food environments that either offer too little nutritious food options or too many non-nutritious alternatives, or both. The report states:

The study found significant differences between the three levels of fast food accessibility across the socioeconomic variables, with successively greater percentages of unemployment, low-income, and renters in neighborhoods with increasingly greater access to fast food restaurants. Several of these variables were also found to be predictive of greater access to fast food restaurants.³³

The statistics listed above demonstrate that a number of important socioeconomic variables are undoubtedly interconnected to food access, particularly in urban areas. From this quote, it is clear that prevalence of non-nutritious food increases in low-income areas; however, there was also some evidence in the report that low-access to supermarkets is not particularly constrained

³² *Ibid*, p.40

³³ *Ibid*, p.41

to low-income areas. Rather, the USDA report clarifies that low-access is influenced by the combination of many determinants, including roadway connectivity, the levels of racial and economic segregation, linguistic isolation, residence in counties marked by persistent poverty, and the “index of disadvantage.” This index relies on a number of household characteristics that are understood to “represent disadvantage,” and have thus been used to calculate a “normalized socioeconomic status measure.”³⁴ These findings thus lend support to the theory of deprivation amplification discussed above and how these issues compound to decrease accessibility both in terms of actual and realized access to nutritious foods.

vi. Impacts of Low Food Access in the U.S.

So why is the issue of access to nutritious foods consequential? Before beginning discussion on the environmental consequences of food access and food systems, it is important to highlight the negative social impacts of low food access. As alluded to earlier, many researchers have cited a positive correlation between low access to nutritious food and the likelihood of being overweight. In the USDA’s report on *Access to Affordable and Nutritious Food*, evidence supporting the link between obesity and women earning lower wages is cited.³⁵ The study also found that, in general, “better access to a supermarket is associated with reduced risk of obesity and better access to convenience stores is associated with increased risk of obesity.”³⁶ Other studies cited in the report also show a slight positive correlation between proximity to fast food vendors and an increased BMI and a slight negative correlation between proximity to supermarkets and a lower BMI. The authors thus note that this relationship of low access to supermarkets and increased probability of being overweight or obese could be the result of increased reliance on energy-dense foods found in convenience stores rather than low-calorie and

³⁴ *Ibid*, P.42

³⁵ *Ibid*, p.52

³⁶ *Ibid*, p.54

nutritious fresh produce; however, they warn that few in-depth studies have been conducted to confirm this casual link. Instead, the authors state that there are a number of studies that confirm the link between consumption of certain nutritious foods and lowered BMI, but that the complex nature of consumptive patterns and health suggests that other factors, such as demographics, socioeconomic status, social norms, level of education, and preference, also play important roles. This complexity, however, does not negate the results of studies³⁷ that demonstrate that consumers may change behavior to purchase slightly higher amounts of nutritious foods if new supermarkets offering such options are opened in their neighborhood. Similarly, in a review of research on supermarket access and spending on certain types of foods by participants in the U.S. Government's SNAP (Supplemental Nutrition Assistance Program), the USDA report found that one study showed a negative correlation between limited access to supermarkets and the purchase of fruits and vegetables- i.e. that low-access led to decreased purchases of fresh produce.³⁸

Although the USDA does not discuss the relationship between low-income and obesity rates in the U.S. in detail, a number of other studies on the subject have been completed. In a 2004 study,³⁹ Adam Drewnowski, the Nutritional Sciences Program Director at the University of Washington's School of Public Health, confirmed the link in the U.S. between obesity and poverty rates. According to his research, "the highest rates of disease are observed among groups with the highest poverty rates and the least education. Among women, higher obesity rates are associated with lower incomes; the association between obesity and socioeconomic status has

³⁷ *Ibid*, p.53

³⁸ *Ibid*, p.64

³⁹ Adam Drewnowski. "Obesity and the food environment: dietary energy density and diet costs." *American Journal of Preventative Medicine* 27, sup.3 (2004):154-162

been less consistent among men.”⁴⁰ He explains that although the obesity “epidemic” is increasing among all demographic groups (i.e. the CDC estimates⁴¹ that 35.7% of American adults are obese), the “burden” of this health problem remains disproportionally on the Nation’s poor. Naturally, some may be confused as to how food insecurity and obesity are often strongly correlated; however, Drewnowski asserts that this correlation indeed exists and that it is due, in part, to the fact that “energy-dense” diets, marked by increased levels of refined grains and added sugars and fats, cost less in the U.S. than a less caloric diet rich in fresh vegetables and fruit. Drewnowski explains that one explanation for this situation is that energy-dense foods often are, “easier to produce, process, transport, and store than are perishable meats, dairy products, or fresh produce.”⁴² A rather astonishing fact Drewnowski offers is that, “calorie for calorie, fresh spinach is more expensive than luxury chocolates or foie gras.”⁴³ This information clearly demonstrates that there is a distortion within the U.S. food system that produces an inverse correlation between energy-density and food cost- i.e. more densely caloric foods cost less per calorie. Furthermore, taste preferences often favor consumption of these foods, such that studies have shown that consumption of these foods, “diminished satiation, passive over-consumption of fats, and higher energy intakes both during the test meal and overall.”⁴⁴ It is thus easy to see how increased intake of such products easily can lead to obesity. The clear issue is, however, that this phenomenon disproportionally affects low-income women, who are perhaps least prepared to face the increased costs that can be associated with the health problems caused by obesity. In addition, in one study cited by Drewnowski, women experiencing food security without hunger

⁴⁰ Drewnowski, *op cit.* p.154

⁴¹ “Overweight and Obesity: Adult Obesity Facts.” *Centers for Disease Control and Prevention.* <http://www.cdc.gov/obesity/data/adult.html> (accessed March 2013)

⁴² Drewnowski, *op cit.*, p.156

⁴³ *Ibid.*

⁴⁴ *Ibid.*

were even heavier than the group against which they were compared. This study thus highlights the fact that food insecurity and *poverty* (marked by even lower incomes than those merely meeting the “low-income” bracket) are not always linked, but that, as the USDA report described above found, food insecurity is often exacerbated by low-income, among other variables. Thus, low access to fresh foods is a health and social justice issue.

B. Food Insecurity in Nairobi, Kenya

vii. Food Access in Nairobi

In Nairobi, access to food in urban areas is marked by different challenges and characteristics. Traditionally, food insecurity has been understood as a problem disproportionately affecting rural populations, which often depend upon sustenance farming to earn their livings and thus can be threatened by the onset of drought or other natural disasters. The literature on food security in urban centers, however, is expanding as social scientists realize that those living in cities are not necessarily less susceptible to food access issues than those in rural areas. In his work, “The Political Economy of Urban Food Security in Sub-Saharan Africa,” Daniel Maxwell, head of the Department of Food and Nutrition Policy at Tufts University in Massachusetts, discusses the overarching factors influencing urban food access in Sub-Saharan Africa. Maxwell analyzes demographic, political, and economic changes that have affected the major cities of Sub-Saharan Africa. He states that the rapid urbanization of African cities have faced over the past several decades has led to a decline in government services and infrastructure, both of which are now incapable of dealing with pressures caused by such rapid population growth. Maxwell points out that despite such rapid growth, declining economies and GDPs, and the decline in services, development scholars still considered urban dwellers to be generally better off than

their rural peers. He states, however, that since the 1990s, this has no longer been the case, especially in the critical but often overlooked area of food security.

Maxwell describes the decline in urban food security and the lack of policy attention it has received. He describes the oversight of urban food insecurity as, “a politically invisible problem in contemporary African cities.”⁴⁵ He then lists three reasons why food insecurity has been allowed to slip out of the focus of urban policy makers. The first reason he lists is that, when compared to other urban problems, such as the informal sector, food insecurity is relatively unnoticeable. The second reason he gives is that food insecurity is a problem that appears to be solved in between major manifestations, such as food shortages and price increases, which affect the entire nation. The third reason he states is that development theory and statistics, such as the urban to rural welfare indicator, reflect that food insecurity is mainly a rural issue. He denies this idea, however, stating that these statistics fail to take into account changing trends and factors that affect access to food, such as income.

Maxwell claims that the failure to take into account such factors is due to the “urban bias” theory proposed by Lipton. The theory claims that those living in urban areas are generally better represented by officials, and thus, receive better services and attention. When applied to food insecurity, however, this theory is no longer applicable. According to Maxwell’s article, “The urban low-income working class and the poor devote large but variable proportions--60% to 80% of their total incomes to procurement of food ... which to a large extent means that poverty is manifested as food insecurity.”⁴⁶ These statistics indicate that those in urban areas are devoting significant amounts of their incomes to food procurement, and while these incomes may be higher than those in rural areas, the real purchasing parities of low income urban

⁴⁵ Maxwell, D. The Political Economy of Urban Food Security in Sub-Saharan Africa. *World Development*, 27, no.11(1999): p. 1940.

⁴⁶ *Ibid*

inhabitants and those in rural areas is about equal. Though hunger in cities may appear to be a less acute issue than rural food shortages, factors such as overcrowding, deteriorating infrastructure, informality, and lack of urban safety nets make food insecurity in the city just as prevalent and even more complicated.

Behind the hidden face of food insecurity in the city, Maxwell states there are five main factors- “supply, access, choice, health, and social organization.”⁴⁷ In three of these factors—supply, access, and choice—urban dwellers would appear to have more freedom than rural inhabitants. While this claim may be true, Maxwell states that other factors that affect specifically urban populations are often overlooked. The most important of these factors are income and social organization. Urban areas in Sub-Saharan Africa depend on the informal sector. Due to declining economies and, therefore, declining services and infrastructure, the informal sector of the economy grew with force and now acts as a safety net to the formal sector. There are massive amounts of unemployment, hunger, and lack of housing and the informal sector provides the biggest functioning and effective safety net. Government and NGO efforts to relieve such problems, and especially food insecurity, are often lacking. Thus, when citizens are faced with problems of food procurement and security, they depend on the informal sector and not the government.

For some time, the presence of the informal sector contributed to the arguments of those favoring the “urban bias” theory. They claimed that the informal sector acted as a constant supplementation to formal food supplies for those in urban areas, while those in rural locations had no such system to fall back on when weather left them with unfavorable harvests and the government could not supply food. Maxwell states that this assumption is false, however. The informal sector, while supplementing government food supplies, charges higher prices than

⁴⁷ *Ibid*, p. 1942

goods in the formal sector. Taking into account these higher food prices and, “lower real wages due to inflation,” the rural/urban difference in well-being and purchasing power are virtually wiped out.⁴⁸ Maxwell also claims that this fact is forgotten, and thus, becomes overlooked in urban planning and policy, which has essentially led to the, “depoliticization of urban food systems.”⁴⁹ Urban food insecurity is becoming an ever-increasing problem, and this “depoliticization” is allowing the government to turn a blind eye on the issue. The informal sector, while helping those who are food insecure, also raises prices, which when combined with the low incomes of those in the lower class, makes many people severely food insecure.

viii. Food Procurement in Nairobi

Due to obvious differences in socioeconomic development between Kenya and the U.S., food procurement can be a vastly difference process for many Kenyans than for many Americans. In the U.S., urban farming is gaining renewed interest among activists who want to alleviate food insecurity and educate communities on nutrition, or, in some cases, merely procure their food locally and sustainably. In Nairobi, however, urban farming has historically played an integral role in many Kenyans’ diets. In his research on food systems and urban planning, Sonnino⁵⁰ explains that beginning in the 1970s in Latin America and Africa, it became widely recognized that rural and foreign food supplies would be insufficient to feed the ever-growing urban populations. Thus, urban agriculture has since remained a necessity in cities like Nairobi; however, over the past decade, the birth of supermarkets in Kenya has also helped service upper-class urbanites and Kenya’s growing middle-income population. Furthermore, the ever-

⁴⁸ *Ibid*, p. 1941

⁴⁹ *Ibid*, p. 1950

⁵⁰ Roberta Sonnino. “Feeding the City: Towards a New Research and Planning Agenda.” *International Planning Studies* 14, no. 4 (2009): 425-435

increasing urban population and slum growth has led to the proliferation of street vendors. The sections below will explore all of these food sources in detail.

b. Urban Farming

The informal sector infiltrates nearly every aspect of the formal services and economics of Nairobi and other urban areas of Kenya. Thus, it composes a very significant portion of the food market in Nairobi, Kenya. Many Nairobi residents procure a majority of their food from informal vendors or small-scale farms or plots. In an analysis of, “Urban Agriculture in Kenya,” development scholars Pyar Ali Memon and Diana Lee-Smith collaborate with Mazingira Institute in Kenya to review the socio-economic reasons behind urban farming using data on household food and fuel procurement. Memon and Lee-Smith initially argue that subsistence farming throughout Kenya has largely been ignored because researchers view it as of little economic importance. They argue that the expansion of cash-crop farming in Kenya has forced out many small-scale farmers and overshadowed the importance of subsistence farming as both a means of personal income generation and household nutrition supply.

Those involved in urban agriculture are often traditional farmers who have been “engulfed by development,” or urban migrants and their families.”⁵¹ These small-scale farmers cultivate crops primarily for subsistence, but a small proportion also sell the products cooked and uncooked on the streets of Nairobi. Most urban subsistence farmers, like most small-scale rural farmers, are women. The percentage of urban households that depend on such subsistence farming as a daily nutrition source is startling. Nearly 65% of Nairobi households cultivate a portion of their food, and 20% do so in urban perimeters.⁵² Those who do not grow their food directly within city limits have “rural homes” or connections that allow them to grow their own

⁵¹ Pyar Ali Memon and Diana Lee-Smith. “Urban Agriculture in Kenya.” *Canadian Journal of African Studies* 27, no.1 (1993): p. 37

⁵² *Ibid*, p.33

food, which they may bring into the city. In addition, 51% of households in Nairobi also raise livestock, and 7% do so within the city. Examples of the variety of livestock include chickens, rabbits, cattle, goats and sheep, a majority of which are poultry. Of the portion of specifically urban livestock, only 16% are consumed by the households, while 20% perish. The majority of livestock are kept for livestock products (such as eggs), reproduction, or stock or are disposed of. Keeping livestock as a form of capital, which is traditional for some ethnic groups, is also common.

Memon and Lee-Smith also touch upon the issue of urban nutrition. Like Maxwell, the scholars claim that the belief that urban inhabitants have a higher standard of living and greater incomes is generally a misconception. Due to informality and income inflation, urban residents expend a majority of their budgets on food. They thus often forgo more expensive (and often more nutritious) options or buying fuel to cook the food for cheaper, raw or processed foods. Due to the adoption of alternatives, Nairobi residents thus often lack protein or nutrient rich energy sources in their diets. Only a small portion of urban inhabitants who grow their food cultivate “indigenous vegetables,” which are typically very rich in protein. Due to the lack of resources, residents may also face health issues surrounding the improper preparation of food.

c. Supermarkets

Another new but fast-growing system from which urban consumers in Kenya purchase food is the Kenyan supermarket. The two largest Kenyan supermarket chains are Nakumatt and Uchumi. An analysis of the rise of supermarkets in Kenya by David Neven and Thomas Reardon, two Agricultural Economists, illuminates the procurement systems utilized by and composing the Fresh Fruits and Vegetable market (FFV). Neven and Reardon’s analysis found that kiosks and greengrocers account for 32% of the market shares for the total food market in

Kenya, while informal market stalls and hawkers account for 31%, and supermarkets and small self-service shops account for 20% and 17% respectively. For the FFV market, however, informal vendors compose a much higher proportion of the market. The statistics are as follows: kiosks and greengrocers at 36%, informal market stalls and hawkers account at 58%, supermarkets at only 4%, and small self-service shops at 2%.⁵³ These figures demonstrate how Kenyans, especially those in urban areas (as these are the only areas that can support large supermarkets), procure their food. Unlike post-industrial societies dominated by supermarkets, the food market in Kenya is still dependent upon individual sellers, wholesale markets, brokers, or small stores, though supermarkets are quickly growing, especially in the processed foods market.

The single area in which supermarkets are far less competitive is in Fresh Fruits and Vegetables (FFV). Though logic might dictate that supermarkets would be markedly more expensive for FFV than their informal counterparts, Neven and Reardon argue otherwise:

Supermarkets charge on average 5% lower prices (compared with small shops) for processed foods, and although their prices are higher for most fruits and vegetables, for key 'poor consumers' foods' such as spinach, the largest chains already have prices at or lower than open markets for products of similar quality.⁵⁴

Thus, though supermarkets are still more expensive for FFV and not as readily available to low-income consumers as informal markets, they are quickly gaining a foothold among consumers. Supermarkets only recently began stocking produce and are also quickly contributing to the FFV market. According to Neven and Reardon, "the volumes they handle, and the amount they procure from Kenyan farmers, are rapidly approaching the importance of the export market

⁵³ David Neven and Thomas Reardon. "The Rise of Kenyan Supermarkets and the Evolution of their Horticulture Product Procurement Systems." *Development Policy Review* 22, no. 6 (2004): p. 671

⁵⁴ *Ibid*, p.692

(handling 35,000 tons versus 69,000 tons exported).”⁵⁵ This fact indicates that Kenyan supermarkets are contributing significantly to FFV sales in Kenya. Supermarkets buy a large portion of this produce directly from farmers, but also depend heavily on informal whole sale markets and brokers. Thus, though supermarkets are adding an element of formality to the food and FFV markets in Kenya, they also are working with the informal sector and contributing to its sales.

d. Street and Kiosk Foods

Among the urban poor, purchasing food from supermarkets is often not economically feasible. Thus, many consumers purchase their foods from cheaper informal markets or, as a combined study by two Dutch universities and the University of Nairobi found, urban consumers often attain much of their daily energy from “non-home-prepared foods,” such as those found at kiosks and sold on the streets.⁵⁶ In addition, a previous study completed by the authors found that very poor urban inhabitants, typically those who live in “slum areas,” consume street foods as a smaller portion of their diet than those urban inhabitants among the low- and middle-income groups. This fact indicates that elements such as income, employment, and gender can affect consumption levels of non-home-prepared foods among urban inhabitants. According to the researchers, much of what an adult consumes is affected by his or her employment status. For example, those men who work farther from home are more likely to consume street foods, and those among the low- to middle-income level are more likely to hold a job further from home than the poorest urban inhabitants; however, consumption varied within the two income groups, mainly based on where a man worked. For example, the study found that self-employed men in the poorest income level ate fewer street foods than those who were casual laborers, etc.

⁵⁵ *Ibid*, p.692

⁵⁶ Riet et al. “Determinants of Non–Home-Prepared Food Consumption in Two Low-Income Areas in Nairobi.” *Nutrition* 19, (2003): p.1006

Likewise, those women in low- to middle-income ranges who had a source of income ate more street foods than those women without an income, while the main factor affecting consumption among women living in a slum area was whether or not her children were of school age.⁵⁷ The researchers conclude that, while socioeconomic factors affecting food consumption in Nairobi are very complicated, generally those consuming the highest amount of street foods were the urban poor. The consumption of kiosk foods, which are regulated and more expensive, increased with socioeconomic status and the consumption of street foods decreased. These sources thus constitute an important role in the daily food intake of the urban poor.

ix. Impacts of Food Insecurity in Urban Kenya

Due to food insecurity issues, a number of health effects have long plagued many Kenyan citizens. When compared to the health issues associated with low-access in developed countries, however, the findings are rather surprising. As the paragraphs below will explain, not only is food insecurity a lingering issue in Kenya, but the proliferation of “high energy” foods within the Kenyan food system has led to a new host of concerns.

a) Rural vs. Urban Food Access

Though children in fertile, agriculturally active areas of Kenya have better access to fresh fruits and vegetable than those in urban areas, statistics show children in rural areas are on average more likely to be malnourished. This disparity is due to the fact that so many of these children live in arid or semi-arid rural areas and face severe food insecurity. The rural/urban health divide has long been an important subject in development research. Scholars are beginning to find, however, that this dichotomy has masked the plight of the urban poor in developing nations. In an article discussing, “Child health inequities in developing countries,” Jean-Christophe Fotso of the African Population and Health Research Center dismantles this

⁵⁷ *Ibid*

dichotomy. He states, “Intra-urban differences in child malnutrition are larger than overall urban-rural differentials in child malnutrition.”⁵⁸ The study found that Kenya had among the lowest proportions of urban to rural child malnutrition in Sub-Saharan Africa, a fact that indicates that the rural/urban health and nutrition gap in Kenya is closing.⁵⁹ Fotso attributes this statistic to his theory that inequities in urban areas are in general much greater than those in rural areas and, thus, children in impoverished urban areas may be more undernourished than those in some rural areas due to a lack of social safety nets.

Poverty and lack of access to food may contribute to a lack of adequate nutrient intake in both rural and urban areas. Malnourishment may be further linked to the types of food individuals consume. In urban areas where residents are less dependent on climatic conditions for a staple food supply, poor inhabitants may only be able to regularly afford Kenyan staples like *ugali*, *cabbage*, and *sakuma wiki*, which lack vital nutrients like vitamin A and iron. In a study on the out of home food consumption of rural school children, Gewa et al. found that:

Non-home-prepared foods contributed 13–22% of school children’s intake in urban Kenya...Whereas the urban Kenyan school children received only 12–14% of vitamin A from non-home-prepared foods, the rural Kenyan school children in the current study received 28–71% of their daily vitamin A intake from OH foods.⁶⁰

Thus, while individuals living in rural areas of Kenya are more likely to be undernourished than their urban peers, the gap is closing in and factors behind malnourishment in urban areas are becoming exposed.

⁵⁸ Fotso, J.C. “Child health inequities in developing countries: differences across urban and rural areas.” *International Journal for Equity in Health* 5, no.9 (2006): p.1

⁵⁹ *Ibid*, p.5

⁶⁰ Gewa et al. “Out-of-Home Food Intake Is Often Omitted from Mothers’ Recalls of School Children’s Intake in Rural Kenya.” *Journal of Nutrition* 137, (2007): p.2157

Interviews with two Kenyan women,⁶¹ one living in Nairobi, the other living in rural Western Kenya, demonstrated that the types of food mothers feed their children in urban and rural areas with arable land does not differ significantly. Children from both households consumed *ugali*, made from maize meal, and rice almost daily. Though an indicator of preference perhaps more than anything, the children living in the rural household happily ate vegetables while their urban peers would not. While perhaps mostly a matter of taste, this behavior likely also indicates the increased availability of diverse fresh vegetables to those living in non-arid areas of rural Kenya. Children in such areas not only consumed the staple *sakuma wiki*, a green similar to chard, and spinach, but also a variety of other greens, fresh vegetables, and legumes that are not readily available to those living in the city because families are able to cultivate, trade, or purchase these varieties with relative ease. The mother living in rural Western Kenya also fed her children home-made porridge, or *ugi*, which is rich in vegetable proteins and vitamins, daily. The urban mother only on occasion fed her children this porridge. Families living in rural areas also may have increased access to protein sources found in meat than do the urban poor.

b) Effects of Malnourishment

Studies on nutrition and food security in Kenya indicate that the nutrition status of citizens has remained relatively unchanged in the past decade even though Kenya's Ministry of Agriculture has indicated a growth in the agricultural sector. According to a report by the United Nations Food and Agriculture Organization:

These results show that there has been no progress in the nutrition situation of infants and young children in the last 5 years, which reflects unfavorable trends in several sectors,

⁶¹ See interview with Anne and Amani in Resources section

e.g. stagnation of the economy and of the food security situation, persistent lack of access to health care and affordable drugs, and the progression of the HIV/AIDS epidemic.⁶²

The overall nutritional status of women has also slightly decreased between 1993 and 2003. Little data is available for men, but low Body Mass Indices indicate men's nutritional status may have also decreased. When compared to data from the World Health Organization⁶³ and the Kenyan Government for child malnutrition rates in 2003 and 2008, the statistics shows the prevalence of malnutrition has barely changed, and the prevalence of "wasting" (severe malnourishment) as slightly increased. These figures and analysis demonstrate that socioeconomic factors and policy matters are greatly affecting the nutrition status of individuals in Kenya.

The report also indicates there may be problems in the compositions of diets. The report states that 72% and 67% of protein and lipid intake in the Kenyan diet, respectively, are from vegetable sources.⁶⁴ This statistic indicates that many Kenyans, regardless of their total daily caloric intake and increased diversification of food intake, are not receiving adequate supplies of vitamin A, iron, and calcium. The report also found that the intake of vegetable oils and sweeteners in the average Kenyan diet has increased while consumption of meat and starchy roots has decreased. This statistic demonstrates that the amount of complex carbohydrates and healthy sources of energy have declined while the use of fats and sugars have increased. This trend becomes a problem when these foods become the primary source of "dietary energy" in one's daily diet.

⁶² Food and Nutrition Division. "Kenya Nutrition Profile." *Food and Agriculture Organization of the United Nations*, 2005. www.cepis.org.pe/texcom/nutricion/ken.pdf, p 23

⁶³ "Nutrition Landscape Information System: Kenya." *World Health Organization (WHO)*. <http://apps.who.int/nutrition/landscape/report.aspx?iso=ken> (accessed December 8, 2010).

⁶⁴ FAO, *op cit.*, p.18

The lack of adequate nutrients and vitamins in the average diet can lead to severe health issues such as stunting, development problems, and anemia. A study on consumption of cassava, which is a staple food in many areas of Western rural Kenya, Stephenson et al. found that cassava accounted for 59% of the Kenyan children's daily dietary intake. The researchers also found inadequate protein intake among 53% of the Kenyan children.⁶⁵ High levels of cassava consumption often compromises an individual's diet because the consumer uses the food as a sort of filler and, thus, avoids consuming more nutrient-rich foods. This protein deficiency leads to developmental problems, such as stunting. Maize consumption in Nairobi, like cassava consumption in Western Kenya, also leads to protein deficiencies. Across rural and urban divides, the poor suffer malnutrition due to food insecurity, and though the informal sector in cities can act as a safety net to this insecurity in urban areas, urban residents still face factors, such as high prices and low incomes, that inhibit them from procuring nutrient-rich foods.

c) **Effects of Overnutrition**

Among food related health issues, the problem of overnutrition is increasingly affecting developing nations. The consumption of fats, oils, and sugars has continued to increase in developing nations, particularly in urban areas.⁶⁶ Though overweight and obesity have long been viewed as a problem affecting Western or developed nations, the epidemic is now affecting developing nations on a widespread scale. According to one study, "It is currently estimated that as much as 20-50% of urban populations in Africa are classified as either overweight or obese, and that by 2025 three quarters of the obese population worldwide will be in non-industrialized countries."⁶⁷ The study attributes these statistics to, "Urbanization and socioeconomic

⁶⁵ Stephenson et al. "Consuming cassava as a staple food places children 2-5 years old at risk for inadequate protein intake, an observational study in Kenya and Nigeria." *Nutrition Journal* 9, no.9 (2010): 1-6.

⁶⁶ FAO, *op cit.*, p.16.

⁶⁷ Ziraba et al. "Overweight and Obesity in urban Africa." *BMC Public Health* 9, no.465 (2009). p. 2

transformation comes with increased access to energy-dense foods and less strenuous jobs resulting into many people having a positive energy balance and hence becoming overweight or obese.”⁶⁸ According to this theory, changes in food access, income, employment, and transportation available in urban areas all lead to changes in diet composition for urban residents. This change in diet then can lead to overweight or obesity.

The impact of the urban/rural characteristic on weight gain in Sub-Saharan Africa is extraordinary. Both the survey completed by Ziraba et al. and the Food and Agriculture Organization’s data on Kenya women found that 38% of women in urban areas were overweight or obese, while only 18% of women in rural areas were. Further analysis of the survey found that, while the tendency to be overweight and obese increased with rising socioeconomic status in urban areas, the amount overtime by which women in the highest income level gained weight was less than the amount by which those in the lowest and especially the middle income levels gained weight. This statistic is in agreement with the analysis of street food consumption in Nairobi. Those in the middle income bracket can afford “chips” from a kiosk, which are more expensive and higher in fat, than those in the lowest income bracket who might only be able to afford maize from a street vendor and the occasional *chipati*, a tortilla or naan like bread. In addition, among those women who had a secondary education or above, the percentage of those who were overweight only slightly increased over time while the percentage of those among the low or middle income levels more significantly increased. When putting socioeconomic status aside and instead focusing on education status, the survey found that among those women who went to secondary school, the percentage of overweight/obese women actually dropped while the percentage among non-educated and primary school educated women rose. Given this data, it is

⁶⁸ *Ibid.*

clear that both education and socioeconomic status play a major role in food consumption and weight gain in Sub-Saharan African cities.

The affects of being overweight and obese on health are numerous. Such health effects are often referred to as “lifestyle diseases,” or Ziraba et al. refer to them as “chronic diseases.” These diseases include Type 2 Diabetes, hypertension, cardiovascular problems, stroke, and even cancer. As these problems rise among those in developing nations, it is important to consider the catastrophic effects. The urban poor in Sub-Saharan Africa are already highly susceptible to transmissible diseases and are becoming increasingly susceptible to non-transmissible diseases as well. In addition, the urban poor are less likely to receive adequate health care when they develop such problems.⁶⁹

Though the prevalence of non-transmissible disease in Kenya is recent and lacks awareness, these issues are increasingly coming into the mainstream’s conscience. Media outlets in Nairobi, Kenya, have begun to discuss diseases caused by lifestyle choices, such as food intake. On November, 1st 2010, the Daily Nation, one of Kenya’s most prominent and reputable news sources, featured an article on the spread of diabetes in Kenya. The article stated that over 2 million Kenyans have the disease, and that roughly 90% of the cases are Type 2 Diabetes. The article gave recommendations on how to avoid developing the disease. The same newspaper has also included many other articles on lifestyle diseases and choices. Some of these articles, like the one on Diabetes, are covered in the main section of the newspaper; however, much of the time such articles simply appear in the Saturday Magazine or Lifestyle section of the newspaper and thus the perception of these problems as merely cosmetic, rather than life-threatening, may be perpetuated.

⁶⁹ *Ibid*, p.2

IV. Addressing Food Access Issues

A. Barriers to Supermarket Interventions in the US

Given the issues with food access in urban areas and the associated health problems detailed above, it is tempting to simply prescribe the insertion of supermarkets or fresh produce markets to underserved urban areas and then claim that the solution has been found. For example, there have been studies that have found positive dietary changes following the introduction of supermarkets in underserved, low-income neighborhoods, such as one completed in the UK in 2002 by Wrigley, et al.,⁷⁰ that found that “retail intervention” in underserved areas can have a significantly positive impact on those who have low access, especially those with the worst diets. There remain, however, many barriers to supermarket opening stores in underserved, urban areas. Much as urban supermarkets were not invested in during the late 20th century, underinvestment in certain areas remains today due to the practice known as “supermarket redlining.” “Redlining” refers to a decision-making process that, “draws broad conclusions about the investment-worthiness of communities based on ‘flat stereotypes of gross income, race, and reputation of the neighborhood. In this way the imagined and assumed worlds impinge upon actual events.’”⁷¹ This quotation shows how underserved urban areas have continued to be neglected in a vicious cycle that discourages retailers from entering into these neighborhoods. Decision-makers face many barriers in planting new stores in these areas, as land costs may be higher and perceived demand and profitability may be lower. To address this issue, Eisenhauer, in her article on supermarket redlining in urban areas, prescribes both direct involvement of local officials and the adoption of other sources of fresh produce, such as farmers’ markets and Community Supported Agriculture (CSA) programs, among others. Furthermore, Eisenhauer

⁷⁰ Wrigley, et al. “Assessing the Impact of Improved Retail Access on Diet in a ‘Food Desert’: A Preliminary Report.” *Urban Studies* 39, (2002): 2061-2082

⁷¹ *Ibid.*

states that many of these supermarket alternatives are also “less environmentally and socially costly,” and that, “facilitating these types of arrangements is well within the capacities of local authorities.”⁷² It is thus clear that the issue of urban food access in U.S. cities is one that should be viewed as an issue of urban planning and development because both supermarkets and small-scale farmers’ markets or produce retailers alike may struggle to enter into these areas.

In her article on urban food deserts and sustainability in food systems,⁷³ Ellen Desjardins highlights the existence of two approaches to improving urban food access in underserved areas. Desjardins states that the first of these approaches, “accepts the conventional system’s ability to supply low-cost food, advocating more supermarkets and better public transportation to get there,” while the other, “circumvents the conventional food supply chain and its reliance on car-culture, experimenting with smaller-scale, more community based provisioning of food.”⁷⁴ Desjardins first explains the relatively recent introduction of the term “food desert” and explains how the definition can vary depending on urban or rural setting and qualification of store type. Desjardins explains how there has been confusion among urban planners about what aspects constitute a food desert and how to work with building codes, census tract data and geographical coordinates to complete “food mapping.” Desjardins, however, recognizes the importance of planners and explains that “among the first whistle-blowers regarding food access inequities were a group of urban planning students in Los Angeles; this type of work has continued at the Centre for Food and Justice, Occidental College, California for two decades.”⁷⁵ It is thus important to recognize the value of integrating food systems into the urban planning dialogue, as

⁷² Eisenhauer, *op cit.*, p.131

⁷³ Ellen Desjardins. “The Urban Food Desert: Spatial Inequality or Opportunity for Change?” in *Imagining Sustainable Food Systems: Theory and Practice*, edited by Alison Blay-Palmer, 87- , Surry, UK: Ashgate Publishing, 2010.

⁷⁴ *Ibid*, p.87

⁷⁵ *Ibid*, p.96

these individuals are perhaps the best equipped to consider solutions to access issues. One of the reasons Desjardins supplies for the need for this integration is the issue of “redlining,” which she describes as the misconception that, “It is considered financially astute and justified that food stores are attracted to areas of greater wealth, less competition or lower crime.”⁷⁶ Another reason Desjardins states is that certain characteristics of urban areas may be prohibitive to supermarket introduction, such as higher taxes in city centers, zoning issues, and higher costs of land in city centers. City officials are uniquely able to work with supermarkets to address such issues. Furthermore, if food insecurity is worsened by lack of access to transportation, improving the local transportation system is almost entirely within the hands of city officials.

Both Desjardins and Eisenhauer, however, emphasize the need to fully consider the implications involved with reintroductions of supermarkets into underserved communities, as ill-planned attempts can actually lead to heightened tensions within communities. Eisenhauer provides discussion of happenings in Newark, NJ, as an example of such a failure in planning.⁷⁷ Eisenhauer describes how the store largely hired workers from outside the community, had rather intense security, and was perceived as a threat by smaller-store owners, thus generating ill-will, rather than gratitude, within the community. Desjardins also provides examples of problems that have occurred when new supermarkets attempt to enter food deserts. In the case of the introduction of a Pathmark supermarket to a neighborhood in the Harlem area of New York City, small-store owners felt threatened and activists resented the fact that such as large chain of supermarkets was given a government subsidy to open the store.⁷⁸ Desjardins also highlights even greater difficulties experienced by planners in Los Angeles and the failure to introduce supermarkets in underserved communities throughout the 1990s.

⁷⁶ *Ibid*, p.92

⁷⁷ Eisenhauer, *op cit.*, p.130

⁷⁸ Desjardins, *op cit.*, p.97

In her analysis of the Harlem and LA case studies, Desjardins highlights alternatives to supermarket introduction initiated by the cities. In New York, city officials have introduced programs such as the “Healthy Bodega Initiative” and “Green Carts,” which although initially opposed by supermarket and grocery store owners, have been popular among residents. (p.98) Alternatively, LA officials imposed a ban on the introduction of new fast-food chains for a year in order to encourage more sit-down restaurants and grocers to enter the area. Desjardins touts such efforts as perhaps preferable to continued reliance on the supermarket system, which she claims does not necessarily discourage consumption of energy-dense foods, as 26-37% of their shelf space is dedicated to foods high in fats and sugars.⁷⁹ Furthermore, Desjardins argues that even with the competition smaller stores have faced due to the presence of supermarkets, the world of small-scale specialty and convenience stores has persisted and might be a viable alternative to supermarkets in urban areas. She highlights the importance of considering these stores as a possible solution when they carry fresh produce at affordable prices; however, it is clear that steps need to be taken to help these stores improve their fresh food offerings, such as granting them loans or tax credits, because they are often structurally unable to improve their buildings to the extent necessary to offer refrigerated goods and lack access to distribution chains.

B. Barriers to Food Systems in Sub-Saharan Africa

The set of problems associated with agricultural production and distribution in developing nations is often rather different from those experienced by American or European farmers. One issue that researchers and activists alike often mention is that in Sub-Saharan Africa particularly, valuable and scarce arable land is often used for commodity rather than food crops. In his essay on urban food production in the global south, Luc Mougeot, an expert on

⁷⁹ *Ibid*, p.103

urban agriculture for the International Development Research Centre in Ottawa, explains that, “export-oriented and hard-currency earning agricultural policies have increasingly dictated crop choices, credit programs and incentives, technical extension and research, and distribution networks.”⁸⁰ In Kenya, land has been used for tea and coffee production since colonial times and continues to be produced today despite relatively prevalent levels of rural and urban food insecurity. One study set in the Hamisi district of western Kenya, which is located in an area that is typically considered to host some of Kenya’s most arable land, found that 25% of land there was used for either tea, coffee, or French beans to be exported to the international market.⁸¹ The production of such crops often is often overseen by large private undertakings, sometimes families of European descent that have owned the land for decades or corporations. While processing in-country can increase the profits from such crops, often the raw products need to be exported before processing due to a lack of infrastructure. The average Kenyan citizen sees little of the profits produced from such crops, and it is thus clear that such land could be more equitably used for the production of food crops to be sold in local markets or city centers.

In addition to land-use issues, transporting food grown in rural areas into cities often proves to place a great physical transaction cost on rural producers, serving as a disincentive to sell produce far from home. Transportation is difficult as most Kenyans do not own vehicles, and those that do often charge for rides. In addition, road infrastructure is often either degraded or lacking in many areas. Another issue with rural food production is that the rate of migration of rural youth into city centers in nations such as Kenya has been high over the past several

⁸⁰ Luc Mougeot. “For Self-reliant Cities: Urban Food Production in a Globalizing South.” In *For Hunger-Proof Cities*, ed. Mustafa Koc, et al. Ottawa, Canada: International Development Research Center, 1999. p.13

⁸¹ W. Thomas Conelly and Miriam Chaiken. “Intensive farming, agro-diversity, and food security under conditions of extreme population pressure in Western Kenya.” *Human Ecology* 28, no.1 (2000): p.23

decades.⁸² In the U.S., where agriculture is highly technical and dependent upon fossil-fuel intensive machinery, such rural-to-urban migration is relatively insignificant, but it has major consequences in Kenya where small-scale subsistence agriculture is often dependent upon time and the number of community members able to assist.

Within Kenyan cities, urban markets, as described above, play a major role in the food system for low- and middle-income Kenyans; however, urban and peri-urban agriculture often provide a more inexpensive way for urban residents to supplant their daily food intake. The criticalness of urban agriculture to urban Kenyan residents was discussed above; however, there are several types of difficulties residents must face when raising crops or livestock in urban perimeters. One of the greatest issues is the relative lack of institutional frameworks governing urban agriculture. Memon and Lee-Smith describe a situation in which residents are unsure of their rights and, if not ignored, are often actively harassed by police or officials to discontinue agricultural activities. Contrary to “folklore,” Memon and Lee-Smith assert that cultivating crops and raising livestock within the city is actually legal:

The Nairobi by-laws only prohibit cultivation on public streets maintainable by the City. Regardless, city folklore maintains that cultivation of public land is illegal and both the Mazingira and Freeman studies found physical and monetary harassment occurring as a result. Large livestock may be kept in Nairobi only with written permission, but small livestock can be kept unless someone complains of a nuisance.⁸³

The fact that citizens who do grow their food within the city are harassed demonstrates the confusion surrounding urban food regulations and the intersections of the formal and informal sectors. Another aspect of the underdeveloped institutional framework is the lack of a

⁸² Memon and Lee-Smith, *op cit.*

⁸³ *Ibid*, 39

comprehensive land rights system within Nairobi. This issue is especially problematic in Nairobi's peri-urban areas where land has not yet been incorporated into Nairobi-proper. The consequences of this issue include land disputes, unofficial land tenure and leasing, and in severe cases, government eviction. In addition, a lack of access to space affects urban agriculture and food security. Those with the most land are among the upper and middle class while the urban poor generally inhabit very densely populated areas, such as slums, which makes are difficult to farm.

One interesting finding Memon and Lee-Smith discovered in their study of urban agriculture in Nairobi is that urban residents used more water to grow their crops than their rural counterparts.⁸⁴ The authors do not explain this disparity, but it could be the result of changes in water flow or inability to irrigate plants, thus requiring urban residents to more frequently water their crops. In addition to the problems expressed above, researchers Foeken and Mwangi⁸⁵ found that the problem unique to urban crop growers that was most overwhelmingly expressed by survey respondents was the threat of crop theft. This issue is undoubtedly compounded by the informal nature of urban agriculture in Kenya, as there exists no legal enforcement system through which to report theft. While it is clear many such barriers to urban agriculture exist, it remains an integral part of meeting daily food needs for those in many cities. Recommendations for further enhancing urban agricultural efforts will be explored in a later section.

C. Redefining the Role of Food

As discussed above, introducing supermarkets into underserved areas can often face structural barriers or even community opposition. Thus, in her discussion of the success of small-scale grocers and community programs, Desjardins suggests moving beyond dependence on the

⁸⁴ *Ibid*, p.36

⁸⁵ Dick Foeken and Alice Mboganie Mwangi. "Farming in the City of Nairobi." *ASC Working Paper 30*. African Studies Centre, Leiden University, 1998. <http://www.ascleiden.nl/pdf/wp30.pdf> (last accessed April 24, 2013)

supermarket system as a way of alleviating food access, particularly in post-industrialized societies. Food security concerns for many cities in post-industrialized nations are often not centered on having enough food to feed their populations, but rather how to distribute the available food. Due to the technological advances of the period known as the “Green Revolution” (roughly 1950 or 1960 to 2000), global increases in crop production and decreases in food prices resulted for many developed and developing nations.⁸⁶ From 1950-1984, for example, “world cereal-crop yields increased by an average of 3% per year.”⁸⁷ This increase in available caloric energy has meant that many more individuals can fulfill their daily caloric needs; however, coupled with changes in food processing and retail, it has also lead to unequal access to these food resources, such that some groups actually experience “overnutrition” while others face food insecurity or access to healthy foods. Due to the health complications associated with food insecurity both in developed and developing societies, food access is obviously an issue that deserves the attention of health officials and planners.

In the US, reactions to solving food access issues vary. Elaine Power, in an essay on food security,⁸⁸ claims that two different approaches to solving food security in post-industrialized nations exist—i.e. the antipoverty approach and the sustainable food systems approach. The first of these approaches attempts to address food access concerns by addressing the issue of income insecurity, which can be a factor of unemployment or low wages, high costs of housing, inadequate welfare benefits, unequal distribution of wealth, and regressive taxation policies,

⁸⁶ R. E. Evenson and D. Gollin. “Assessing the Impact of the Green Revolution , 1960-2000.” *Science* 300 no. 5620 (2003): 758-762

⁸⁷ Stephen Leckie. “How Meat-centered Eating Patterns Affect Food Security and the Environment.” In *For Hunger-Proof Cities*, ed. Mustafa Koc, et al., p.145-249. Ottawa, Canada: International Development Research Center, 1999.

⁸⁸ Elaine M. Power. “Combining Social Justice and Sustainability for Food Security.” In *For Hunger-Proof Cities*, op cit. p.30-35

among other things.⁸⁹ The sustainable food systems approach, Power explains, views food insecurity through the lens of a “political-economy critique of the contemporary food system,” and believes that the changes that occurred within the food system over the past 60 years have created a “capitalistic,” corporately controlled food system that has also caused increased environmental degradation.⁹⁰ While both of these approaches have their merits according to Power, both are individually insufficient to achieve change. Ultimately, she argues that only solutions that incorporate social justice into “food solutions” will be able to address the inherent issues of access, thus, both approaches must be integrated into attempts to alleviate food access issues. Power ultimately explains that the issues of poverty and food systems are an issue of social justice that can only be resolved by a larger shift in the “dominant culture,” because those who are in poverty, “want to be full participants in society, including its consumerism.”⁹¹ It is thus clear that there is greater overarching issue behind the problems of access and distribution, and Power hints that this is consumerism.

Other scholars characterize this problem as society’s view of food as a commodity, rather than a right. In her description of one food project in Toronto, Canada, Kathryn Scharf explains that, “ideally, food should not be viewed in relation to one’s ability to pay for it, but as something basic to health and therefore as something qualitatively different from other commodities.”⁹² Graham Riches of the University of British Columbia’s School of Social Work, defines this view as the “depoliticization of hunger.”⁹³ By “depoliticizing” hunger, Riches explains, governments and organizations have effectively undermined the right to food. Riches

⁸⁹ *Ibid*, p.31.

⁹⁰ *Ibid*, p.32

⁹¹ *Ibid*, p.34

⁹² Kathryn Scharf. “A Nonprofit System for Fresh-produce Distribution: The Case of Toronto, Canada.” In *For Hunger-Proof Cities*, op cit.

⁹³ Graham Riches. “Reaffirming the Right to Food in Canada: The Role of Community-based Food Security.” In *For Hunger-Proof Cities*, op cit., p.203-207.

argues that “progressive” food policy experts have recognized that many individuals now lack control over their diets due to corporate agriculture and the food industry, which have taken control over local production and distribution of food. He claims, “increasing marketization and commodification of food have actively promoted the depoliticization of hunger.”⁹⁴ If viewed as such, the issue of solving food access issues is indeed daunting; however, Riches states that the first steps are encouraging community action and democratic debate, which will ensure that the issue is brought into the public conscience and that local communities will be heard. While such an approach may be particularly applicable in post-industrialized nations, it is not irrelevant to developing countries, where the “commodification” of food has long been present in the tea and coffee export industries and is now increasing among upper- and middle-income Kenyans who can afford “kiosk foods” and supermarkets. Ensuring that the issue of food access is focused on every individual’s right to healthy foods will be critical to any attempt to alleviate food insecurity in both developed and developing nations.

V. Environmental Sustainability

The inequity in food systems within the U.S. and Kenya discussed in the pages above is unsustainable both socially and environmentally. Socially, it is unsustainable due to the inefficiencies described above—i.e. many individuals even in post-industrialized nations lack access to healthy food sources, while others do not, and that low-access is often associated with ethnicity, education, and income level. Furthermore, the health effects of low-access to healthy foods are marked and troubling. Environmentally, food systems in the U.S. are often very unsustainable because they rely on the transportation of goods over many hundreds, even thousands, of miles, which releases countless tons of greenhouse gas emissions into the

⁹⁴ *Ibid*, p.205.

atmosphere every year. For example, a study in Germany found that all of the ingredients comprising a container of yogurt were transported, “more than 11,000 km before reaching the [German] consumer but could have easily been produced within 80 km of the consumer.”⁹⁵ This sort of almost oxymoronic behavior commonly occurs within the modern global food distribution network. In addition, the amount of waste generated due to the packaging that goes into food production system and uneaten or “expired” foods is enormous. Some authors have even found that food waste, including food scraps and packaging, “makes up to one third of the urban household, commercial, and institutional wastebasket.”⁹⁶ Not only are such vast amounts of waste problematic for the cities and states that must dispose of it, but its existence is also especially poignant when considering those within and outside of the U.S. who cannot meet their daily caloric needs.

In addition to the environmental issues associated with transportation and packaging of food and the waste ultimately generated at each stage of production and consumption, there are also problems surrounding the very act of growing food crops. In the present and the future, nations’ ability to feed their peoples will be challenged due to increasing population growth, the effects of climate change, and the degradation of land and water resources. In addition, clinging to the promise of technological advances is a risky strategy, as crop yield increases since 1984, “have slowed to around 1% per year—less than the amount needed to keep pace with population growth.”⁹⁷ These increases are likely to be hampered even further by the potential impacts of climate change, including rising temperatures and increased levels of drought and flooding in certain regions.

⁹⁵ Ellie Perkins. “Public Policy and the Transition to Locally Based Food Networks.” In *For Hunger-Proof Cities*, op cit., p.60-63.

⁹⁶ Johannes Wiskerke. “On Places Lost and Places Regained: Reflections on the Alternative Food Geography and Sustainable Regional Development.” *International Planning Studies* 14, no.4 (2009): p.373

⁹⁷ Leckie, op cit., p.148

Although delving into the workings of the global or national food production and distribution systems is outside the scope of this paper, it is clear that a more sustainable approach to food systems is needed. So far, this paper has discussed food access issues in both Washington, DC and Nairobi, Kenya and the effects of access on the health of individuals residing in these cities. To address the issue of access, many scholars have suggested the need for a broader shift in society's perception of the role of food. While such a change in perception would undoubtedly be necessary to achieve change in the greater food distribution networks, there are many steps that individual cities can take to make their own food systems more socially and environmentally sustainable.

A. Localization Efforts

In much of the literature and discussion on food systems, the need to “relocalize” food production and distribution is often prescribed as a way to make systems more environmentally sustainable and resistant to price shocks. Many researchers note that historical cities, such as London, were planned in such a way that mandated a rural-urban food dichotomy- i.e. land in the countryside was dedicated to food production that would directly feed both rural residents and proximate cities. Roberta Sonnino of Cardiff University's School of City and Regional Planning, notes that today, “As urban-rural linkages have weakened or even disappeared, cities have become increasingly dependent on the global industrialized food system.”⁹⁸ The loss of such urban-rural linkages is the result, she argues, of rapid urban expansion and development that have led to destruction of many cities' peri-urban areas, which have historically been critical for agricultural production. The result of this is the “disconnection” of cities from the “natural resource-base of their surroundings and from the productive systems that were associated with

⁹⁸ Sonnino, *op cit.*, p.426.

it.”⁹⁹ Ultimately, this disconnection has fueled cities’ dependence on the “global industrialized food system.” Sonnino explains that on environmental, social, and economic levels, this global food system has a number of negative side-effects, including nutrient pollution, the relative inability of the “small family farmer” to have farming as a sole source of income, and the displacement of small local retailers, which has exacerbated the aforementioned “food desert” issue.

Sonnino explains that much of the current literature on food systems is focused on urban agriculture as a strategy. In addition to helping urban residents meet their very real food security concerns, Sonnino explains that urban agriculture also is more environmentally sustainable than sourcing the entirety of the urban food supply from rural farms because it reducing emissions and pollutions that result from increased transportation. She provides one example in which city administrators in Dar es Salaam, Tanzania, are attempting to create a new low-cost transportation system for vendors using bicycles and handcarts. In developed nations, Sonnino states that urban agriculture can improve the “livability” of cities by introducing more “green space,” and increasing the feeling of community in an area. It is necessary, however, to note the risks involved with urban agriculture, particularly in post-industrialized nations. For example, urban farmers need to be certain to test local soils for potentially toxic contaminants if the food is to be consumed. The author warns, however, that focusing on urban agriculture could potentially undermine the viability of “regional food economies” by focusing on the divide between urban and rural and failing to see the value of peri-urban areas. Such as warning is also given by other scholars, such as Michael Hamm and Monique Baron of Rutgers University,¹⁰⁰ who similarly assert the importance of urban agriculture as a *part* of a larger strategy, rather than the panacea.

⁹⁹ Sonnino, *op cit.*, p.426

¹⁰⁰ Michael Hamm and Monique Baron. “Developing an Integrated, Sustainable Urban Food System: The Case of New Jersey, United States.” In *For Hunger-proof Cities*, *op cit.*

They, like Sonnino, prescribe increased emphasis on peri-urban areas and enabling farmers from these areas to sell directly in cities through marketing campaigns. In addition, they advocate the adoption of community gardens and nutrition education, which will ultimately bridge the gap between producers and urban consumers.

Sonnino ultimately proposes a new paradigm in which city administrators, not state or federal governments, are the principal planners of urban food policies. Sonnino explains that this arrangement is more appropriate for cities because they can better estimate their populations' needs and may be better situated to form an agenda to incorporate resources from local peri-urban and rural farmers into programs such as school or hospital lunch programs, for example. Sonnino stresses the need for a nexus between cities and their peri-urban and rural counterparts so as to "re-localize" food systems, thereby improving the environment, improving local food security, and enhancing the local economic and social systems. Sonnino explains, "The type of urban food strategies emerging today are attempting to integrate urban, peri-urban and rural areas into a coherent entity that fosters new synergies across a landscape 'where much is neither "urban" nor "rural" but has features of both'." ¹⁰¹

Scholar Johannes Wiskerke refers to this type of highly regionally-focused and specialized food system as an "Alternative Food Network" (AFN), which would be located within a greater system of the "Alternative Food Geography." ¹⁰² Wiskerke describes AFNs as follows:

AFNs represent spatially bound relations between consumers (predominantly urban dwellers) and the food market; they are considered to be the outcome of the deliberate intention to create alterity (or otherness) in the food system and to produce change in the

¹⁰¹ Sonnino, *op cit.*, p.434

¹⁰² Wiskerke, *op cit.*, p.375

‘modes of connectivity’ between the production and consumption of food, generally through reconnecting food to the social, cultural and environmental context of its production.¹⁰³

Given this definition, Wiskerke asserts that AFNs are only one part of the equation, and that other dimensions include the relation between the public and regional food markets (or “public food procurement”) and “urban food strategies,” which are created by cities and food policy makers. Wiskerke formulates a diagram depicting the way in which these three factors create a more interconnected food system by linking markets, governments, and civil society (See Appendix 1). He states that community agriculture initiatives and other programs are evidence of how these AFNs are growing and he provides examples of relocalization in food procurement for public programs and urban food strategies adopted by cities.

Similarly, scholars Marsden and Sonnino explains that many planners are developing “urban food strategies” to create a stronger link between urban food consumers and producers in nearby rural areas. They describe these strategies as “place-based” attempts to create a new global food agenda. The scholars also state that the U.S. city Los Angeles has adopted one such strategy, which it has coined as the notion of “good food,” defined as, “one that ‘prioritizes the health and well being of our residents; makes healthy, high quality food affordable; contributes to a thriving economy; protects and strengthens our biodiversity and natural resources throughout the region’.”¹⁰⁴ Both in developing and post-industrialized nations, Marsden and Sonnino claim that awareness of the need to adapt institutional standards for food provision is growing and that the EU Standing Committee on Agricultural Research has even called for research into new

¹⁰³ Wiskerke, op cit., p.375

¹⁰⁴ Terry Marsden and Roberta Sonnino. “Human health and wellbeing and the sustainability of urban–regional food systems.” *Current Opinion in Environmental Sustainability* 4, (2012): p.429

farming systems that better integrate historical “agro-ecological principles.” Indeed, many examples of such food strategies exist in both developed and developing nations alike.

B. Case-Studies and Community-Oriented Programming

On a practical level, achieving change in city food systems is often a slow and often frustrating process. The sections below will describe food strategies formulated by cities and some community initiatives started to bring fresh foods to underserved populations in the absence of such plans.

i. Programs and Policies in Developed Nations

One oft-cited modern city-wide food policy is Toronto’s Food Policy Council, which was founded in 1991 under the city’s Board of Health.¹⁰⁵ The Toronto FPC is run by an Acting Manager who is assisted by a paid employee. In addition, there are also 20 volunteers on the Council, which is supported by fundraising that has provided over \$3.5 million to local community organizations. Other accomplishments of the TFPC include the implementation of a \$2.4 million school food infrastructure programme and drafted a “Food Charter,” which was adopted by the Toronto City Council in 2001. In addition, TFPC consulted and provided input into agricultural land preservation and urban planning processes, economic development, urban agriculture and waste recovery, and community capacity building and education working with officials at the municipal, provincial and federal scales in advocating food security. The TFPC has been praised as seeking “multi-functionality” by pairing food security concerns with other city goals, helping to promote social justice issues. The TFPC has had its setbacks, however. Scholar Alison Blay-Palmer states that one such issue was its failure to create plan that recognizes the importance of food production in peri-urban areas, the preservation of which

¹⁰⁵ Alison Blay-Palmer. “The Canadian Pioneer: The Genesis of Urban Food Policy in Toronto.” *International Planning Studies* 14, no.4 (2009): 401-416

makes food systems more resilient and builds regional networks. In addition, Blay-Palmer states that the TFPC also faced challenges in incorporating food procurement criteria, such as sourcing both local and sustainable food, into city food policy. Despite these setbacks, however, TFPC has been a precedent-setting organization for municipalities due to its integrated, innovative nature and attention to social justice issues. Although TFPC has now been in existence for over thirty years, it continues to seek new avenues, such as the creation of street vendor stands, to address food access concerns.

One particularly interesting option pursued by the TFPC is their motion to shift away from traditional food banks. TFPC describes this choice as part of their movement away from the discussion of food security to one of “food sovereignty,” which incorporates both producers and consumers into the food system and focuses on their *rights* to fair incomes and the foods they need. This proposition is one that has also been made by scholar Winston Husbands of the University of Toronto, who, in his essay on food banks,¹⁰⁶ describes the need for traditional food banks to move away from focusing on merely emergency food assistance by incorporating an “antihunger” approach to food security. Husbands argues that evidence on food insecurity suggests that traditional food banks, particularly in Toronto, have not been successful in alleviating food insecurity due to its singular focus on, “ providing emergency assistance (hunger alleviation) but not to addressing hunger as a structural phenomenon.”¹⁰⁷ Husbands argues that food banks should move beyond emergency assistance and take a stronger stance as “antihunger” organizations, thus pursuing structural change through advocacy and community mobilization. Husbands prescribes following an “eradication model,” whereby food banks not only conduct research and educate the public, but also pursue the eradication of hunger through the genesis of

¹⁰⁶ Winston Husbands. “Food Banks as Antihunger Organizations.” In *For Hunger-proof Cities*, op cit. p.103-110

¹⁰⁷ Ibid, p.107

a “relentlessly” marketed public dialogue that pushes the addition of hunger to the public-policy agenda.

Such an innovative and powerful approach is similar to what is being put into practice by the DC-based organization Martha’s Table. Martha’s Table was founded in 1980 by Veronica Maz, a sociology professor, and Father Horace McKenna, a local priest.¹⁰⁸ The two had already opened a soup kitchen (So Others Might Eat) and a women’s shelter (House of Ruth), but wanted to establish an organization that would care for and feed children. Through community support, donations, and grants such as one from Microsoft in 1994, the organization developed services such as a before- and after-school program for elementary school children, a mobile soup kitchen called “McKenna’s Wagon,” new programs for middle- and high-school aged youth, a used-clothing center, and family workshops in a wide variety of areas. Today, in addition to these programs and emergency food assistance services, the organization is even constructing an on-site greenhouse to supplement their nutrition services through the growth and distribution of sustainably-harvested fresh produce.¹⁰⁹ The organization almost perfectly aligns with Husbands’ definition of an “antihunger” organization—i.e. it focuses on addressing the structural determinants of hunger, such as poverty, low-access, and educational barriers, rather than merely providing emergency assistance. In addition, through its food and nutrition programs and the addition of an on-site greenhouse, the organization is enabling changes in the local food system to occur.

¹⁰⁸ Bernard Ries. “Martha’s Table: A Twenty-Five Year History.” *Martha’s Table*. http://www.marthastable.net/assets/docs/25th_Anniversary.pdf (accessed April 2013)

¹⁰⁹ Zarinah Hameen. “2012 Fall Newsletter.” *Martha’s Table*. <http://www.marthastable.net/assets/docs/2012%20Fall%20Newsletter.pdf> (accessed April 2013)

Another DC-based community program with a slightly different role is the Common Good City Farm. Through an interview¹¹⁰ with Common Good City Farm's Farm Manager, Anita Adalja, a more thorough description of both the problems associated with food deserts and access, as well as the contributions of organizations such as Common Good City Farm to alleviating some of these issues, was able to be ascertained. Common Good City Farm was founded in 2007 as a community vegetable garden.¹¹¹ The farm operates on the lot of an old school playground, which allowed it to quickly move through the approval process, as it was never exposed to possible soil contaminants. The farm has a number of programs, including an afterschool program for local children, the "Green Tomorrows" nutrition workshop program for adults, a Community Supported Agriculture (CSA) program that allows local community volunteers to receive a portion of the farm's program every week, and a Small Enterprise Program that allows the farm to sell any remaining produce at local farmers' markets. According to Adalja, the farm gives away 85% of the total amount of produce grown, while selling the remaining 15% at the markets; any that was neither sold nor given to participants was donated to local food kitchens such as Martha's Table. In addition to these programs, the farm also offers food demonstrations, which teach participants about nutrition while showing them how to prepare nutritious and tasty meals with the farm's produce. Adalja also explained that the farm accepts compost from willing donors.

In addition to describing the farm's programs, Adalja also discussed some of the barriers to healthy food access for local residents. One of the specific problems she iterated was the fact that the LeDroit Park area, in which the farm is located, is not considered a food desert (perhaps because of the presence of Howard University), and thus perhaps receives less attention from aid

¹¹⁰ See Adalja interview in references

¹¹¹ "About Us." *Common Good City Farm*. <http://commongoodcityfarm.org/about> (accessed April 2013)

groups or developers. She asserted, however, that she has encountered many people who have to bus out of area to access grocery stores because there is an absence of more centralized food hubs. She explained that the cost of land is likely a barrier to the development of supermarkets, and that there is a need for “Adopt-a-Lot” programs, such as those in Baltimore, MD. Another food access problem she expressed was that local farmers cannot afford to sell to low-income groups by hosting farmers’ markets in the LeDroit Park area and even if they were incentivized to set up a stand in the area, local residents could not afford to buy from these markets. She explained that one solution to this problem would be the creation of a “Double Your Bucks” program. The Double Up Food Bucks Program, as it is formally called, started in Michigan and is a collaboration between the state and the USDA’s Supplemental Nutrition Assistance Program (SNAP).¹¹² This program allows the recipients of SNAP (the USDA’s new alternative to “food stamps”) to use these funds to purchase additional amounts of fresh produce from Michigan farmers. The program’s website explains: “When a person eligible for SNAP (Supplemental Nutrition Assistance Program) uses his or her SNAP Bridge Card to shop for food at a farmers’ market, the amount of money that he or she spends is matched with Double Up Food Bucks bonus tokens. The tokens can then be exchanged for Michigan-grown fruits and vegetables.”¹¹³ Adalja explained that such a program might help both local residents and farmers. She also stated that a clear barrier to local residents starting their own vegetable gardens is, not only possible soil contamination, but mostly that many urban residents today do not know how to grow their own food. When ultimately asked about the success of her organization, Adalja stated that she had anecdotal evidence of local participants changing their diets since becoming involved. Furthermore, the environmental sustainability of the farm was obvious, as it accepted local

¹¹² Double Up Food Bucks Program. “How it Works.” *Fair Food Network*. <http://www.doubleupfoodbucks.org/how-it-works> (accessed April 2013)

¹¹³ *Ibid*

compost, practiced no-till and organic agricultural methods, harvested rainwater to irrigate crops, and was a low-waste operation.

Another organization focused on food access, sustainable agricultural practices, and alternative food systems is the Arcadia Center for Sustainable Food and Agriculture.¹¹⁴ Arcadia Farm is located just outside Washington, DC, on the grounds of the historic Woodlawn Estate in Alexandria, VA. The farm, which is located on grounds originally belonging to George Washington's Mount Vernon site, was founded in 2010 in a partnership with the National Trust for Historic Preservation.¹¹⁵ Arcadia has a number of programs aimed at addressing food access issues and educating the public. The center's Food to School Program provides field trips for local schoolchildren, provides training and resources to make school lunch programs more healthy and sustainable, and encourages community engagement by working with local actors to prioritize farm-to-school programs regionally. Arcadia also offers week-long camps for children 6-12 years of age that focus on teaching children about sustainable farms and healthy foods. In addition to these programs for children, one of Arcadia's most notable programs is its Mobile Market. The Mobile Market is a "farmers'-market-on-wheels" that sells sustainably grown produce in underserved communities within Washington, DC.¹¹⁶ The pilot project, which was made possible by funders such as Whole Foods and Chipotle,¹¹⁷ just completed its first year in service. The farm sources its produce from Arcadia Farms and other local sustainable farms, even getting a small portion from Common Good City Farm. To achieve its mission of bringing healthy foods to low-access areas, the Mobile Market accepts SNAP benefits and other types of

¹¹⁴ *Arcadia Center for Sustainable Food and Agriculture*. <http://arcadiafood.org/> (accessed April 2013)

¹¹⁵ "Arcadia." *Woodlawn & Pope-Leighey House*. <http://www.woodlawnpopeleighey.org/arcadia> (accessed April 2013)

¹¹⁶ "Mobile Market." *Arcadia Center for Sustainable Food and Agriculture*. <http://arcadiafood.org/programs/mobile-market> (accessed April 2013)

¹¹⁷ Benjamin Bartley and Amy Best. "Mobile Markets: Applying the Food Truck Model to Food Access." *Arcadia*. http://arcadiafood.org/sites/default/files/files/Arcadia_Mobile_Market_Report_Web.pdf (accessed April 2013)

vouchers. The Market also offers on-site nutrition education and cooking demonstrations and even assists customers in finding affordable sources of food elsewhere in the capital region.

While the project faced challenges such as dealing with high levels of traffic, scheduling farm pick-ups, and finding places to park the vehicle, which contains several large refrigerators and freezers, the Market managed to build community relations such that 40% of all sales from May-October 2012 were made by repeat customers. In addition, the program reported that more than 40% of all sales were made using various forms of vouchers. These findings demonstrate that the Mobile Market has the potential to address access issues in these communities and could play a meaningful role in providing residents with healthy and affordable food options. While one mobile market may not be enough to address the overwhelming scale of access issues, it could certainly serve as a model for the implementation of more such markets.

Community-based initiatives such as Martha's Table and Common Good City Farm serve important roles within the greater alternative food system in Washington, DC. While a clear issue expressed by Adalja was that many residents of LeDroit Park could not afford sustainable food options such as those offered by farmers' markets, she also expressed the belief that local farmers deserve fair wages and that those who can afford these markets would enhance the local food movement by making purchases there. It is clear that these more expensive options also serve a role within sustainable food systems. Many of the authors of studies cited above expressed the need for greater numbers of small, locally-owned and managed farms. They also expressed the need for small farmers to have access to fair income. Many DC residents *can* afford quality, non-genetically modified produce from local farmers, and revenues from sales to these consumers could help fund losses made through sales in underserved areas. While Washington, DC, lacks a comprehensive city food policy such as Toronto's, cooperation among

various actors of the alternative food system has begun. In partnering with small farmers and local farmers' markets, community-based organizations like the ones detailed above are attempting to both address food security issues and start a larger dialogue within the region.

ii. Programs and Policies in Nairobi

Currently, nutrition education in schools is an emerging concept and goal in Kenya. In Kenya's National Food Security and Nutrition Strategy, increased nutrition information, especially through nutrition education in school, is among the main goals of the plan. However, it is difficult to monitor this goal's progress in promoting awareness, as monitoring since the creation of the strategy in 2008 has not been completed. According to the Kenya Institute of Education, neither health nor nutrition is an independent aspect of curriculum, though each may be briefly taught under science.¹¹⁸ In an interview with a nutritionist who teaches at Kenya Medical Training College of Nutrition in Karen, she specifically spoke about the state of nutrition education in schools in Kenya.¹¹⁹ Public Primary schools in Nairobi, she stated, generally do little nutrition education and though public and private primary and secondary schools in Kenya have nurses to take care of sick children, they do little to combat malnourishment. In a study she completed in Kibera in the 1980s, she found that many women were educated about nutrition primarily through information received at public health clinics. These women often visited clinics when pregnant or with young children and practiced nutrition guidelines when possible, but did not necessarily share this information with others in the household.

Similar ideas were shared by the head nutritionist at Leo Toto, a program for HIV positive children in Nairobi. Leo Toto receives funding from USAID and also receives food

¹¹⁸ "Primary Education Curriculum." *Kenya Institute of Education (KIE)*. <http://www.kie.ac.ke/index.php/divisions-a-departments/curriculum-a-research-services/basic-education.html?start=2> (accessed November 2010)

¹¹⁹ See Waihenya interview.

baskets, including fortified porridges and flours, from USAID and Concern Worldwide. In addition, Leo Toto teaches parents proper food preparation and nutrition. Beth Mungai, the nutritionist, reiterated the sentiment that mothers of young children are the main group receiving nutrition information. It is unlikely, she said, that this information is shared with the women's children and that as they get older, mothers tend to stop monitoring their children's diets as carefully. In addition, she said that children in primary school learn little about proper diet composition, and that they may learn more about nutrition in secondary school only if they take Home Science. She was hopeful, however, that Kenya's citizens are becoming more aware about importance of nutrition. She stated that the media is greatly contributing to these awareness campaigns, as is seen in the increase of nutrition-related news articles.

In addition to these food and nutrition based organizations, several organizations are focusing on building environmental awareness. One such organization is the Kenya Organic Agriculture Network (KOAN). While "organic agriculture" was practiced in Kenya for centuries before colonial times, the modern organic agriculture movement began in there in the 1980s.¹²⁰ Since its establishment in the early- to mid-2000s, however, KOAN has helped coordinate, facilitate, and validate these efforts through marketing, training, and certification initiatives. As of 2010, the organization claimed to represent over 35,000 Kenyan farmers and have over 200 corporate and individual members.¹²¹ KOAN also trained over 1,000 extension officers, who then taught farmers about organic farming, quality management, and marketing. KOAN also views itself as an organization that enables linkages between researchers, producers, regional and national bodies, and international aid groups. Among its strategic goals is the hope to address

¹²⁰ "About KOAN." *Kenya Organic Agriculture Network*. <http://www.koan.co.ke/about/index.php> (accessed April 2013)

¹²¹ "Strategic Plan: 2010-2014." *KOAN*. <http://www.koan.co.ke/resources/docs/koan-strategic-plan.pdf> (accessed April 2013)

both food insecurity and sustainability issues while also enabling economic growth. While organic agriculture undoubtedly raises awareness about environmental issues, KOAN has also claimed that it has allowed many farmers to raise their incomes by 15-70% due to yield and price increases under organic methods.

One of the oldest environmental organizations in Kenya is the Mazingira Institute, which was founded by Diana Lee-Smith and Davinder Lamba in 1978.¹²² Mazingira has been active in both rural and urban communities in Kenya in attempt to environment, agriculture, and food security issues. Since its beginnings, the institute has been active in researching, surveying, and promoting urban agriculture (*see the studies co-written by Lee-Smith cited above on urban agriculture in Kenya*). Lee-Smith, who was more recently a visiting professor at the University of Toronto, has provided invaluable insight over the years into the importance of urban agriculture to urban residents, the role of women in these activities, and the lack of governance structures for urban farming.¹²³ In addition to their work on urban agriculture, Mazingira also started the Nairobi and Environs Food Security, Agriculture, and Livestock Forum (NEFSALF Initiative) in 2004 to incorporate the practice of raising urban livestock into the discussion and start a dialogue among policy makers, farmers, veterinarians, and research institutions.¹²⁴ NEFSALF's work has led to a draft policy document on urban agriculture and has helped farmers feel more empowered through training initiatives.

¹²² Nourishing the Planet, Blog. "Mazingira Institute and NEFSALF: Training a New Breed of Farmers." *Worldwatch Institute*. Posted November 6, 2009. <http://blogs.worldwatch.org/nourishingtheplanet/mazingira-institute-and-nefsalf-training-a-new-breed-of-farmers-africa-agriculture-farmers-hunger-kenya-mazingira-institute-environs-food-security-agriculture-and-livestock-forum-nefsalf-urban-harvest/>

¹²³ Nourishing the Planet, Blog. "Looking Inside the Gates to Feed the City from Within: An Interview with Diana Lee-Smith." *Worldwatch Institute*. Posted November, 2011. <http://blogs.worldwatch.org/looking-inside-the-gates-to-feed-the-city-from-within-an-interview-with-diana-lee-smith/>

¹²⁴ Nourishing the Planet, Blog (2009), *op cit*.

VI. Recommendations and Conclusions

Many urban food systems are unsustainable, both environmentally and socially. Sustainability in urban food systems is important because it is a matter of social and environmental justice, as low access disproportionately affects some groups more than others. Making food systems more sustainable offers an added benefit of making them more *equitable* because more nutritious foods are available to those who typically would lack access. In addition, localization initiatives make city and regional food systems more resilient and independent. While this paper could not discuss the greater food system in the U.S. and Kenya in more detail, it is clear that the vastness of the task creating a food plan for even one city necessitates the integration of food network management into public policy. It is clear from the literature that *food planning* needs to become a part of modern urban planning through integration into city initiatives that better enable community leaders and organizations to coordinate efforts. The list below is a synthesis of the ideas discussed above and recommendations gathered from the relevant literature.

Some Recommendations:

- “Depoliticize” hunger- shift perceptions through civil action and public discourse so that access to healthy foods is viewed as a *right*
- Identify and preserve peripheral lands that are critical to “feeding” the city
- Reduce food waste through better infrastructure and distribution systems, including redistributing unsold food to food banks and using waste as compost
- Educate residents about nutrition and urban agriculture, city zoning and testing requirements, and gardening
- Educate citizens about the importance of small-scale agricultural production, both economically and socially
- Adopt the use of vacant urban lots for urban agriculture when viable (not on “brownfield” locations)
- Improve urban safety nets, for example, by strengthening existing food banks and focusing on making them “antihunger” organizations

- Promote urban agriculture by making it legal and regulated, which will allow for support systems and regulation of inputs, and by designing low-use water systems to accommodate crops and livestock.
- Improve funding for formal, community supported agriculture (CSA) programs
- Improve linkages between farmers, consumers, and governments through community organizations and formal institutions that allow a dialogue on alternative food networks

Specifically for DC:

- Enact compost initiatives- eventually aim to offer it as city-wide public service through the construction of a compost facility
- In suburban areas, include sites for neighborhood gardens in site development plans
- Encourage small farmers to sell in underserved areas through funding plans, such as “Double Up Your Bucks,” and mobile markets
- Enact supermarket ordinances, such as those in Chicago, which banned supermarkets from including restrictive covenants on leases to prevent new supermarkets from occupying previously vacated facilities.
- Enable established, small stores in underserved areas to sell fresh produce through grants to redesign stores
- Redesign urban bus routes and introducing bike lanes and better sidewalk networks to increase access and fitness
- Create state and local food policy councils, such as the Toronto Food Policy Council
- Shift public services, such as school and hospital lunch programs, to sustainably sourced food systems whenever possible (especially universities, which are often more progressive and can find support among donors and students)
 - Increase availability of fresh produce
 - Reduce portion sizes
 - Reduce sodium and added sugar levels within foods

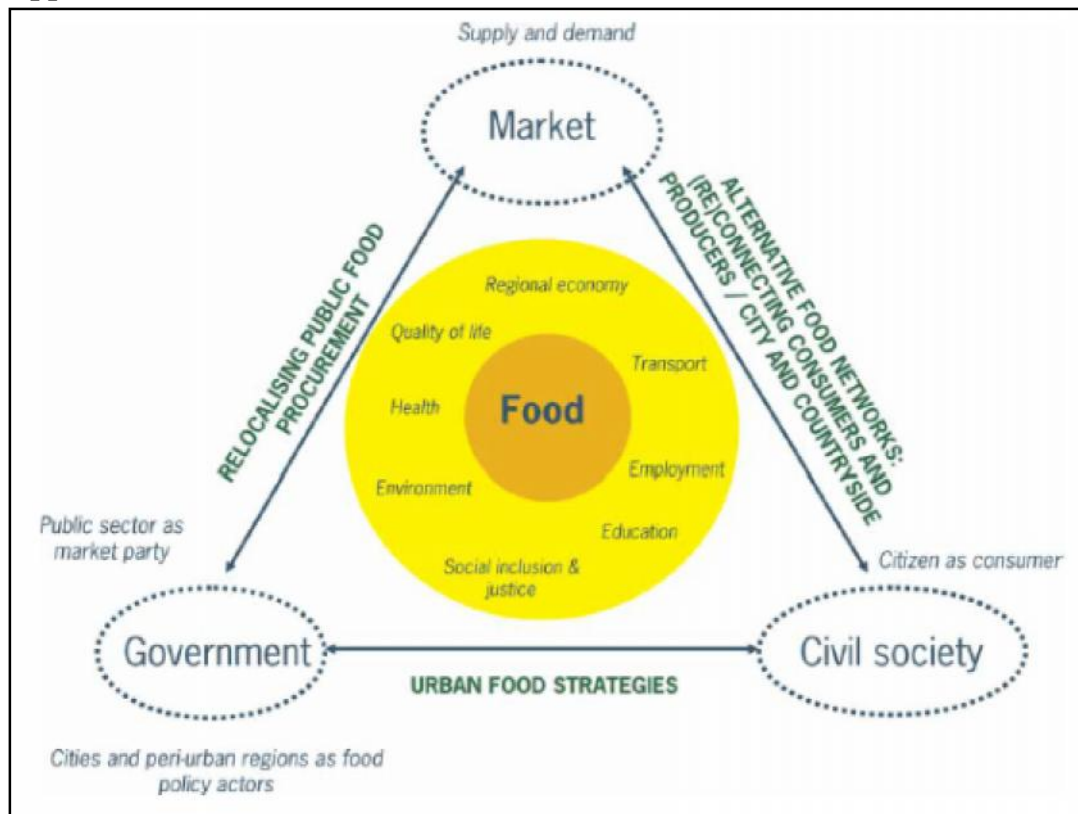
While this list attempts to synthesize the viewpoints discussed in this paper, it is by no means exhaustive. In an ideal world, every city would have a food plan or policy council, “alternative food systems” would be the norm, and there would be no need to discuss food insecurity at all, as it would not exist. Due to the very real and concerning problems with food production, distribution, and access in both post-industrialized and developing countries alike, this is unfortunately not the case. The health and societal issues that arise from these problems in the food system are numerous and include overweight/obesity, malnutrition, diabetes, and increased

risk of heart disease, among other things. While all of these health issues are prevalent in both developed and developing nations, the correlation between income and education levels and propensity to be overweight or obese differ greatly—i.e. in the U.S., lower income and education levels are often associated with increasing rates of overweight/obesity among women, while in Kenya, higher income and education levels are associated with increasing propensity to be overweight or obese among women. It is clear that in both situations, however, gender is a significant factor.

To combat these food access and health issues, a number of actions have been proposed. On a larger societal level, many researchers have proposed redefining the role of food within society so that it is no longer viewed as a commodity, but rather as a right. Others have proposed enabling a paradigm shift away from dependence on the “global industrialized food system” and into a new “relocalized” system that strengthens linkages between farmers in rural, peri-urban, and even urban areas, and consumers and governments. This shift would also allow local city planners to adopt food planning and policy formation into their agendas, rather than relying on policies passed down from state or federal governing bodies. These urban strategies would thus enable greater levels of equitability and sustainability in urban food systems. Already, “alternative food systems” are growing within cities and regions, as local activists, community organizers, planners, farmers, and consumers choose to start a dialogue on access and sustainability issues. Many national and local organizations in both Washington, DC, and Nairobi, Kenya, have advanced alternative sustainable food systems through the development of community-based initiatives and sustainability-oriented programming. The recommendations provided above have been gathered and chosen based on research and the practical lessons from these organizations’ successes. While building alternative food systems that focus on social

justice and environmental sustainability is still in the beginning stages, every movement must have its grassroots start. As awareness about these issues grow, more individuals, organizations, and institutions can be brought on board, and the scales may tilt in favor of a paradigm shift and meaningful change.

Appendix 1- Alternative Food Networks (Wiskerke)



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Primary Resources

Structured Interview and Participant Observation:

Anne Ayilo Anyasi

Rural Western Kenyan Resident

Date: October 26-30, 2010

Place: Bunyore, Kenya

Structured Interview:

Ester Waihenya

Nutrition Professor

Kenya Medical Training College of Nutrition- Karen

Date: November 19, 2010

Place: KMTC Karen

Structured Interview:

Rose and Faith

Marketing Director and Export Assistant

Amani ya Juu

Date: December 4, 2010

Place: Christmas Fair, Nairobi, Kenya

Structured Interview:

Anita Adalja

Farm Manager

Common Good City Farm

Date: March 22, 2013

Place: Common Good City Farms