

NUTRITION AND HEALTH EQUITY: THE ROLE OF WASHINGTON, D.C.'S EAST CAPITOL URBAN FARM

TIA D. JEFFERY, PH.D., RDN, CHES*

ABSTRACT

Disenfranchised communities have yet to become full beneficiaries of the core values of the Constitution. Health inequities are rooted in the social barriers connected to racism, classism, and sexism. Furthermore, marginalized groups in Washington, District of Columbia (D.C.), reside in food deserts. Urban agriculture has gained exposure as a working solution to the epidemic of food deserts in underserved urban communities. The East Capitol Urban Farm is one of the urban food hub extensions of the University of the District of Columbia College of Agriculture, Urban Sustainability, and Environmental Sciences. It operates in a food desert in Ward 7 of D.C. as a holistic movement that aims to dismantle the social determinants that perpetuate the inequities of nutrition-related illnesses. The ECUF promotes a food systems approach to health equity through sustainable food production, food preparation and nutrition guidance, food distribution, waste reduction, and economic opportunity. Community programs for families, youth, and seniors encourage them to lead purpose-driven lives through health behavior change, environmental responsibility, and service. With low capacity as a barrier to progress, community mobilization engages partners in the organization of activities to improve the food security, nutritional status, and fitness of D.C. residents. Historically, achievements in social justice and civil rights were attained through participatory involvement at the grassroots level. Moreover, racially and ethnically diverse populations represent the fastest-growing demographics and experience barriers to health equity. The food hubs value ethnic crop production and culturally relevant nutrition education, where individuals adapt to healthy eating through the lens of their heritage.

* Project Specialist (Nutrition and Community Health) for research and program initiatives College of Agriculture, Urban Sustainability and Environmental Sciences University of the District of Columbia. Special thanks to Sabine O'Hara and Dwane Jones for their conceptual vision of the UDC Urban Food Hubs and inspiration for this article. Thank you Ashley Milton, Lillie Monroe-Lord, Matthew Richardson, William Hare, and all other supporting staff and community partners for your contributions to my research and program goals that also inspired this article.

Lastly, reflections on agriculture through images of slave plantations and exploited immigrant workers do not constitute pleasant images of equality for people of color. Therefore, those images must be reframed as positive social change through sustainable agriculture that promotes optimal nutrition and economic advancement.

I. INTRODUCTION

Disenfranchised minorities of the United States (U.S.) have yet to become full beneficiaries of the core values of the Constitution rooted in the statements “all men are created equal” and “liberty and justice for all.” In a society built on capitalism, oftentimes, health inequities are rooted in the social barriers connected to racism, classism, and sexism. Health issues associated with malnutrition can be traced back to centuries of oppression. Native Americans surrendered acres of land to settlers under the leadership of President Andrew Jackson,¹ and Africans were sold into uncompensated labor under the brutal conditions of slavery in America. The establishment of the treaties displaced Native American citizens from the land and fresh, clean water they once used for hunting wild game, growing and gathering of edible plants, and fishing.² The U.S. government took on the responsibility of feeding them an ongoing supply of commodity foods, a dietary transition that paved the pathway to a surge of non-communicable diet-related diseases that were not previously observed among this population.³ The social and economic struggles of Black Americans due to systemic racism have trickled down to undesirable eating patterns and inferior health care options in comparison to their White counterparts.⁴ Furthermore, undocumented immigrant workers are exploited and subject to food insecurity.⁵ Despite their low compensation, they are assessed approximately eleven billion dollars in U.S. income taxes.⁶

Compromised nutritional status and inferior health care came with the territory of post-Civil War segregation and Jim Crow laws. The United States is no different than the rest of the world in that the most impoverished sub-populations are women and children.⁷ As of 2015, more than one in eight total women and more than one in three single mothers live in poverty.⁸ The East Capitol Urban Farm (ECUF) operates in a food desert in Ward 7 of

1. *Indians and the Removal Act of 1830*, OFFICE OF THE HISTORIAN, <https://history.state.gov/milestones/1830-1860/indian-treaties> (last visited Feb. 17, 2017). *See also generally* Indian Removal Act of 1830, ch. 148, 4 Stat. 411 (1830).

2. *See* Marie K. Fialkowski et al., *The Relevancy of Community-Based Methods: Using Diet Within Native American and Alaska Native Adult Populations as an Example*, 5 CLINICAL & TRANSLATIONAL SCI. 295, 295–96 (2012).

3. *Id.* at 296.

4. *See* Andrea Freeman, *The Unbearable Whiteness of Milk: Food Oppression and the USDA*, 3 U.C. IRVINE L. REV. 1251, 1276 (2013).

5. *See* MATTHEW GARDNER ET AL., INST. ON TAX’N & ECON. POL’Y, UNDOCUMENTED IMMIGRANTS’ STATE AND LOCAL TAX CONTRIBUTIONS 1 (Apr. 2015).

6. *Id.*

7. JASMINE TUCKER & CAITLIN LOWELL, NAT’L WOMEN’S L. CTR., INCOME SEC. AND EDUC. NATIONAL SNAPSHOT: POVERTY AMONG WOMEN AND FAMILIES, 2015 1 (Sept. 2016).

8. *Id.* at 1, 3.

Washington, District of Columbia (D.C.)⁹ Marginalized sub-populations reside in urban food deserts and suffer the consequences of over nutrition and under nutrition.¹⁰ Wards 5 and 8 of the nation's capital are also food deserts, with only one to four full-service grocery stores in comparison to eleven full-service grocery stores in the most affluent Ward 3.¹¹ Urban agriculture has gained considerable attention in recent years. It is often regarded as a working solution to the epidemic of food deserts and swamps in underserved urban communities with potential for global impact.¹² As in the age-old adage of "is it nature or nurture," are these food deserts the result of an inadequate food supply or are they more strongly attributed to corporate and politically driven disenfranchisement? Some socially conscious individuals may agree with the latter, whereas the environmentalist perspective may venture to attribute that status to both factors.

Health inequities have been a prolonged battle in marginalized communities. The Reverend Dr. Martin Luther King, Jr. gave a profound statement on the state of health care injustice in the United States at a Chicago press conference on March 25, 1966, during an annual meeting of the Medical Committee for Human Rights.¹³ His universal outreach in the fight for civil rights was not limited to the overt social injustices but also key social determinants of health that lead to inequalities in healthy food access and health care. He stated to the press, "We are concerned about the constant use of federal funds to support this most notorious expression of segregation. Of all forms of inequality, injustice in health is the most shocking and the most inhuman because it often results in physical death."¹⁴

There was a time when many individuals were impoverished, yet not necessarily food insecure since they resided in rural communities where they had open farmland to produce, process, and preserve their own food supply.¹⁵

9. E. CAPITOL URBAN FARM, EAST CAPITOL URBAN FARM PROJECT: A UDC PARTNERSHIP EFFORT 1 (2015), https://www.epa.gov/sites/production/files/2015-10/documents/ward_7_urban_farm_aquaponics_factsheet_final_august_2015.pdf.

10. See Sabine O'Hara, *Food Security: The Urban Food Hubs Solution*, SOLUTIONS J., Jan.–Feb. 2015, at 42, 43.

11. *Id.* at 43, 51 fig. 2.

12. *Id.* at 43–44.

13. *King Berates Medical Care Given Negroes*, Assoc. Press (Mar. 26, 1966), reprinted in PHYSICIANS FOR A NAT'L HEALTH PROGRAM, *Dr. Martin Luther King on Healthcare Injustice*, PNHP (Oct. 14, 2014), <http://www.pnhp.org/news/2014/october/dr-martin-luther-king-on-health-care-injustice>.

14. *Id.*

15. KATHERINE H. BROWN ET AL., CMTY. FOOD SEC. COAL. URBAN. AGRIC. COMM., *URBAN AGRICULTURE AND COMMUNITY FOOD SECURITY IN THE UNITED STATES: FARMING FROM THE CITY CENTER TO THE URBAN FRINGE* 5 (Feb. 2002).

Today, over eighty percent of the population now resides in urban areas,¹⁶ a notable change that necessitates a shift from a centralized to a more sustainable balance of power that includes decentralized food systems integrated with consumer health priorities. First Lady Michelle Obama made it part of her mission to engage children and youth in the value of harvesting, preparing, and consuming fresh food from the ground up with pop-up gardens in Washington, D.C., and other metropolitan areas during her national *Let's Move* campaign.¹⁷

Moving forward, there is considerable uncertainty about transitioning from the leadership of the Obama Administration, after eight years of social and health-related legislative accomplishments, to the current Trump Administration. Nevertheless, it is still the collective responsibility of communities to support, design, and execute community-centered policies and initiatives that promote equality and sustainability in all local food systems. It is essentially an impossible feat to discuss the land grant and holistic mission of the ECUF as an Urban Food Hub of the University of the District of Columbia (UDC) in terms of nutritional health and well-being without addressing the state of Washington, D.C., on social determinants of health. Therefore, the remainder of this commentary will review the nutrition and health inequities of Washington, D.C., highlight the gaps in nutrition and health equity that the ECUF is in the process of bridging, and emphasize a call for action on the eradication of health disparities through a sustainable food systems approach. This model mobilizes the community to take part in the educational and service-driven opportunities that provide tools to empower residents to make informed decisions that impact their health and nutritional status at the individual and community level.

II. NUTRITION AND HEALTH INEQUITIES OF MARGINALIZED D.C. COMMUNITIES

Over the past seven years, *Healthy People 2020* has undoubtedly reiterated the importance of health equity in order to eradicate health disparities through an action plan that addresses the following social determinants of health: (1) neighborhood and built environment, (2) health and health care, (3) social and community context, (4) education, and (5) economic stability.¹⁸

16. STEVEN G. WILSON ET AL., U.S. CENSUS BUREAU, REP. NO. C2010SR-01, PATTERNS OF METROPOLITAN AND MICROPOLITAN POPULATION CHANGE: 2000 TO 2010 5 (2012).

17. Thomas P. Ziehnert, *Food Deserts: Is the Let's Move Campaign an Oasis for the Urban Minority Community?*, 7 MOD. AM. 22, 31 (2011).

18. *Disparities*, HEALTHY PEOPLE, <https://www.healthypeople.gov/2020/about/foundation-health-measures/Disparities> (last accessed Apr. 16, 2017); *Social Determinants of Health*, HEALTHY PEOPLE, <https://www.healthypeople.gov/2020/topics-objectives/topic/social-determinants-of-health> (last accessed Apr. 16, 2017).

The state of the nation's capital on these leading indicators is comprehensively summarized by Chaya Merrill and colleagues of the D.C. Healthy Communities Collaborative in the District of Columbia Community Health Needs Assessment.¹⁹ It provides a foundation based on health data, perceptions of stakeholders, and socio-demographic characteristics.²⁰ It also serves as a guide that the ECUF and other UDC Urban Food Hubs can utilize to further enhance community-centered program development, research initiatives, and workforce and economic opportunities in the tradition of national land grants and historically Black colleges and universities (HBCUs). In alignment with the trend of most urban communities, the population of Washington, D.C., has experienced an eleven percent increase, from 601,723 in 2010 to 666,395 as of 2015.²¹ With respect to a changing population, our urban food systems are currently dependent on predominately centralized methods that require significant long-distance transport of fresh produce.²² This lowers the nutrient density and content of the food supply, whereas the nutrient content of local produce is better preserved.²³ The rapid pace of urban living is often accompanied by a desire for convenience, which includes the heavy consumption of fast foods and pre-packaged processed foods that are higher in total calories, saturated fat, sugar, and sodium, than a diet consisting of mostly fresh whole foods.²⁴

In terms of access to health care, Ward 7 residents have the highest rate of uninsured people followed by residents of Wards 5 and 8.²⁵ By 2015, the rates of homicides increased, with the highest rank in Ward 8, followed by Ward 7 and Ward 5.²⁶ From a socio-ecological perspective, these trends are a barrier to the well-being of local community members and organizations. Poverty and the crimes that tend to accompany this status contribute to environmental distress that can cripple the positive development of youth and provide limited safe, open spaces for engagement in adequate levels of physical activity necessary to sustain health.²⁷ There need to be enough outlets in their

19. CHAYA MERRILL ET AL., DISTRICT OF COLUMBIA COMMUNITY HEALTH NEEDS ASSESSMENT 2–3 (2016).

20. *Id.* at 14–17.

21. *Id.* at 7.

22. Diane M. Barrett, *Maximizing the Nutritional Value of Fruits & Vegetables*, 61 FOOD TECH. 40, 40 (2007).

23. *Id.* at 1–2.

24. Jane Dixon et al., *The Health Equity Dimensions of Urban Food Systems*, 84 J. URB. HEALTH i118, i120 (2007).

25. MERRILL ET AL., *supra* note 19, at 37.

26. *Id.* at 41.

27. *Environmental Barriers to Activity: How Our Surroundings Can Help or Hinder Active Lifestyles*, HARV. SCH. PUB. HEALTH, <https://www.hsph.harvard.edu/obesity-prevention-source/obesity-causes/physical-activity-environment/> (last accessed Apr. 16, 2017).

community to overcome those barriers. In addition, there is minimal willingness of retailers with higher varieties of healthy food options to develop a vested interest in servicing this community due to financial and safety risks associated with thefts, violence, and other forms of unrest.²⁸ To add further complexity to this dynamic, there is a perceived low purchasing power of residents due to the higher prices of the healthy foods that vendors distribute.²⁹ Moreover, the buyers tend to have limited exposure to preparation methods for the most nutritious foods.³⁰ This highlights the need for lay consumer-based education on cost-benefit analyses that promote the sustainability of purchase investments versus medical expenses, food budgeting, and meal-planning skills. Economically, obesity and chronic disease are estimated to cost billions of dollars in medical expenses nationwide.³¹ Addressing this concern should accompany the efforts to make fresh produce more affordable.

Although the infant mortality rate has declined within the past five years, rates remain significantly higher among infants residing in Wards 5, 7, and 8 of D.C.³² Preterm birth rates remain higher among Wards 5, 7, and 8 in comparison to other Wards as well.³³ For instance, although citywide preterm births were estimated at 10.6%, preterm births in Ward 7 were estimated at 16.2%.³⁴ The racial and ethnic groups with the highest preterm birth rates were found among Asian and Pacific Islanders.³⁵ Prenatal nutrition is of utmost importance from conception to birth. There are positive correlations between socioeconomic status and birth rate success as well as quality of prenatal health and birth rate success, which further confirms potential interrelationships between those factors and the built environment.³⁶

All groups are susceptible to the mental health issues in our society. There is urgency for initiatives that are conducive to removing the barriers from an overlooked and over-stigmatized community suffering from mental illnesses. Depression does not distinguish between race, ethnicity, gender, or social class. However, regular exposure to conditions of distress associated with

28. See POLICYLINK & LOCAL INITIATIVES SUPPORT CORP., GROCERY STORE ATTRACTION STRATEGIES 7 (2d ed. 2008).

29. JUDITH BELL ET AL., POLICYLINK & FOOD TRUST, ACCESS TO HEALTHY FOOD AND WHY IT MATTERS: A REVIEW OF THE RESEARCH 9 (2013).

30. Adam Drewnowski & Petra Eichelsdoerfer, *Can Low-Income Americans Afford a Healthy Diet?*, 44 NUTRITION TODAY 246, 246 (2009).

31. Deborah Leachman Slawson et al., *Position of the Academy of Nutrition and Dietetics: The Role of Nutrition in Health Promotion and Chronic Disease Prevention*, 113 J. ACAD. NUTRITION DIETETICS 972, 973 (2013).

32. MERRILL ET AL., *supra* note 19, at 30–33.

33. *Id.* at 44.

34. *Id.*

35. *Id.*

36. LINDA KELLY DEBRUYNE & KATHRYN PINNA, NUTRITION FOR HEALTH AND HEALTHCARE 270 (5th ed. 2013).

racial and income-related inequalities in food access, health, education, and economic opportunities can exacerbate the severity of depressive symptoms.³⁷ Interestingly, out of all eight Washington, D.C., Wards, the most impoverished Ward (Ward 8) ranked number one, and the most affluent Ward (Ward 3) ranked number two for the highest proportion of adults diagnosed with depression.³⁸ There was not much variation between race and ethnicity either. Nearly twenty percent of the entire city was diagnosed with depression, whereas Wards 3 and 8 were estimated at 23.7% and 28%, respectively.³⁹ Do the social conditions in Ward 8 place this community in a natural disadvantage as the highest-ranking Ward of adults diagnosed with depression? According to Karen Flórez, poverty is strongly linked to depressive symptomatology.⁴⁰ In addition, poverty status has been a factor in the alteration of brain mechanisms that increase depression risk.⁴¹ These characteristics have an enormous impact on nutritional status and well-being. Deficiencies in certain nutrients, such as essential fatty acids, folate, vitamin B12, and vitamin D, as well as alcoholism, are related to brain chemical imbalances connected to depressive symptoms.⁴² Moreover, food is often used as a coping mechanism for comfort and escape from the realities of undesirable social circumstances and low self-esteem without any regard to the nutritional quality and quantity of what is consumed.⁴³

There are inconsistencies between rates of alcohol abuse and ward-based health outcomes as well. Residents of the non-food deserts of Wards 1, 2, 3, and 6 and White adults reported the highest prevalence of binge drinking at nineteen to twenty-five percent, whereas other Wards averaged around fifteen percent for the same behavior.⁴⁴ This is one of many distinctions where health inequities can be factored in. On one hand, national alcohol and illicit drug use is not more prevalent among Blacks in comparison to White youth and adults.⁴⁵ However, the severity of the effects of substance abuse on individuals

37. Mariana Chilton & Sue Booth, *Hunger of the Body and Hunger of the Mind: African American Women's Perceptions of Food Insecurity, Health and Violence*, 39 J. NUTRITION EDUC. BEHAV. 116, 120 (2007).

38. MERRILL ET AL., *supra* note 19, at 45.

39. *Id.*

40. Karen R. Flórez et al., *Associations Between Depressive Symptomatology, Diet, and Body Mass Index Among Participants in the Supplemental Nutrition Assistance Program*, 115 J. ACAD. NUTRITION & DIETETICS 1102, 1105 (2015).

41. *See id.* at 1103.

42. DEBRUYNE & PINNA, *supra* note 36, at 560; Sue Penckofer et al., *Vitamin D and Depression: Where is all the Sunshine?*, 31 ISSUES MENTAL HEALTH NURSING 385, 385–86 (2010).

43. *See* Flórez et al., *supra* note 40, at 1106.

44. MERRILL ET AL., *supra* note 19, at 52.

45. DEP'T OF HEALTH & HUMAN SERVS., RESULTS FROM THE 2013 NATIONAL SURVEY ON DRUG USE AND HEALTH: SUMMARY OF NATIONAL FINDINGS 1, 26, 45, 88 (Sept. 2014).

is often far more publicized and criminalized in urban communities of color.⁴⁶ How can an aesthetically repugnant urban community with liquor retail businesses on every corner attain the same level of rehabilitative and nutritional support as an affluent area with more desirable amenities in the same district? During the process of planning interventions, this attainment can start with a commitment to treat all individuals with dignity. For instance, society need not wait until detrimental effects of a drug epidemic reaches the middle and upper classes and predominately White communities before advocating for initiatives to decriminalize users and medically treat these conditions as the addictions and diseases they always were.

Nutrition, physical activity, and obesity prevention remain primary initiatives of *Healthy People 2020*, as a healthy body weight alone lowers one's risk for developing hypertension, high cholesterol, heart disease, diabetes, and cancer.⁴⁷ Over fifty percent of the residents of D.C. are overweight or obese.⁴⁸ In comparison to many other health parameters, the disparities remain significantly more prominent in the food deserts of Wards 5, 7, and 8. In Wards 5 and 7, approximately seventy percent of residents are overweight or obese; and the overall overweight and obese status is similar in Ward 8, except approximately seven to ten percent more residents were reported as obese.⁴⁹ Furthermore, physical activity levels directly aligned with these findings. Nearly twenty percent of all D.C. residents did not engage in moderate to heavy physical activity within the past thirty days, whereas twenty-one percent of residents in Ward 5, twenty-eight percent of residents in Ward 7, and close to thirty-five percent of residents in Ward 8 did not engage in moderate to heavy physical activity over the past thirty days.⁵⁰

Nutrition and physical activity are complementary preventive agents that must be prioritized concurrently in order to reduce the prevalence of obesity. The epidemiology of physical inactivity is an emerging public health concern to the extent that recent findings suggest that sedentary lifestyles are linked to the same proportion of mortality rates as tobacco use.⁵¹

Out of the twelve leading chronic disease indicators in Washington, D.C., at least six of them are diet-related.⁵² In addition, Washington, D.C., has the highest reported rate of Human Immunodeficiency Virus/Acquired

46. See DRUG POL'Y ALL., *THE DRUG WAR, MASS INCARCERATION AND RACE* 1 (Feb. 2016).

47. MERRILL ET AL., *supra* note 19, at 46.

48. *Id.*

49. *Id.*

50. *Id.*

51. *Fact Sheet: Physical Inactivity and Poor Nutrition Catching up to Tobacco as Actual Cause of Death*, CTRS. FOR DISEASE CONTROL & PREVENTION (Mar. 9, 2004), www.cdc.gov/media/pressrel/fs040309.htm.

52. See MERRILL ET AL., *supra* note 19, at 54.

Immunodeficiency Syndrome (HIV/AIDS) in the nation.⁵³ Although nutrition and food safety are vital for all communities, they are especially crucial for high-risk groups such as those with HIV/AIDS or cancer, and those that are pregnant, elderly, or require pediatric care, since they have higher foodborne illness mortality rates than the general population due to low immune defenses.⁵⁴ In reference to education as a social determinant of health, the graduation rates of Black and Hispanic/Latino students in Washington, D.C., Public Schools are nearly twenty percent lower than White students and ten percent lower than Asian students.⁵⁵ The ECUF and other UDC Urban Food Hubs are not only sites for conducting sustainable food systems protocols from farm to plate.⁵⁶ They also serve as a university-community connection for engaging citizens through experiential learning, academics, and service throughout the life cycle in ways that optimize health and prepare them for positions of leadership to better meet the needs of their communities.⁵⁷ The following sections will address the nutrition and health equity dimensions of the ECUF and its significance for facilitating the empowerment of individuals residing in Washington, D.C.

III. URBAN FOOD HUBS SOLUTIONS TO HEALTH EQUITY

The ECUF is a holistic movement that aims to enhance the food security, health status, and economic opportunities of underserved D.C. residents.⁵⁸ According to the U.S. Department of Agriculture, food security is defined as “access by all members at all times to enough food for an active, healthy life.”⁵⁹ People will make decisions that lead to different paths. However, the need for nourishment to survive and thrive is a characteristic that people from all walks of life share. Therefore, the quality of our food supply has a pivotal impact on quality of life. In D.C. Wards where vast food and health inequities are a reality that the community experiences regularly,⁶⁰ the ECUF was not built to merely satisfy the landscape needs of a farm.⁶¹ Considering the

53. CTRS. FOR DISEASE CONTROL & PREVENTION, HIV SURVEILLANCE REPORT: DIAGNOSES OF HIV INFECTION IN THE UNITED STATES AND DEPENDENT AREAS, 2015 99 (2016).

54. See DEBRUYNE & PINNA, *supra* note 36, at 53.

55. See MERRILL ET AL., *supra* note 19, at 51 fig. 6.

56. See O’Hara, *supra* note 10, at 44.

57. See *id.* at 44–45.

58. *Id.* at 44. See also Dottie Yunger, *The East Capitol Urban Farm—in the Heart of DC*, NEW WORLD OUTLOOK MAG. (Feb. 26, 2017, 11:51 PM), <http://www.umcmmission.org/find-resources/new-world-outlook-magazine/2016/may/june/0707heartofdc>.

59. *Measurement*, U.S.D.A. ECON. RESEARCH SERV., <https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/measurement/> (last visited Feb. 26, 2017).

60. See MERRILL ET AL., *supra* note 19, at 6.

61. See O’Hara, *supra* note 10, at 43–44.

industrialization of urban communities, conventional farming methods would not be a sustainable approach for the UDC Urban Food Hubs.⁶² Urban soil alone would not guarantee an abundant and healthy harvest of fresh produce without manipulation via urban agriculture techniques that improve quality and safety of food production in city spaces.⁶³ The ECUF also represents a center of opportunity with a mission to empower the community to take part in efforts to tackle social determinants of health to improve wellness and food security.⁶⁴ The leadership approach is to give the community a fish and to teach them how to fish.

The dire need for a safe and accessible food supply among D.C. residents living along the Anacostia River was a precursor to the establishment of the ECUF. Through feedback from members of the community of Ward 7 concerning their need for food and sustainable jobs and an assessment of the health hazards associated with the presence of contaminants within the Anacostia River where residents went fishing, hunger took precedence over disease.⁶⁵ This raises another vital point: when basic needs are not adequately met, the human nature of survival mode can manifest and cloud one's ability to rationalize all potential consequences of certain behaviors.

According to a 2012 study, around 17,000 people were catching and eating Anacostia River fish that may have contained metal contaminants well above the maximum dosage levels considered safe for human consumption.⁶⁶ To address the inequities in healthy food options in the community, UDC-College of Agriculture, Urban Sustainability, and Environmental Sciences (CAUSES), Metropolitan Memorial United Methodist Church, and a host of other community partners came together to construct the ECUF on three acres of an abandoned parking lot.⁶⁷ The food production aspect of this project included the architectural construction of greenhouses, portable fish tanks, raised soil beds, and a closed-loop aquaponics and hydroponics system with high efficiency, resulting in little to no waste.⁶⁸ In addition, the commercial kitchen space serves as a training incubator for safe and healthy value-added food production and processing (food preparation).⁶⁹ Due to transportation-related barriers for residents in food deserts, bringing fresh produce directly to the community (distribution) is another key component of the ECUF.⁷⁰ One study found community-supported agriculture (CSA) to be a viable approach to

62. *Id.* at 44, 52.

63. *Id.* at 50.

64. *Id.* at 47.

65. Yunger, *supra* note 58.

66. *Id.*

67. E. CAPITOL URBAN FARM, *supra* note 9.

68. *Id.*

69. O'Hara, *supra* note 10.

70. *Id.* at 49.

improving the availability and marketability of fresh produce in under-resourced communities.⁷¹ The formation of partnerships with the ECUF is an ongoing process to ensure that consumers of the community are: (1) able to directly access the produce, prepared food, and recipes through distribution activities such as the operation of an affordable on-site farmers' market, food truck, restaurant and retail vendors, and CSA; and (2) educated on sound nutrition and physical activity information and empowered to eradicate health disparities. Lastly, the loop is closed through waste/water management and recycling via a composting site and anaerobic digesters.⁷²

This UDC-CAUSES Urban Food Hubs Model⁷³ simultaneously serves as a working solution to poverty, another precursor to food insecurity.⁷⁴ Poverty is an inhumane contradiction to freedom that creates vulnerability to inequities in the food environment, foodways, education, and employment. The infrastructures related to location, size, density, and distance of food retail outlets in relation to geographic residences are referred to as the food environment, whereas foodways are the food processes and customs in a community (production, preparation and processing, distribution, consumption, and dietary behaviors).⁷⁵ The health disparities and food deserts in close proximity to the strategic location of the ECUF depict a failed urban nutrition shift with reliance on what Jane Dixon refers to as a *bifurcated national food system*.⁷⁶ This deregulated system that places control in the hands of a limited proportion of national corporate food retail chains operates in a fashion that is favorable to affluent consumers while compromising the needs of the underserved consumers.⁷⁷ As a result of an assessment of the impact of traditional urban food systems on health equity (or lack thereof), Dixon identified the following seven determinants of urban nutrition inequalities that are strongly applicable to the underserved Wards of Washington, D.C.: (1) decline in national food self-sufficiency; (2) displacement of local food retailers due to a rise in the marketplace activities of corporate chains; (3) global food safety policies that pose risk factors on small food producers, retailers, and underserved consumers; (4) food system dynamics favoring highly processed and calorie-dense foods; (5) loss of livelihood options in local

71. See Sara A. Quandt et al., *Feasibility of Using a Community-Supported Agriculture Program to Improve Fruit and Vegetable Inventories and Consumption in an Underresourced Urban Community*, PREVENTING CHRONIC DISEASE, Aug. 2013, at 1, 5.

72. O'Hara, *supra* note 10, at 44–47.

73. See *infra* Figure 1.

74. O'Hara, *supra* note 10, at 53.

75. Carolyn C. Cannuscio et al., *The Contribution of Urban Foodways to Health Disparities*, 87 J. URB. HEALTH 381, 382 (2010).

76. Dixon et al., *supra* note 24.

77. *Id.*

food systems; (6) urban planning and car transport; and (7) multiple sources of advice that fuel consumer food anxieties.⁷⁸

Through innovative research and education on urban food production, food access (distribution), food preparation and evidence-based nutrition guidance, economic opportunity, landscape beautification, and waste reduction within each component of the urban food hub, the ECUF aims to dismantle the seven determinants of urban nutrition inequalities in D.C.⁷⁹ It reduces total dependency on a corporate, centralized food system that poses potential economic stability threats to local farmers and food retailers, especially in under-resourced areas.⁸⁰ In fact, this food hub is symbolic of a public health-oriented model of social justice, as opposed to market justice. Where social justice emphasizes civil responsibility and the well-being of the community as a whole, market justice supports the notion of personal responsibility, self-interests, and voluntary decisions regardless of the impact those decisions may have on an entire community.⁸¹

In terms of market justice, individuals can exercise their “right” to be heavy consumers of alcohol and highly processed, calorie-dense foods of inferior quality, allowing the consequences of those behaviors to manifest where they may.⁸² However, what will be the repercussions of those pseudo-freedoms on those people and society as a whole? Considering the nature versus nurture predispositions passed from generation to generation in families,⁸³ the connection between alcohol and abuse, violence, and auto accidents⁸⁴ and the increased national health care expenditures on morbidities associated with diet-related, non-communicable diseases and obesity,⁸⁵ choices that are perceived as freedom become obsolete. In alignment with the social justice framework, leaders and partners of the ECUF food hub can use their skills to empower the community to make informed food and health decisions through education, training, and participation in the advocacy process. This supports the fundamental quote, “knowledge is power.” Through sound health decisions, the increased potential for optimal vitality strengthens the physical

78. *Id.* at i124–25.

79. *See infra* Figure 1.

80. *Id.*

81. Peter P. Budetti, *Market Justice and US Health Care*, 299 JAMA 92, 92 (2008).

82. *See id.*

83. Saul McLeod, *Nature vs. Nurture in Psychology*, SIMPLY PSYCHOL. (2007), <http://www.simplypsychology.org/naturevsnurture.html>. *See also* Bill Arck & Julie Hamel, *Alcoholism: Nature vs. Nurture*, HIGHER EDUC., Spring 2011.

84. Gerhard Gmel & Jurgen Rehm, *Harmful Alcohol Use*, 27 ALCOHOL RES. & HEALTH 52, 54, 55, 57 (2003).

85. *The Healthcare Costs of Obesity*, STATE OF OBESITY, <http://stateofobesity.org/healthcare-costs-obesity/> (last accessed Apr. 25, 2017).

vigor and mental capacity of citizens for active involvement in the fight for justice and equality for themselves and their community.

Based on the most prominent and nationally recognized advances in public health over the past few centuries, it is evident that the traditional medical model has deficiencies as a method for addressing nutrition, health status, and treatment of non-communicable diseases at the macro level.⁸⁶ However, it has its place in addressing the health care needs of individuals at the micro level as well as prevention, treatment, and cure approaches for most communicable diseases. Effective healing methods for lifestyle-related health issues are quite unique in the sense that one cannot depend on a prescription for a limited period and then resume all prior activities as usual.⁸⁷ Rather, a holistic approach that addresses environmental, policy, and individual barriers to wellness should be extended in order to reach the mass population.⁸⁸ The UDC-CAUSES Urban Food Hubs Model⁸⁹ provides a holistic food systems perspective for reducing health disparities and improving food security by placing equal emphasis on educating residents about healthy eating and living, entrepreneurship and workforce development training, sustainable urban planning, and waste reduction and reuse.⁹⁰

The seventh determinant of urban nutrition inequalities specified multiple sources of advice that fuel consumer food anxieties.⁹¹ In order to delve deeper into the food, nutrition, and health aspects of the Urban Food Hubs and the ECUF, this paper proposes a model in Figure 2 that depicts a graphic representation of the purpose for the nutritional implications of the ECUF and the goals of the National Institute of Food and Agriculture.⁹² Ultimately, the listed activities within the middle of the diagram are implemented in an effort to target health promotion, obesity, diet-related chronic disease, and foodborne illness prevention.⁹³ Mass marketing advertisements of highly processed, empty-calorie foods, and fad diets confuse the general public and do not promote sustainable eating behaviors and attitudes about food.⁹⁴ The urban

86. See WORLD HEALTH ORG., INNOVATIVE CARE FOR CHRONIC CONDITIONS: BUILDING BLOCKS FOR ACTION 30 (2002).

87. See Alexandra Sifferlin, *Just Say No: When It Makes Sense Not to Take Your Medicine*, TIME (Oct. 16, 2013), <http://healthland.time.com/2013/10/16/just-say-no-when-it-makes-sense-not-to-take-your-medicine/>.

88. Slawson et al., *supra* note 31, at 972.

89. See *infra* Figure 1.

90. O'Hara, *supra* note 10, at 53.

91. Dixon et al., *supra* note 24, at i125.

92. See *infra* Figure 2.

93. *Id.*

94. See Lucia A. Reisch et al., *Experimental Evidence on the Impact of Food Advertising on Children's Knowledge about and Preferences for Healthful Food*, J. OBESITY, 2013, at 1, 2; Sherry L. Pagoto & Bradley M. Appelhans, *A Call for an End to the Diet Debates*, 310 JAMA 687, 688 (2013).

food hubs concept encourages sustainable eating practices to support equitable health and to meet the needs of the community. The sustainability of the nutritional status of individuals is not limited to maintenance of food preparation and eating behaviors that are currently regarded as “healthy.” Beyond this point, sustainability in eating for optimal nutrition involves our ability to adapt our eating behaviors to inevitable changes in dietary needs based on varying circumstances.⁹⁵ For instance, the onset of a medical condition or food allergy can occur at any age, physical activity levels can fluctuate, an unforeseen injury can challenge the eating and shopping routines a person was once accustomed to, and nutritional requirements continuously change from conception to late adulthood. In fact, Frederick Kirschenmann pinpointed that sustainability cannot be defined:

Since nature is full of emergent properties, sustainability is always an emerging concept. Sustainability is about maintaining something indefinitely into the foreseeable future. Consequently, to be sustainable we have to anticipate and successfully adapt to the changes ahead. Sustainability is a process, not a prescription. This process always requires social and ecological as well as economic dimensions. There is therefore no simple definition. It is a journey we embark on together, not a formula upon which we agree.⁹⁶

In 2007, the Sustainable Food System Task Force of the Academy of Nutrition and Dietetics (American Dietetic Association during the period of Task Force activities) defined a sustainable food system based on the principles of sustainability, which closely aligned with social justice: “A sustainable food system exists when production, processing, distribution, and consumption are integrated and related practices regenerate rather than degrade natural resources, are socially just and accessible, and supports the development of local communities and economies.”⁹⁷

95. See generally Frederick L. Kirschenmann, *Food as Relationship*, 3 J. HUNGER & ENVTL. NUTRITION 106, 113 (2008).

96. *Id.*

97. AM. DIETETIC ASS'N SUSTAINABLE FOOD SYS. TASK FORCE, HEALTHY LAND, HEALTHY PEOPLE: BUILDING A BETTER UNDERSTANDING OF SUSTAINABLE FOOD SYSTEMS FOR FOOD AND NUTRITION PROFESSIONALS 16 (2007).

maintain a healthy lifestyle” in order to live longer.⁹⁹ However, troubling rates of violence, homicides, and other crime-related statistics of underserved areas of Washington, D.C., and other inner cities indicate that youth and young adults are dying young, and the “eat well and exercise” message may not resonate with some due to poverty-based circumstances.¹⁰⁰ They can navigate through the motions of a healthy lifestyle on any given day and then become deceased victims of a rampant homicide in their neighborhood on the next. A qualitative study of female food pantry clients in Philadelphia shed some light on the realities faced beyond hunger of the body. In what was themed as *hunger of the mind*, they reported often becoming numb to their physical needs due to anxieties exacerbated by violence, disrespect, and addictions they developed as a way to self-medicate in their environment.¹⁰¹ Considering these factors, the aging process is relative. On one hand, some vibrant seniors are active and independent. Contrary to this, there are bedridden individuals who are physically unable to manage basic needs all by themselves.¹⁰² The senior programs of the UDC Urban Food Hubs value quality of life above all.

Due to the holistic vision of the ECUF, there are similarities between the goals for this hub and the lifestyle customs of populations residing in five areas known as the *Blue Zones*. Blue Zones are five towns that represent the healthiest groups of people with the lowest mortality rates in the world.¹⁰³ They include Ikaria, Greece; Okinawa, Japan; Ogliastra region, Sardinia; Loma Linda, California; and Nicoya Peninsula, Costa Rica.¹⁰⁴ Values that all five Blue Zones collectively share directly correlate with the achievement of health equity through a built environment designed to enhance well-being based on the social determinants of health.¹⁰⁵ Common lifestyle practices of Blue Zones include physical activity through moving naturally such as walking or gardening; positive social circles; attendance of faith-based services on a regular basis regardless of denomination; investment in family, children, and

99. See, e.g., David Sucusy, *Healthy Living: How to Live Longer*, BBC SCIENCE (Apr. 19, 2013), <http://www.bbc.co.uk/science/0/22019289>.

100. See Claire Conway, *Poor Health: When Poverty Becomes Disease*, U.C. SAN FRANCISCO (Jan. 6, 2016), <https://www.ucsf.edu/news/2016/01/401251/poor-health>.

101. Mariana Chilton & Sue Booth, *Hunger of the Body and Hunger of the Mind: African American Women's Perceptions of Food Insecurity, Health and Violence*, 39 J. NUTRITION EDUC. & BEHAV. 116, 123 (2007).

102. Kathleen M. Mathieson et al., *Maintaining Functional Independence in Elderly Adults: The Roles of Health Status and Financial Resources in Predicting Home Modifications and Use of Mobility Equipment*, 42 GERONTOLOGIST 24, 25 (2002).

103. DAN BUETTNER, *THE BLUE ZONES SOLUTION* 18 (2015).

104. *Id.* at 19.

105. *Id.* at 24.

youth; generous intake of plant-based foods (many which are locally grown and distributed); and having a sense of purpose.¹⁰⁶

In comparison, the ECUF places substantial emphasis on improving capacity for production and distribution of locally grown produce through the urban food hubs.¹⁰⁷ With the physical activity benefits associated with gardening and harvesting fresh food, community members are invited to volunteer their time working outdoors in the field. In addition, there are pathways on the site designed for individuals to utilize for walking. Aiming for a Blue Zone environment may not only improve population longevity, but also, most importantly, it may improve quality of life. In terms of investment in family, children, and youth, in the tradition of UDC as a land-grant university, the ECUF functions as an extension of this institution with community programs for families, youth (Center for 4H and Youth Development), seniors (Institute of Gerontology), and community partners.¹⁰⁸ Furthermore, the faith-based community contributes to the development and ongoing growth of this food hub since its inception in 2013.¹⁰⁹ The contributions of faith-based organization partnerships with the ECUF through the 11th Street Bridge Park initiative will be discussed in the following section.

V. CAPACITY-BUILDING AND PARTICIPATORY RESEARCH

Community mobilization is the process being used by the ECUF to increase capacity by engaging different sectors of the community in the organization and implementation of activities to improve food security, nutritional status, and fitness of D.C. residents, especially in Wards on the east side of D.C.¹¹⁰ Improving community-level adherence to dietary guidelines must start with strengthening the social determinants that detract individuals from prioritizing their nutritional well-being. Advocacy for nutrition and health equity is a utilization of the principles that represent the fight for social justice. Progress from historical and present-day realities of the oppressed and marginalized fighting for equality and justice has been achieved by visionary leadership and participatory involvement of the community at the grassroots level. It is a misunderstood phenomenon that heightened public attention to an issue alone brings about change. Media attention can boost awareness and at times, present stereotypical images of sub-groups. However, media attention accompanied by aggressive but civil behind-the-scenes strategic planning,

106. *Id.* at 20–21.

107. E. CAPITOL URBAN FARM, *supra* note 9.

108. *Academic Programs*, UNIV. D.C. COLL. AGRIC., URBAN SUSTAINABILITY & ENVTL. SCIS., http://dev.udc.edu/college_of_urban_agriculture_and_environmental_studies/college_of_agriculture_urban_sustainability (last visited Apr. 19, 2017).

109. E. CAPITOL URBAN FARM, *supra* note 9, at 2.

110. *See id.* at 1.

community organizing, research, program development, and policy advocacy are the contributing elements that bring about change.

Partnerships with other sectors of the community play an integral role in the development and growth of the ECUF. Low capacity has been a barrier to efficient progress in the growth and progression of services of our UDC Urban Food Hubs.¹¹¹ Laura Anderko referred to partnership and inclusiveness, rather than exclusiveness, as a moral obligation to the community in order to achieve health equity since health is affected by a multitude of factors.¹¹² Partnerships also build relationships where there is often a disconnection between universities and the local community they are commissioned to serve, rather than exploit for personal gain. Outcomes from several successful nutrition education interventions suggest that relationship building through positive social interactions, such as group cohesiveness, contributed to increases in fruit and vegetable intakes as well.¹¹³

In 2010, President Barack Obama signed an Executive Order entitled *Promoting Excellence, Innovation, and Sustainability at Historically Black Colleges and Universities*, which established a White House initiative to strengthen the capacity of HBCUs through participation in federally funded programs and public-private partnerships due to the historic achievements and contributions of HBCU graduates assuming leadership positions.¹¹⁴ The development and capacity building of the urban food hubs, with the ECUF as the premier off-campus site, places UDC in a unique position to collaboratively address nutrition-related health disparities. This effort is proposed to expand contributions to the achievement of the vision, goals, and objectives of HBCUs, informing policy and practice to improve the welfare of the nation.¹¹⁵ As these opportunities grow, the ECUF is building upon existing food security and community nutrition initiatives to expand its reach to community members who would otherwise be uninformed about specific programs and services, such as farmers' markets, where individuals on federal

111. JAMES BARHAM ET AL., U.S.D.A., REGIONAL FOOD HUB RESOURCE GUIDE 24 (Apr. 2012).

112. Laura Anderko, *Achieving Health Equity on a Global Scale Through a Community-Based, Public Health Framework for Action*, 38 J. L., MED., & ETHICS 486, 487 (2010).

113. Marlyn Allicock et al., *Evaluating the Implementation of Peer Counseling in a Church-Based Dietary Intervention for African Americans*, 81 PATIENT EDUC. & COUNSELING 37, 42 (2010); Carol M. Devine et al., *Sisters in Health: Experiential Program Emphasizing Social Interaction Increases Fruit and Vegetable Intake among Low-Income Adults*, 37 J. NUTRITION EDUC. & BEHAV. 265, 269 (2005); Ken Reniscow et al., *Body and Soul: A Dietary Intervention Conducted Through African-American Churches*, 27 AM. J. PREVENTIVE MED. 97, 102 (2004).

114. *Promoting Excellence, Innovation, and Sustainability at Historically Black Colleges and Universities*, 75 Fed. Reg. 9,749, 9,749 (Mar. 3, 2010).

115. *Id.*

food assistance can receive discount benefits for purchasing local produce.¹¹⁶ In addition, capacity-building through partnerships allows ECUF to execute a train-the-trainer philosophy in an effort to position and engage community members toward assuming leadership roles that spread the health message to individuals beyond the reach of community outreach coordinators and researchers alone.¹¹⁷

The ECUF has a history of faith-community partnership in an effort to provide food assistance to underserved D.C. residents.¹¹⁸ The faith-based community has been gaining a pivotal role as viable and culturally relevant health promotion sites in recent decades. The Black community alone has a prominent history of reliance on spirituality for inspiration, hope, and healing throughout decades of discrimination, segregation, and civil rights activism.¹¹⁹ Public health scholars have noted positive impacts of using faith as a bridge between the gap of evidence-based nutrition guidelines and receptiveness to health behavior change among congregation members and faith leaders.¹²⁰ The American Cancer Society and National Institutes of Health partnered with African American churches in California, northeast states, and southeast states to evaluate the effectiveness of nutrition education and counseling interventions that measured fruit and vegetable intake among participants.¹²¹ Relationship building through interactive group cohesiveness, activities, and events that enhanced the culture of health in the church environment contributed to significant improvements in fruit and vegetable intakes among faith-community participants in these studies.¹²² The primary suggested area for development was the need for more consistency in peer counseling after peer counselor training in order to improve effectiveness of nutrition and physical activity behavior change in a sustainable way.¹²³

Considering that countless positive social change advocacy organizations in the Black community had their roots organized and established among congregational members and community visitors in churches, faith-based organizations represent authentic platforms for nutrition education and community health outreach.¹²⁴ The ECUF partnership with the 11th Street

116. *Farmers' Markets and the D.C. Farmers' Market Collaborative*, D.C. HUNGER SOLUTIONS, <http://www.dchunger.org/projects/farmers.html> (last visited Feb. 25, 2017).

117. See O'Hara, *supra* note 10, at 47–48.

118. *Id.* at 44.

119. Judith Weisenfeld, *Religion in African American History*, Oxford Res. Encyclopedia Am. Hist., Mar. 2015, at 1, 3, 9, 19–20.

120. Allicock et al., *supra* note 113, at 37. See also CPPW EVALUATION TEAM, UNIV. ARIZ. COLL. PUB. HEALTH & PIMA CTY. HEALTH DEP'T, FAITH-BASED ORGANIZATIONS 9 (2012).

121. Allicock et al., *supra* note 113, at 37; Reniscow et al., *supra* note 113, at 97–98.

122. Devine et al., *supra* note 113; Reniscow et al., *supra* note 113, at 98–99.

123. Allicock et al., *supra* note 113.

124. CPPW EVALUATION TEAM, *supra* note 120, at 1.

Bridge Park project is a work-in-progress toward breaking the chains of health inequities through construction of recreational pathways that encourage physical activity and urban gardens on partner faith-community properties located along the Anacostia River of Wards 6 and 8.¹²⁵ In addition, themed as *Local Food and Fitness: Bridging Broken Bonds through Community Participation*,¹²⁶ train-the-trainer land-grant certificate programs for community members in urban agriculture, nutrition and wellness, and sustainable development are included in the initiative.¹²⁷

The health equity and well-being of children and youth are imperative priorities for the ECUF. In the context of the positive youth development framework, it is necessary to shift away from the mentality of basing youth programs on problem behaviors.¹²⁸ Based on the positive youth development framework, youth need to be valued as resources rather than deemed as problems.¹²⁹ With the school environment as the place where children and adolescents spend the majority of their waking hours, the UDC Urban Food Hubs are a community resource for maintaining and enhancing the involvement of parents and Washington, D.C., public and charter school system in educating students about food and nutrition.¹³⁰ Fresh produce from the ECUF and other UDC Urban Food Hub sites are used as hands-on demonstration tools to complement lessons provided by the nutrition educators in preschool, elementary, and middle school classrooms.¹³¹ Train-the-trainer resources enable teachers to reinforce the messages. Next steps include effectiveness evaluations of current school nutrition education programs of the urban food hubs, as well as capacity-building, and student and faculty development in high schools. Adolescence is the stage in life where peer influence is often valued above motivation for scholastic achievement and engagement in positive health behaviors, especially among underserved, urban youth at risk for food insecurity.¹³² Moreover, career exposure and apprenticeship opportunities for these high school students in food, agriculture,

125. *About the 11th Street Bridge*, 11TH STREET BRIDGE PARK, <http://www.bridgepark.org/about-11th-st-bridge-park> (last visited Feb. 27, 2017).

126. SABINE O'HARA ET AL., CHANGING URBAN LANDSCAPES THROUGH EDUCATION (forthcoming 2017).

127. UNIV. D.C., 2017 UNIVERSITY OF THE DISTRICT OF COLUMBIA COMBINED RESEARCH AND EXTENSION PLAN OF WORK 6, 63 (Sep. 19, 2016).

128. *Positive Youth Development*, YOUTH.GOV, <http://youth.gov/youth-topics/positive-youth-development> (last visited Feb. 27, 2017).

129. *Id.*

130. UNIV. D.C, *supra* note 127, at 2, 3, 6.

131. O'Hara, *supra* note 10, at 47–48.

132. INST. MED. & NAT'L RESEARCH COUNCIL COMM. ON SCI. ADOLESCENCE, THE SCIENCE OF ADOLESCENT RISK-TAKING 64–65 (2011); Sarah-Jeanne Salvy, *Influence of Peers and Friends on Children's and Adolescents' Eating and Activity Behaviors*, 106 PHYSIOLOGY & BEHAV. 369, 380 (2012).

natural resources, and human sciences (FANH) disciplines will be essential to the development of the future workforce of FANH professions. This is a high priority for the U.S. Department of Agriculture due to shortages in college graduates entering the field and economic instability of minorities in urban, underserved communities.¹³³

With wellness incorporated into affordable health care, clinics that service low-income clients are evolving from sites primarily known for distribution of conventional medications to inclusion of a monthly package of locally grown, fresh produce as prescriptions to aid in patient management of cardiovascular disease, hypertension, diabetes, and weight control.¹³⁴ In addition, food pantries managed by non-profit agencies and faith-based organizations are evolving from sites accustomed to distribution of emergency non-perishable foods to additional distribution of locally grown fresh produce for emergency food assistance clients.¹³⁵ The recent UDC Urban Food Hub research and community outreach partnerships with these agencies will extend their connection to the food preparation and food distribution components of the food hubs.¹³⁶ Produce, recipes, and produce guides of the urban hubs and CSA partners of the ECUF are resources for fresh produce donations and educational demonstration opportunities for health clinic and food pantry nutrition and cooking class attendees.

Economic stability is one of the social determinants of health strongly associated with food security.¹³⁷ The ECUF investment in workforce development of the community is channeled through land-grant training and academic programs. Furthermore, partnerships with existing local small business owners, such as small restaurants and markets, will provide them with affordable access to a sustainable supply of whole foods to better serve the health and preferences of their consumers. Moreover, training in safe food handling that accommodates all literacy levels of food service workers is another attribute of ECUF workforce development in this community. Saru Jayaraman exposed numerous accounts of respect and integrity in the regard that employers had for their employees in small business restaurants across the United States in comparison to the exploitation of food service employees of many large-chain restaurant corporations in her critically acclaimed book

133. *Employment Opportunities for College Graduates in Food, Agriculture, Renewable Natural Resources, and the Environment*, U.S. D.A. (2015), <https://www.purdue.edu/usda/employment/>.

134. Molly Miller, *Food Prescriptions: Using Healthy Food to Manage Chronic Disease and Improve Community Health*, STAKEHOLDER HEALTH (June 22, 2015), <https://stakeholderhealth.org/food-prescriptions/>.

135. *Recovery/Donations*, U.S.D.A. OFFICE CHIEF ECONOMIST, <https://www.usda.gov/oce/foodwaste/resources/donations.htm> (last accessed Apr. 25, 2017).

136. See O'Hara, *supra* note 10, at 50–51.

137. *Disparities*, *supra* note 18.

Forked.¹³⁸ Some unethical practices included inferior standards for worker wages and benefits, sexual harassment tolerance due to dependence on tips for wages, and overtime violations.¹³⁹ With these working conditions and issues at stake, the role of the ECUF in supporting the development and maintenance of small, local food businesses is another viable step toward strengthening the communities in every Ward of Washington, D.C., to achieve health equity.

The agricultural experiment station of the urban food hubs is positioned to develop sustainable advances in urban agriculture, nutrition for health and disease prevention, food safety, food preparation and processing methods, food marketing, waste and water management, and urban planning.¹⁴⁰ Conducting research is essential to determining health impacts of nutrition interventions, crop production methods that enhance nutrient density, and environmental impacts. However, one needs to be empathetic toward the exploitation of communities of color in past research studies. Consider the Tuskegee Syphilis Experiment in Macon County, Alabama.¹⁴¹ David Smolin argues his point about the decades-long project being a form of racial discrimination with inhumane practices through a lens very similar to the anti-Semitism of the Nuremberg Tribunal.¹⁴² On a positive note, it led to the formation of an extension of the 1974 National Research Act via the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research.¹⁴³ Building relationships with all sectors of the community through participatory methods and other forms of engagement during all stages of new ECUF developments is the goal for establishing trust in an atmosphere of mistrust. Current nutrition research initiatives for ethnic crops, food banks, high school students, and faith-based health promotion will aim to translate findings into practical use among local and global communities.¹⁴⁴

VI. COMMUNITY EMPOWERMENT THROUGH CULTURALLY RELEVANT NUTRITION EDUCATION

According to the U.S. Census, the U.S. population reflects more ethnic diversity and minorities represent the fastest growing demographic. The 2012 U.S. Census Report indicated that eighty-four percent of the population resides

138. SARU JAYARAMAN, *FORKED: A NEW STANDARD FOR AMERICAN DINING* 3–4 (Oxford University Press, 2016).

139. *Id.* at 7, 11, 12.

140. *Agricultural Experiment Station*, UNIV. D.C., http://dev.udc.edu/college_urban_agriculture_and_environmental_studies/agricultural_experiment_station (last accessed February 26, 2017).

141. David M. Smolin, *The Tuskegee Syphilis Experiment, Social Change, and the Future of Bioethics*, 3 *FAULKNER L. REV.* 229, 229 (2012).

142. *Id.* at 238.

143. *Id.* at 240.

144. UNIV. D.C., *supra* note 127, at 8, 24, 25, 44.

in major metropolitan areas.¹⁴⁵ Furthermore, the highest concentrations of racial and ethnic minorities reside in metropolitan areas in comparison to micropolitan areas.¹⁴⁶ In Washington, D.C., alone, the racial and ethnic composition consists of nearly fifty percent Black, thirty-six percent White, eleven percent Hispanic/Latino, and four percent Asian residents.¹⁴⁷ Given the fact that Washington, D.C., is an entirely urban geographic environment,¹⁴⁸ the relevance of building the UDC Urban Food Hubs is a timely mission that is geared toward merging the maintenance of evidence-based guidelines on biological nutritional needs with the deviation from a traditional tendency to promote nutrition education standards through the lens of White culture.

Despite growth and changes in demographics, there is a tendency for experts to rely on tools that are culturally acceptable to them personally regardless of the audience they are addressing. This raises concern about assimilation through melting pot views of using the dominant culture as the norm on which to base all other traditions.¹⁴⁹ The melting pot view encourages assimilation that results in minorities from other cultures dismissing their norms in order to adapt to the customs of the dominant culture.¹⁵⁰ These learned behaviors can deter from the inclusiveness that is necessary for achieving health equity in all sectors of the United States.¹⁵¹ The salad bowl view is much more inclusive. Because everyone has a heritage, the salad bowl view values the importance of cultural education, especially for health care providers and nutrition educators.¹⁵² The salad bowl paradigm encourages individuals to simultaneously retain their own identities and contribute to society as a whole.¹⁵³ For instance, instead of replacing signature dishes, developing more nutritious preparation techniques could be a more supportive approach. The beauty of being American citizens or residents is the fact that our foundational history of immigrants, as well as Native American and Alaskans, allows everyone the opportunity to experience and celebrate collective differences, including dietary cuisines.

The Ethnic Crops Program of the UDC Urban Food Hubs and the ECUF aim to provide consumers with various racial and ethnic backgrounds with

145. WILSON ET AL., *supra* note 16, at 15.

146. *See id.* at 35, 38.

147. MERRILL ET AL., *supra* note 19, at 9.

148. E.A.H., *Why Washington, D.C. is Seeking Statehood*, ECONOMIST (Apr. 28, 2016), <http://www.economist.com/blogs/economist-explains/2016/04/economist-explains-13>.

149. Kelebogile Tsametse Setiloane, *Beyond the Melting Pot and Salad Bowl Views of Cultural Diversity: Advancing Cultural Diversity Education of Nutrition Educators*, 48 J. NUTRITION EDUC. & BEHAV. 664, 664–65 (2016).

150. *Id.* at 665.

151. *Id.* at 666.

152. *Id.*

153. *Id.* at 665.

healthy, plant-based foods that satisfy their desire for the international crops they were accustomed to during their upbringings.¹⁵⁴ Furthermore, it gives D.C. residents the opportunity to learn ways to utilize alternative crops through access and recipes with vast health benefits that cater to their taste.¹⁵⁵ Components of the Ethnic Crops Program include research and outreach on ethnic crop production methods, health through heritage nutrition education interventions, relationship building between growers and consumers, and business opportunities for local farmers.¹⁵⁶ One review of many studies even revealed a correlation between the acculturation of immigrants or their second-generation children into westernized dietary behaviors and increased Body Mass Index, declined self-assessed health, and increased usage of health services due to the onset of chronic health conditions.¹⁵⁷

In addition to the value of cultural relevance in nutrition education, *food literacy* is a term that can be described as an element of health literacy in one way and an emerging concept in another.¹⁵⁸ Tracy Cullen emphasized that food literacy goes beyond “skills on how to cook, shop, and read nutrition labels.”¹⁵⁹ It discourages the assumption that individuals make undesirable food choices and use unhealthy food preparation techniques due to limited personal knowledge and skills alone.¹⁶⁰ This definition of food literacy, which has many of the characteristics that the ECUF supports as an urban food hub, proposes the inclusion of all contexts within the social determinants of health:

Food literacy is the ability of an individual to understand food in a way that they develop a positive relationship with it, including food skills and practices across the lifespan in order to navigate, engage, and participate within a complex food system. It’s the ability to make decisions to support the achievement of personal health and a sustainable food system considering environmental, social, economic, cultural, and political components.¹⁶¹

Delving beyond the standard concept of food security as having adequate access to enough food at all times, another emerging concept is *food*

154. CTR. FOR URBAN AGRIC. & GARDENING EDUC. COLL. AGRIC., URBAN SUSTAINABILITY AND ENVTL. SCIS. 4 (Sept. 29, 2014), <http://www.udc.edu/docs/causes/UDC%20Muirkirk%20Farm.pdf>.

155. *Id.*

156. UNIV. D.C., COLL. OF AGRIC., URBAN SUSTAINABILITY & ENVTL. SCIS., ETHNIC AND SPECIALTY CROPS: A MARKETING GUIDE, <https://www.udc.edu/docs/causes/Ethnic%20Crops2.pdf> (last accessed Apr. 19, 2017).

157. Dia Sanou et al., *Acculturation and Nutritional Health of Immigrants in Canada: A Scoping Review*, 16 J. IMMIGRANT MINORITY HEALTH 24, 28 (2014).

158. Tracy Cullen et al., *Food Literacy: Definition and Framework for Action*, 76 CAN. J. DIETETIC PRAC. & RES. 140, 141, 143 (2015).

159. *Id.* at 141.

160. *Id.* at 143.

161. *Id.*

sovereignty, with local initiatives that would also be sustainable to implement on a global scale.¹⁶² In recent years, scholars have argued that many community food security initiatives shift the responsibility from the state to the individual and do not hold the socio-political forces accountable for their part in the disparities.¹⁶³ Food sovereignty appears to support the concept of health equity through a focus on the social determinants that influence health impacts.¹⁶⁴ It emphasizes a democratic structure in responsibility of food resources and policies that support a balance of power in the food system, productive management of resources, and fair trade without excessive interference by international commodity markets.¹⁶⁵ With an equivalent focus on both food security and training in entrepreneurship, business, and economics from a food systems perspective, the ECUF is on the path toward possessing the infrastructure for cultural relevance, food literacy, and food sovereignty.¹⁶⁶ The capacity to bridge all of those components together is where support is imperative in order to lead this vision through a sustainable process.

VII. NUTRITION AND HEALTH EQUITY THROUGH SERVICE-LEARNING AND COMMUNITY ACTIVISM

Inequalities in urban health necessitate urban university-community engagement in an effort to drive the eradication of health disparities in underserved communities that are local to universities that could engage in service to the local community. Ira Harkavy highlighted this initiative as a relevant strategy and civic duty for higher education to foster the involvement of faculty and students in service learning as a real-world teaching model for future leaders as well as an opportunity to mobilize their community.¹⁶⁷ In addition, this model (especially the economic development and skills-training aspects) puts underserved citizens who are accustomed to being on the receiving end for food, housing, and health care assistance in empowering positions of service and leadership.¹⁶⁸

At the College of Public Health of the University of Arizona, public health graduate students who engaged in community-based health projects through a service-learning course reported higher satisfaction in leadership skills,

162. Anelyse M. Weiler et al., *Food Sovereignty, Food Security and Health Equity: A Meta-Narrative Mapping Exercise*, 30 HEALTH POL'Y & PLAN. 1078, 1079 (2015).

163. *Id.* at 1080.

164. *Id.* at 1079.

165. Hannah Wittman, *A New Rights Framework for Food and Nature?*, 2 ENV'T & SOC'Y: ADVANCES IN RES. 87, 94 (2011).

166. E. CAPITOL URBAN FARM, *supra* note 9.

167. Ira Harkavy, *Engaging Urban Universities as Anchor Institutions for Health Equity*, 106 AM. J. PUB. HEALTH 2155, 2156 (2016).

168. *See id.*

humility, rewarding hands-on experiences, and strengthened interest in working with underserved communities.¹⁶⁹ Moreover, in the inner cities of West Philadelphia, Pennsylvania, and Newark, New Jersey, universities implemented economic development programs that expanded job opportunities for residents.¹⁷⁰ The ECUF and community partners are applied learning sites where undergraduate and graduate students engage in volunteer and paid opportunities in research and program implementation through components of the urban food hubs.¹⁷¹ This system encourages the empowerment of the community to learn the necessary food and health literacy skills to make informed health decisions and recognize their dormant power to attain the educational and economic development and entrepreneurship skills for better control over the availability of high-quality foods and other resources.

Lessons from the Civil Rights Movement can aid in the development of urban food security activists among community members and stakeholders of the ECUF. Lessons include beginning the movement through challenging small injustices, taking non-violent aggressive action, gaining outside support, strategic training, and preserving one's culture.¹⁷² Interestingly, an inspired group of Muslim American activists of the American Islamic Conference applied strategies from the *Montgomery Bus Boycott Method* of the Martin Luther King, Jr. era to non-violently challenge dictatorship and repression in Muslim-majority communities.¹⁷³ Applied lessons included exploring case studies, implementing of a leadership event, seed funding, and building a larger network.¹⁷⁴ Utilizing the civil rights model case study, a campaign through the creation of an e-newsletter branded *The CRIME Report* (Civil Rights in the Middle East) with a "WANTED" publication feature mobilized an infrastructure for arrested advocates.¹⁷⁵ This, in turn, increased the external support of international leaders to pressure individuals in political power through thousands of emails and petition campaigns, which signaled the release of many jailed activists.¹⁷⁶

Through train-the-trainer methods, in vision, the ECUF will continue establishing broader reach to empower a larger proportion of the community to make informed health decisions and to understand their food retail purchasing power as consumers. During the period of the *Montgomery Bus Boycott*, Black

169. Samantha Sabo et al., *Service Learning: A Vehicle for Building Health Equity and Eliminating Health Disparities*, 105 AM. J. PUB. HEALTH S38, S41 (2015).

170. Harkavy, *supra* note 167.

171. E. CAPITOL URBAN FARM, *supra* note 9.

172. Zainab Al-Suwaij, *The Civil Rights Model: Applying the "Montgomery Method" to the Middle East*, 10 REV. FAITH & INT'L AFF. 89, 91 (2012).

173. *Id.*

174. *Id.* at 93–94.

175. *Id.* at 94.

176. *Id.*

citizens learned that achieving the outcomes they desired was about far more than their equal right to sit anywhere they wanted on the bus.¹⁷⁷ They had not tapped into capitalizing on the fact that they comprised thirty-nine percent of the population of Montgomery, Alabama, and seventy-five percent of the citizens using public transportation.¹⁷⁸ The economic impact of the bus boycott on the city meant loss of revenue in public transportation and local retail businesses, job losses, and increases in bus fares before the U.S. Supreme Court confirmed the decision of the Middle District of Alabama by ruling segregated buses unconstitutional.¹⁷⁹ Citizens of Wards 5, 7, and 8 can set the tone for change by leveraging their purchasing power through supporting local farmers' markets, refusing to buy foods that contribute to their bondage to obesity and chronic disease, participating in town hall meetings, and electing federal and local officials who support better food and nutrition policies.

VIII. AGRICULTURE IN COMMUNITIES OF COLOR: FROM SLAVE PLANTATIONS TO POSITIVE SOCIAL CHANGE

Optimal nutrition and health equity must be achieved through sustainable agriculture and improvements in the social determinants of health. However, people of color comprise the largest proportion of urban food deserts, and their reflections on agriculture may not constitute pleasant images of equality.¹⁸⁰ A few of many instances include the historical conditions on slave plantations and discriminatory practices that crippled economic capacity of Black farmers in the United States. Furthermore, Hispanic and other foreign-born immigrants face exploitation such as low compensation with little or no basic worker benefits.¹⁸¹ The ECUF, by way of the UDC Urban Food Hubs, seeks to simultaneously improve food security as it builds education and workforce skills as a land-grant university-community connection working to establish a global urban food systems model. In summation, the ECUF can draw inspiration from legendary African American pioneers of post-Civil War agricultural advancements, such as the 105 peanut discoveries by George Washington Carver and the synthesis of medicinal drugs from plants by Percy Lavon Julian.¹⁸² Through reflection on past achievements and continued

177. Al-Suwaij, *supra* note 172.

178. Kwando M. Kinshasa, *An Appraisal of Brown vs. Board of Education, Topeka KS (1954) and the Montgomery Bus Boycott*, 30 W. J. BLACK STUD. 16, 17 (2006).

179. *Id.* at 19.

180. *Food Deserts*, FOOD EMPOWERMENT PROJECT, <http://www.foodispower.org/food-deserts/> (last accessed Feb. 20, 2017).

181. Chenoa A. Flippen, *Laboring Underground: The Employment Patterns of Hispanic Immigrant Men in Durham, NC*, OXFORD UNIV. PRESS, Feb. 2012, at 21, 23.

182. AM. CHEM. SOC'Y, SYNTHESIS OF PHYSOSTIGMINE 1 (Apr. 23, 1999). *See also generally* GEORGE WASHINGTON CARVER, HOW TO GROW THE PEANUT AND 105 WAYS OF PREPARING IT FOR HUMAN CONSUMPTION (2d ed. 1917).

community mobilization, the ECUF can embrace its own potential for innovative advancements in urban agriculture and effective nutrition intervention as tools for positive social change.

