Around the world populations are growing, and this includes the developed United States. According to the United States Census Bureau, the country’s population is projected to grow by 79 million people by 2060, even after growth rates have dramatically slowed. Moreover, the United States population is expected to exceed 400 million by 2058 (2020). As the population continues to grow in America, so do the populations in urban areas. Currently, over 82% of the population is urban (World Bank, 2018). This is quite an increase from 1970 when only around 70% of the population was urban (World Bank, 2018). There are many problems that the government must address, reevaluate, and change in order to keep up with growing urban populations. One particular problem that is becoming a prevalent issue in urban areas all over the country is the lack of access to healthy and fresh produce offered in stores.

One term that is used to describe this lack of access to fresh food is a “food desert.” A food desert is an urban area that has limited access to good quality, fresh food either because of high prices or accessibility issues. While food deserts exist in all American cities, there are certain groups of people who experience the consequences of food deserts more than others. Low-income and minority neighborhoods are disproportionately affected by food deserts and struggle to find affordable healthy produce.

There are many different ways that urban neighborhood residents struggle to find healthy foods. Whether that be the lack of stores around them that sell fresh produce or the fact that it is more convenient for them to go to a fast food restaurant. A study done by Hilmers et. al. (2012) compiled a multitude of studies in different cities around the US that examined the accessibility of different neighborhoods to fresh and healthy foods. In New York City, Los Angeles, and New
Orleans they found that unhealthy foods were promoted more heavily in African American neighborhoods than in their white counterparts. Lower-income neighborhoods in southern LA have a greater proportion of fast food restaurants than wealthier neighborhoods in LA. Lastly, they found that in Kansas City and Honolulu the most deprived neighborhoods had more convenience stores than more affluent neighborhoods.

While most people think of food deserts as places where there is no food available to people who live in a certain area, that is not the case. A majority of the time, especially in urban areas, there is plenty of access to food. However, the food that is available is highly processed and is far from being fresh. In Oakland, North Carolina, there are more food outlets by lower-income schools, than by higher-income schools. However, these places of food nearer the low-income areas have less healthy snacks, low-fat dairy products, and low-sugar beverages (Tester et. al., 2011). Lower-income areas often struggle to live a healthier lifestyle because they are surrounded by an abundance of food, yet food that is higher in saturated fats and sugar. While it is evident that minorities suffer the most from this food problem, it is still a national problem that needs to be addressed by the federal government.

The federal government typically favors large agricultural corporations who produce crops in bulk to support the new trend in America to “buy in bulk.” As a result, American farm and food policy advisers typically subsidize corn and soybeans, which are often used to make food that is very processed and that is high in saturated sugars and fats. Growers of fruits and vegetables receive little to no subsidies, so their incentive to grow nutritious, healthy foods is low. These practices are ironic considering health experts advise people to eat 50% fruits and vegetables yet the food industry produces much more processed and unhealthy foods.
Low-income neighborhoods in inner cities often have access only to unhealthy foods made from corn and soybeans because so many farmers are growing these cheap crops.

In the early 1900s, grocery stores in urban areas had a more personal relationship with the city in which it was located, because they depended more on their sales from the people who lived by it. However, between the 1930s and 1950s, this relationship changed as the urban dynamic changed. As the government funded more roads to be built and as the automobile industry took off, it expanded the ways in which Americans could choose to live their lives. Unfortunately, not all Americans had this right to choose. One particular example of this occurred in Oakland, California, but it was not the only place to take part in it.

After the Great Depression devastated America in the early 1930s, to encourage people to buy houses the Federal Housing Administration (FHA) administered highly subsidized and low-interest loans that were part of the New Deal. These loans fueled the growing suburbs around Oakland. The dream of being a homeowner vanished as quickly as it started for some families. The new single family homes in these growing suburbs excluded African Americans because they rarely got accepted for the FHA loans. Until around 1950, developers and homeowner associations excluded people of color so they could keep the “natural” feel of the predominantly white suburbs (Sugrue 2005, as cited in McClintock, 2011, p. 98). Even after Shelley v. Kraemer, which shut down racially restrictive housing covenants, people of color continued to face many obstacles to move out into the suburbs.

Along with this “white flight” of middle class white workers leaving the cities to go live in the suburbs, the food industry was changing as well. By 1960, over two-thirds of all groceries were purchased in supermarkets (McClintock, 2011, p. 107). Most of these supermarkets resided
in suburbs with large parking lots that were only accessible by automobile. The new surge of supermarkets put small grocers out of business. Chain supermarket stores began to control the prices of goods and drove out many of the independent supermarket stores. Empty, failed supermarkets began to plague many inner city neighborhoods. As a result of industry jobs and supermarkets moving out of the city, the only food that was available to the people left was cheap, convenient junk food that was available at the corner store and fast food; and because of the racial discrimination of housing covenants, the only people left in the inner-city were people of color and low-income families who could not afford to move out into the suburbs.

As American cities continue to grow in size, the problems that go along with it are also increasing as well. One of these major problems that the government needs to address are the food deserts in which millions of people live, leaving them without the opportunity to purchase and consume fresh and healthy foods. These food deserts have the largest impact on people of color and low-income families who live in inner cities. The increased amount of automobiles, highway routes, and subsidized loans all contributed to the migration of middle class white families to the suburbs of major cities. Along with transformation of middle sized grocery stores to retail massive superstores, these new megastores followed the money out to the suburbs leaving the disadvantaged inner city residents with corner stores and fast food with no sign of healthy foods.

One promising development that is addressing the food desert problem is the emergence of urban agriculture. Urban agriculture is defined as “a local food system where food is produced within an urban area and marketed to consumers within that area” (United States Environmental Protection Agency, 2020). Urban agriculture can also include things like
beekeeping and animal husbandry, for example, breeding and raising livestock. Typical urban agricultural practices includes “small-intensive urban farms, food production on housing estates, land sharing, rooftop gardens and beehives, schoolyard greenhouses, restaurant-supported salad gardens, public space food production, guerrilla gardening, allotments, balcony and windowsill vegetable growing and other initiatives”(Tornaghi, 2014, p. 551). As a result of rural farmers producing a large amount of corn and soybeans because of large subsidies, urban agriculture has the potential to benefit cities all across the United States and help bring fresh, local foods to residents who currently struggle to secure these types of foods. There are also other benefits related to urban agriculture that will benefit both the city and people who live in food deserts.

Community and identity are two important ways that urban agriculture can benefit cities and neighborhoods, but most importantly, the neighborhoods that struggle maintain these. Urban agriculture can bring the community together by all working together to reach a common goal to bring healthier food either to their community or to where it is needed more. There are also enrichment programs that help educate residents of low income neighborhoods. Some of the activities that can be provided include skills development, cooking and nutrition, and farming and gardening in the city (Ackerman et. al., 2014, p. 192). Seeds to Feed Rooftop Farm is an example of an educational program that provides the Brooklyn Crown Heights neighborhood with exposure to urban farming and healthier, fresh produce. They also offer farming and cooking workshops to help encourage the residents to get involved in the community and be exposed to a healthier lifestyle.

Urban agricultural practices have profound effects on the environment, specifically on the urban heat island effect. An urban heat island occurs when an urban area or city experiences
higher average temperatures than the surrounding rural areas, and can cause an increase between 0.6°C and 1.2°C of temperatures in cities (Memon et al. 2008, as cited in Ackerman et al., 2014, p. 192). Increasing the amount of vegetation can reduce the urban heat island effect by altering the balance of heat in a city and can also increase the amount of shade, can redistribute incoming solar radiation and can diffuse light that is reflected by surrounding buildings. Without these practices the radiation would reflect off of other surfaces and would reradiate as heat (Memon et al., 2008 as cited in Ackerman et al., 2014, 192).

Cities often face a problem when they are inundated with large amounts of rainwater, and urban agriculture can help with this. Rooftops with gardens and agriculture are better able to retain rainwater, as opposed to roofs without any urban agriculture. In fact, they are able to hold between 52.3 and 100 percent of precipitation (Czemiel Berndtsson, 2010, as cited in Ackerman et al., 2014, p. 193). Green roofs also have the potential to make runoff water cleaner than runoff water on regular roofs. Runoff from vegetated roofs have lower concentrations of heavy metals than regular rooftops (Czemial Berndtsson, 2010, as cited in Ackerman et al., 2014, p. 193). However, there are mixed findings on the nutritional makeup on runoff water from vegetated roofs (Emilsson et al., 2007, as cited in Ackerman et al., 2014, p. 193).

Lastly, food grown and harvested locally in cities can lower the energy associated with transportation. The miles that food travels would greatly be reduced if it were grown in cities as opposed to a rural location. Another advantage of reducing the miles that food travels is that it can significantly reduce the amount of food that goes bad, which also reduces food waste. With less food waste, there will be more food to feed low-income families and families who live in food deserts.
Most importantly, urban agriculture can provide necessary income to people who struggle to find and hold down a job. Rice and vegetables are two examples of food grown in urban agriculture that have the ability to provide households with income security (Vagneron 2007, as cited in Ackerman et al., 2014, p. 191) because they are staples and have a high demand. In some areas, families who receive their incomes from urban agriculture are able to even employ other workers (Graefe et al., 2008, as cited in Ackerman et al., 2014, p. 191), which increases many workers’ economic power to buy other essential goods. In households that are typically male-controlled, urban agriculture can also increase economic independence for women (van Averbeke, 2007, as cited in Ackerman et al., 2014, p. 191). Overall, urban agriculture has the potential to provide households, especially ones that do not have income security, with many economic benefits that can be life changing.

Although there are clearly many benefits of the use of urban agriculture, there are still a few areas that are under researched and do not have clear impacts. For example, many people who live in low-income neighborhoods or food deserts do not have the funds or knowledge to start a rooftop garden or a garden in an abandoned lot. In addition, the people affected by food deserts do not know how to apply for a loan, and many times are not given one based on their economic status. Most urban agriculture projects are run and funded by local nonprofit or volunteer organizations, which is why urban agriculture is not a bigger industry. It is essential for the state and federal governments to provide incentives and information to the people so urban agriculture can truly provide the benefits that it has the potential to produce.

A local solution to this problem is to create an Indianapolis funded program that helps educate people on how to: 1) farm in urban areas (such as abandoned lots or rooftops), 2) apply
for loans, 3) manage large amounts of people with regards to farming, and 4) create partnerships with surrounding grocery stores, specifically those in food deserts. All of this information would be available on a website. There are many small-scale programs like the one outlined which are run by small organizations, so there is information available on how to run a similar program. It is important for the local government to initiate such a program because currently only nonprofit and volunteer organizations are creating programs for various sustainable food programs, like urban agriculture. As a result, only the areas where such a program is being implemented are the ones seeing any benefit, which can be unfair to other areas that need it as well.

In 2017 the New York City Council passed a bill about urban agriculture food policy in the local area. This bill called for the creation of a website that is intended to inform city residents of all of the urban agricultural opportunities in the city. Some of the sections of the website include how to find a community garden, how to start a community garden, and how to sell produce that is grown in urban gardens. The bill and website are great examples of what the Indianapolis program should look like and what other states and cities should strive to accomplish.

However, there are some important parts of the urban agriculture process that are missing from the New York City website. The main issue that a new local solution should address are the numerous food deserts in Indianapolis. As such, there should be a section that focuses on neighborhoods that are current food deserts, and how urban agricultural projects can connect with various stores in those neighborhoods to sell produce and make it more affordable for lower income families. In addition to adding the sections mentioned, the New York City urban agriculture website is a great outline for Indiana and other states to follow.
According to a study done by Langellotto (2014), the materials and supplies costs for a home garden is around $230 ($209 in 2014 but calculated for inflation). This excludes costs for labor, but labor for each plot of land varies. In Indianapolis around 22% of people live in a food desert, which is a little over 200,000 people (Savi, 2019). There are around 7,000 vacant lots in Indianapolis as of 2020, and if the local government were to fund around 500 of those vacant lots in low-income neighborhoods, that would cost around $100,000 dollars, excluding labor costs. To include labor costs the total would likely increase to around $400,000. However, part of the program is to educate people, specifically those who did not graduate from college and who do not have a job, on how to apply and use loans for a garden, so the government would not pay for full labor rates. In addition, to hire someone to create and maintain a website with detailed information would cost approximately two thousand dollars. Considering the above, the overall cost for the program would be around $300,000 for the first year.

Of course, not all 22% of the residents of Indianapolis would have automatic access to healthy and fresh foods in one year, but the amount of people who do would increase as the program expands each year. In addition, the program would create jobs for many people in low-income areas and therefore would be able to provide incomes for people and their families. They would not only be able to spend money and put money back in the economy, they would also gain valuable skills, such as management of people and money, that could be useful for future jobs.

The urban agriculture program would be most effective in the warmer months for some cities when people are actually able to farm and produce crops. However, hopefully this program will inspire policy makers to address the food deserts in many cities by creating a policy that
works with rural farmers to subsidize more fruits and vegetables so it can become more available to lower income families.

All families and communities will be able to have access to the resources provided, however, the goal is to increase the amount of healthy foods available to residents living in food insecure areas. Because of this, there will be more loans given out to those residents and more workshops and programs offered to them, but the program will not exclude anyone. Unfortunately, websites are only available with internet access and a device to access it. 18% of adults living in households that make less than $30,000 a year do not use the internet (Anderson et. al., 2019). Using a website to host all of the information and data is the best way to keep all of the information in one place and be accessible to the most number of people. Each year the amount of people who do not have access to the internet decreases, so with each new year the number of people who will have access to the website will increase.

An alternative to the locally funded program is instead of creating this program to encourage people to start farming in the city, the government could just work with existing urban farms to create partnerships with grocery stores in food deserts or low-income areas. However, a key part of this program is to foster community identity and relationships, and without an incentive to farm within one’s community, very little of this will happen. Another less likely alternative is to work with rural farmers to start growing and producing more healthy foods, as opposed to soybeans, grains, and corn, and to make those healthy foods more accessible to lower-income families. Unfortunately, most farmers are likely to grow foods like corn and soybeans because there is less risk and a more guaranteed payday rather than fruits and vegetables where there is less coverage. In addition, growing more fruits and vegetables far away
from cities will increase the amount of food that spoils and is wasted, which is not a problem if
the food is grown in the cities. None of these alternatives provides benefits for communities or
the environment, which is why investing in urban agriculture is not only an investment in food,
but also an investment in urban communities.

Overall, there are numerous benefits to creating a local program that will educate and
incentivize Indianapolis to use abandoned lots and rooftops to farm. Although the outline for the
program is not perfect, this program is a great place to start, and hopefully more states will
follow suit. Urban agriculture is a growing movement and the government should devote time
and resources to it to expand its use. Widespread adoption of urban agriculture will strengthen
neighborhoods and promote health among the urban population.
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