Impact Of Urban Sprawl On Today's Agriculture And Possible Outcomes

Currently, there are more than 1 billion people around the world that do not have enough food to survive their everyday lives, and at the time of writing this, more than 8.3 million people have already died of hunger this year (The World Counts 2019). The growth and development of human settlements are bringing about an urban sprawl. This is encroaching on productive agricultural land, and will likely create an impact on our ability towards future food production. With a rapidly growing population, the decreasing availability of food has caused 1 billion people to starve every day around the world. World leaders are facing an ever-growing threat of population decline if the proper measures of dividing land solely for the purpose of agriculture. Otherwise, this continuing lack of food production will lead to more people dying of hunger. However, if humans manage to find a more efficient way of producing food with minimal land, urbanization may no longer pose a threat to agriculture.

To meet the demands of a growing population, acres of farmland are transformed to expand on the urban areas. The city of Melbourne has attracted many immigrants as it once held the title of being the most liveable city for seven consecutive years (Lucas 2018). To accommodate for the growing population of Melbourne, “multiple expansions of the city’s urban growth boundary … have led to significant losses of farmland” (The University of Melbourne 2018). This resulted in farmers from the borders of Melbourne needing to shift towards the are growing population also means that there will be more mouths to feed, which in turn poses a huge problem as. To meet the demands of a growing population, cities have sought the construction of urban sprawls which benefit these communities with a healthy local economy, while creating a low-density development that spreads throughout a large amount of land. What lies in the path of these sprawls are hundreds of acres of forests, farmlands, woodlands, and wetlands that cause irreparable damage to the flourishing agricultural land that could be potentially used for food production. As one possible solution to meet the growing demand for food production, we could maximize the use of farmable land by increasing the building capacities of cities. In other words, instead of constructing houses, the majority of living spaces should take place in high rise buildings to cover less surface area. This would maximize the area for food production, and allow humans to more efficiently distribute resources. This type of urban farming is happening in Detroit. Formerly known as Motor City, Detroit housed America’s automobile industry for many decades. However, the city went bankrupt during 2013 and has begun an urban revitalization program that includes urban farming in an effort to draw people back to the city. Detroit currently houses more than 1,500 diverse farms, each operated by an individual, community, or a largescale produce farm.

Not only does urban sprawls effect the land around it, but the people within it as well. As stated by Frank N. Ikard (a prominent American politician) “Will urban sprawl spread so far that most people lose all touch with nature? Will the day come when the only bird a typical American child ever sees is a canary in a pet shop window? When the only wild animal he knows is a rat - glimpsed on a night drive through some city slum? When the only tree he touches is the cleverly fabricated plastic evergreen that shades his gifts on Christmas morning?”. Although urbanization tends to have a negative side effect towards agricultural lands, it has been an ongoing issue that has been foreseen for many years. Scientists all over the world are working

to find more efficient methods to grow crops at a faster rate, or to further improve current methods. Hydroponics is a way of growing plants without the use of soil, but instead, they use water which makes it so that it is easier to control the environment that the roots are submerged in. This technique dates back to the 18th century (Benton Jones Jr,1982) and since then, scientists have been able to add certain minerals into the hydroponic nutrient solution to make it ideal for the plant. Since this process doesn't involve soil, it becomes easier to plant several in a limited amount of space. Dr. Pieter A. Schippers was an academic horticulturist who looked into improving the nutrient film technique to save space in a greenhouse as the cost of heating the greenhouse was becoming more expensive. The nutrient film technique (NFT) “is a water cultural technique in which plants are grown with their root systems contained in a plastic film through which nutrient solution is continuously circulated” (Resh 1985, p.120). Schippers experimented with growing lettuce in vertical pipes, with each pipe holding twenty-five to thirty seedlings (Resh 1985, p.140). Although this technique did show results, “commercial application did not seem imminent at the time” (Resh 1985, p.140), suggesting it could be further improved and modified to replace soil as a medium to grow things in?

At the current growth rate humans will be required to double the amount of food production by 2050 by looking into more efficient methods such as urban farming like what is happening in the city of Detroit. These agricultural lands should not be taken over for residential structures due to the continued spread of urbanization as we would not be able to sustain the population, particularly in poorer countries. Although advancements have been made before in the efficiency of food production, as estimated by the U.N, to keep the pace with population growth and the growth of he middle class in developing countries the current rate of food production will have to double by 2050.