Vera Zhao
Ames ELP High School
Ames, IA
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The Culminating Effects of Urbanization on Food Security in China

One of the major problems that developing countries seem to be facing today is food security, the availability of food and one's access to it. There is nothing more devastating to a country than lack of food, especially when it's attempting to meet the needs of population growth and urbanization. One of the more prominent countries that is dealing with this problem today is China, which holds one fifth of the world's total population.

One of the greatest achievements for China since 1949 is the ability for China to feed its own people. However, with a population of over 1.3 billion people (Small) and a rapid urbanization rate due to economic growth and expansion, the Chinese government has been concerned with its ability to continue feeding its growing population (Lichtenberg). It is a great challenge for the Chinese government to guarantee a food supply for China's massive population. Starting from the years of Mr. Deng Xiaoping's Economic Reforms and Openness policies in the late 1970s, China experienced a splurge of urbanization. This urbanization led to masses of rural area farmers migrating into large towns and cities, in search of higher incomes. Labor in the countryside declined, as more and more people headed into cities. Cities expanded because of this migration, and the land available for cultivation was used for these cities to house more people. The impact of urbanization on food security in China has led to two main issues: farmland reduction and farm labor losses. Through possible strategies and plans that could be implemented, urbanization can be curbed, therefore reducing land loss and farm labor shortages. It is important to see how these two factors are leading to declining rates of crop growth, and a stunt in the increase of agricultural productivity.

It is essential to note that China is a country which is deficient in available land for farming, leading to farmland reduction. Only one-third of the total land can be used for agriculture production (Lu). Since the mid-1990's, the rapid urbanization process has caused more and more farmland to be converted into industrial and residential uses, especially in the most productive agriculture regions along the east coast and central areas (Lichtenberg). In 1996, China had 1,951 billion mu, which is the Chinese unit for measuring farmland. One mu is about 666 2/3 square meters. Since then, it has been reduced to 1,827 billion mu in 2007. This 6.4% decrease in eleven years is mainly due to urbanization (China). It's possible the amount of farmland will continue to decline and urbanization will lead to a serious scarcity of cultivatable land in China.

The fast economic growth has induced hundreds of millions of people to bring their labor from farms to cities in search of higher income, resulting in loss of farm laborers. This massive migration movement not only causes complex problems in the urban areas, but also greatly reduces the skilled labor that could continue to work in the farmland. Most of these farmers are young men, capable of hard labor and the strenuous work commonly involved in factories. When they leave for the cities, they often leave their families at home. Because of this, only females and elderly people with low productivity rates are left back home and expected to manage the farms. However, they have little incentive to invest into maintaining and enhancing land productivity. Not only that, but the women are expected to take care of the young too, and prepare meals everyday. They are also expected to look after the elders, demonstrating filial piety, an important aspect of the Chinese culture. Thus, the limit of labor may leave some land uncultivated, which would further weaken the food security in China.

The rapid rate of population growth in urban areas, other than the fact that there are higher incomes there, is an aftereffect of the "hukou system". The hukou system was invented in the 1950s, in order to support the developing economy of communist China. The hukou was a way to set a definite location for any person in China, regardless of where they actually lived. Naturally, the majority of allocated hukous were rural ones. People with rural hukous were not allowed to leave the countryside and were generally even banned from entering cities. They could only stay in the countryside and produce food. The hukou system helped ensure a stable food supply for Chinese cities and curbed population growth in cities. The people in the rural areas were actually considered "surplus labor", meaning people who had nothing to do (Rivoli). These people were so surplus, that their presence had no affect on the production of the commune. Since the mid 1990s, the hukou system has relaxed a lot. Not only can rural citizens visit the city now, they can even stay there, though it is not an easy thing to be arranged (Rivoli). The relaxation of the hukou system made it a lot easier for the mobility of farmers, especially the surplus ones, as shown in the following statistics. The urbanization rates were about 13% in 1950, 17% in 1970, 27% in 1990 (Wen), and 47% by the end of 2009 (Small). The predicted urbanization rates will be 53.6% in year 2020 and 60.5% in year 2030 (Lu). The rapid urbanization growth rates will eventually prove to be a problem.

In order to fully investigate the consequences of these two issues, a small rural community in Dali, Xi'an, China was selected as a case study for this paper. I traveled in China for two months this summer and spent two weeks in the countryside of Dali, Xi'an. I witnessed the daily lifestyle of a farming village in the countryside of China, and obtained personal accounts of everyday life, including important statistics about the village of Dali. I experienced heavy rains in the countryside, which led to flooding. I saw that farmers had little ways to deal with the flooding; in addition to observing the obvious problems that would arise because of this. Currently, farmers' form of irrigation in Dali is just letting the water sit there. Eventually, the water would dry up. This is a very inefficient way to deal with excess water, one of their many problems.

To find out what a typical subsistence farm family was like, I interviewed my great-aunt, whom I stayed with in Dali, Xi'an. She gave great insight into what the daily life of a typical countryside family was like and issues common to the countryside. She described a typical subsistence farm family of four to five people, consisting of two parents, two children, and maybe a grandparent. Usually, this family would eat grains, such as rice and noodles. These grains could also be used to make porridge of some sort. Education levels for the family would reach a high school level at the minimum. The percentage of people in the rural sides who have reached a university level of education is increasing. Health care is not readily available, though they have access to a village doctor that helps them with treating simple diseases. Their farm sizes are usually two mu per family. Using the two mu of land, these families typically grow rice, wheat, corn, or fruit. There are no specific agricultural practices, (for example crop rotation), due to weather constraints. They grow one crop all year round because the summer is not long enough for the farmers to rotate crops. Generally, the farm is managed by the family, and there is no outside work that is hired, unless the season is very busy. The wages for hired work is very low, on average about one USD a day. Some major barriers to improving the agricultural productivity in China are poor irrigation systems, bad climate, and lack of agricultural technology (Dali).

The main factor impacting food productivity in Dali, Xi'an is an insufficient amount of labor. In the village of Dali, population size 3,000, 60% of the village population works in the fields. The other 40% works in the city (Dali). The reason nearly half of the 3,000 people are working in cities is quite simple. The income of these urban workers is about 3,000 USD per year, compared to the 1,000 USD per year made on farms (Dali). The percentage of people working in cities is continuing to grow in Dali, clearly reflecting the statistics stated above (urbanization rates will

be 53.6% in year 2020 and 60.5% in year 2030, etc). Even though families have two mu of land at the moment, as urbanization spurs on, their lands will be reduced by 6-7% in a few years (also a statistic shown above). The labor decline is evident in my great-aunt's family. My great-aunt has two children, both young men. They are in their late 20's now, and left the countryside about six years ago, in order to pursue jobs in cities. This left my great-aunt, my great-uncle and my great-great-aunt to take care of the farm. However, the only person working on the farm now is my 60 year old great-uncle, since he is the only one left in the family with even remotely enough energy to do so. Also, my great-aunt has to stay at home and take care of my great-great-aunt since she is extremely feeble and was diagnosed with breast cancer a year ago. Even though my great-aunt's sons can visit, they only have time to visit once every year, since transportation back into the countryside can be rather difficult. This means that all year round, my great-uncle is the only one working on the two mu of farmland.

Besides farmland reduction and farm land losses, there are other concerns that can reduce laborers and farm owners' labor. These other major issues include government policies and regulations on city expansion and land use. Currently, some local governments play a big role in converting the farmland to industrial and residential use based on their own political and economic interests. Those governments set price limits on major grain to avoid social turbulence. This pricing policy restricts the freedom of farmers, so they can't earn high enough incomes from the farmland, despite the fact that they do receive some subsidies from the government for the grains. Often times, the subsidies are not enough, causing the farmers to be dissatisfied. These factors force more and more farmers to leave the farmland and migrate to the cities and towns for better lives, further reducing the farmland productivity. Another factor influencing the food productivity is the shortage of innovation and technology. Essentially, there are not enough investments to spend on crop research, irrigation systems, and flood control.

Based on this case study, I would like to propose the following strategies and solutions to help deal with not only farmland reduction and labor losses, but also the rapid urbanization rate in China. The implementation of these solutions will greatly enhance the food security in China and set a model for the rest of the developing countries. They include:

- Government policies and regulations in order to avoid blind city expansion; protecting the farmland and introducing more appropriate land use practices to slow down the loss of arable land.
- Strategic plans to develop the relatively poor, great North-Western region (include Dali, Xi'an, the village in this study); plans made to limit the farmland losses in the more productive coastal and central regions.
- Revision of pricing and tax policies and elimination of the income imbalances between rural and non-rural labor.
- Education, innovation, technology improvement and crop variation to improve farmland productivity.
- Investment in irrigation, flood control, and transportation to increase the food security.

The national government must play a major role in executing all these solutions. A revision of government policies will be necessary and the funding for irrigation systems could possibly be provided by the World Bank, which specializes in being a vital source of financial aid to developing countries. A big emphasis should be put on educational opportunities, to teach the children how to use the farmland so that the highest possible production can occur, therefore causing no land to be put to waste.

China has accomplished much in the last couple of decades, but with achievements comes misfortune too. Its urban population has rapidly expanded into hundreds of millions as rural farmers migrate into cities in search of better paying jobs. Along with the prospect of higher paying jobs, the relaxation of the hukou system has allowed more population shifts from the rural areas to the urban areas. This major rate of urbanization has led to major labor losses in the countryside, hindering the growth of agriculture. The increasing need of land in cities is causing countryside farms to lose land, reducing the amount of land farmers have to grow crops on. These two reasons lead to the decrease of agricultural growth. There are strategies and plans to revitalize the crop productivity, though, such as developing better government policies and focusing more on innovative agricultural practices. Through these plans, China can advance further and become an ideal for the rest of the world. China may be going through an obstacle for the time being, but it is likely that China will prevail over the hurdle that is urbanization.

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