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Industrial Progress on the Expense of Agricultural Resources

Although we hear on the news all the time about direct impacts of poverty and rush to try and assist those people, we never realize the underlying issues that will keep growing. By the time we notice it, the whole situation would have grown out of hand and would take tremendous amount of resources to reverse. While South Korea may not be the first country you think of when you hear food security, this country is in danger due to their declining agricultural sector. A rapidly industrializing country, South Korea developed its industrial sector faster than the agricultural sector, leaving the countryside unable to catch up. In 1970, the portion of agriculture in GDP was estimated to be 25.4%, however this drastically reduces to only 2.3% over the course of 41 years (Yoon et al). With the country's self-sufficiency rate of only 22.6%, 90% of the country's food is imported consisting of staple foods such as corn, and wheat (Berthelsen, 2011). Unable to agriculturally sustain itself, Korea would severely suffer from food shortages if a major trade interruption in the global market suddenly occurred. There are fears of companies "weaponizing" food due to export restrictions which can happen especially during times of harsh or abnormal weather. An ancient Korean saying identifies the heart of the issue on food security, "Agriculture is the foundation of the nation" (Feffer).

South Korean culture puts the emphasis on family. Traditionally, families are vast with multiple generations and extended family living together in a single house (Korea Tourism Organization). Korean culture also used to favor having many children, however the country's rapid industrialization has dramatically changed those viewpoints. Due to the rapid movement to urban cities, many families are now considered to nuclear families, or made up of only one or two generations (Savada and Shaw). The average number of children has also decreased to only one or two (Asia-Pacific Connections). Out of Korea's population of 49.51 million people in 2014, approximately 16% of them live in rural areas. This statistic can be shown in juxtaposition to the 4% of the labor force that is currently in agriculture (FAO).

The traditional staples of a Korean diet are kimchi, a fermented, spicy cabbage, and rice. Common dishes include soybean-paste soup and seafood (Korea Tourism Organization). Due to their traditional agricultural past, Korean food is usually made up of all types of wild greens and vegetables (Culture of South Korea). Education is extremely valued in Korea especially for their sons who are later expected to care for their parents. In order to receive a better education, many parents in the countryside send their children to urban centers (Savada and Shaw). When it comes to reading literacy, mathematics and sciences, Korea is first-class with the average student scoring 542 on the Programme for International Student Assessment (PISA). Korea also has the smallest interval between the average scores based on socio-economic backgrounds, which shows that the school systems provide a moderately equal chance at obtaining quality education. The average life expectancy is 81 years (OECD Better Life Index), and with the Health Insurance Program enacted in 1977, every person living in Korea is entitled to medical aid (Health Insurance in South Korea). The average age of a Korean farmer is 50 years old, indicating that the country life is not appealing to the younger generations (Berthelsen, 2011). The socio-economic stigma against a rural lifestyle plays such a major role in the Korean culture that some young men are so hard-pressed in finding a wife that they have to migrate towards urban centers (Savada and Shaw).

Due to Korea's predominantly mountainous landscape, only 22% of the land is arable. The ownership of land has become spread out owing to key land reforms in the late 1940s. The average allotment is only one hectare which is not enough to efficiently earn a profit (Savada and Shaw). The major crops grown in Korea include rice, many types of vegetables relating to the cabbage family. Seoul's agricultural open-

door policy of 1980s led to the increasing cheap imports and promoted large-scale farming with higher efficiency rates. Small farmers became troubled since their small plots of land hindered mechanization which would put them in more debt. To find another way to increase their income, more farmers would lease their farmland. In the five years between 1980 and 1985, the amount of farmers renting their land rose from 21% to 30.5% (FAO). However, rented farmland was not always being used for farming purposes, since 63% of the tenants were not farmers.

In order to restore the agricultural sector to its previous success, President Park Chung Hee enacted the Saemaul Undong, or New Community Movement in 1970. The goal was to reduce the disparity between urban centers and small villages. The first objective was to improve the living conditions in the villages, but that evolved to the construction of rural infrastructure including roads, bridges, and irrigation ditches. With the materials and money provided by the government, the local villagers would provide most of the labor, the goal being that the locals could learn how to help themselves. The first years of this major project were exceedingly prosperous until the late 1980s with the corruption of the government. The chairman in charge of the Saemaul Movement was arrested in 1988 with the charges of mass extortion and the embezzlement of government funds (Savada and Shaw).

An example of South Korea's urbanization is shown in the family-run business conglomerates, also known as chaebol, which include Samsung Group and Hyundai Motor Company (Sungwoo Park, 2013). These companies greatly influenced the Korea's strategy of exportation of consumer goods, mainly electronics, and importation of cheap foods. This increased globalization has caused small farmers to directly compete against the global market. Farmers are unable to match the prices of the competing market, and therefore fall prey to the vicious cycle of migration towards urban centers once they have lost their farms. Limited farm space and expensive animal feed restrict the efficiency of raising big meat animals such as cows or pigs. Whereas the poultry industry is still strong, farmers still have to purchase imported corn to be able to feed their chickens. With the recent technological developments, however, advanced countries like the United States and those in the European Union are using more corn as a source for biofuel. Despite the fact that new sources of energy are highly beneficial, a side effect is the major decrease of the amount of corn in global sales and humanitarian aid, and the increase of the price.

Although the agricultural sector's growth rate is not heading along a steep decline, it is slowly declining along a negative fluctuating slope with the fluctuations based on the year's final crop yield. The farmers can get through a good year, however if nothing is done to combat the sinking of Korea's agricultural sector, the people can suffer increasing food prices. Improving farmers' conditions can allow Korea to become more self-sufficient. The farmers and their livelihoods would not have to depend on the status of the global market. Global politics plays a strong role in the ability of Korea's self-sufficiency. In Korea's past it has been invaded by China, Russia and Japan. Under Japanese occupation, many land-owners were forced to sell their land to Japanese landlords. This disruption in the agricultural practices of Koreans benefited Japan but setback Korea's agricultural sector by the need to generate land reforms (Savada and Shaw). Political tensions between North and South Korea have only risen since the Russian invasion during World War II.

To successfully combat the issue of over-urbanization and to recover South Korea's food security, the first thing that needs to be done is to increase the average rural income. There are various directions of policies and technologies that can address this problem, however a combination of all may be the best method. For a temporary treatment, the Korean government has purchased thousands of hectares of land in foreign countries to develop an overseas food base (Berthelsen, 2011). An increase in government subsidies for farmers can help struggling farmers keep their land and continue growing crops. Grants can also be given to help new farmers start-up their farms. The government could work in hand with large business conglomerates in producing special products that promote locally grown foods. Nonprofit

grassroots organizations could be formed that specialize in assisting farmers who want to modernize by adapting to new technologies that would increase their efficiency.

In order to increase income, overall crop yield needs to be increased as well. On a scientific approach, hybrid seeds can be used to increase crop yield so that even small farmers are able to make their fields as efficient as possible. However, since South Korea is strongly non-GMO, it will be hard to implement the usage of hybrid or GMO seeds. GMOs are currently nationally banned from being grown in the country, however South Korea is one of the world's largest importers of genetically modified crops, especially soybeans and corn (Choi, 2015). Similar to the European Union, GMOs are disliked because of the limited information. In order to increase acceptance towards GMOs, the general population should be educated with unbiased scientific data on the benefits and detriments of GMOs. Since the largest fear isn't the impact on human health or the human body, the containment of genetically modified crops can be done through the sterilization of the second generation seeds. Once it is proved that the seeds can be controlled and won't spread like invasive species, the Korean government should open up GMOs as a possibility for farmers. This will lead to a decrease in the imports, as the country will be able to produce more of its cereals domestically. This would also increase crop yields, allowing farmers to make a decent profit off of their harvest.

The Saemaul Movement of the 1970s and 1980s was an extremely fruitful endeavor, with the only hindrance being the corruption in the government. This movement was so effective that it was adopted in multiple African countries (Claassen, 2011). A novel and enriched Saemaul Movement could be created, however the focus on improving living conditions can be shifted towards modernizing farming with new technologies such as genetically modified organisms. The new movement would not strictly distribute goods just as humanitarian aid does, but it would teach the farmers newer ways to make sure that they are able to keep up with the international market. Instead of leaving all of the work for the farmer, it should be emphasized that it is a national effort. For example, community gardens should be encouraged in urban centers and schools. The common citizen can support this effort by actively promoting these gardens in their neighborhoods and schools. As clubs are especially popular in the universities, a gardening club would be particularly effective. Educating the youth of Korea on the issues their country faces on food security and showing them ways they could be involved would also be a great way to get the younger generation involved. This may also help alleviate the negative stigma associated with the career of agriculture. Instead of strictly physical gains, the general population would benefit by improving the overall wellbeing and atmosphere of their communities. For example, a decrease in the frequency of violence can be seen (Centers for Disease Control and Prevention, 2010). These community gardens would connect the rural and urban regions, bridging the division across socio-economic stigma of country life. Combining the rural open air markets and the modern grocery supermarkets, culture and the present day can be fused by endorsing rural farmers in major department stores. Through the sponsorship of locally grown crops, the general public can be more aware of their nearby farmers. Through this urban-rural relationship, morale would be raised and the elicited change less likely face a reversal of the accomplishments. A forty year old farmer in South Korea, Park Jong Kwan says that "we need to change our mindset to improve... Without mobile phones or cars, life gets more inconvenient, but without food, you can't live" (Berthelsen, 2011).

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