Lizzie Utset

Prof. Xu Mingqi

China’s Economic Reforms

12/15/2015

 China’s Impending Food Security Crisis

In recent years, although Chinese food production has grown and the agricultural industry continues to slowly expand, China faces several economic and environmental threats. If left unchecked, these threats could pose serious future challenges to Chinese food security, including food availability, food access, and food use. Amidst these growing environmental and economic concerns, how will China continue to feed over one-fifth of the world’s population, with less than 10 percent of the world’s arable land? Although this a difficult issue, there are certain steps China must take. China must look to overseas markets and companies to acquire food imports and land to grow food for its people, along with continue land repair and environmental protection efforts, and provide subsidies and other benefits to encourage farmers to stay on their lands.

According to the World Food Summit of 1996, food security exists when “all people at all times have access to sufficient, safe nutritious food to maintain a healthy and active life.”[[1]](#footnote-1) The concept of food security is built on three pillars, which include food availability, food access, and food use. People must not only have physical and economic access to food that meets their health and dietary requirements, but also to food that meets their personal preferences. Food availability must be consistent, and people must use food appropriately based on knowledge of basic nutrition and care. Finally, people must have adequate water and sanitation to prepare food safely, along with the ability to purchase food that is safe to eat. The Global Food Security Index is a ranking that provides a worldwide perspective on which countries are the most and least vulnerable to food insecurity. It measures food security in terms of three core dimensions, including affordability, availability, and quality and safety. According to the 2015 rankings, China ranks 42nd out of 109 countries surveyed, which is surprising considering the size of its economy, its recent growth and development, and the fact that the average caloric consumption nears 3,000 kcal.[[2]](#footnote-2) Clearly, China’s food security is challenged by several factors, despite the country’s rapid growth in the size of its economy and food production.

China’s food production has grown tremendously over the past few decades. It has gained a strong position globally as a net-exporter of food, including both grain and non-grain items, and high-value added foodstuffs. In recent history, China has either exported food, or imported relatively little food. Net food exports grew to 2.3 billion US dollars in 1985, and dramatically increased again, reaching 6.3 billion US dollars in 1993. At the end of 2013, China’s total grain production reached 601.94 million tons, up by 2.1% from the previous year.[[3]](#footnote-3)

Despite this growth, China’s future food security has become a subject of growing concern. Although Chinese food production has increased overall in recent decades, year-to-year fluctuations of food supply and prices are significant.[[4]](#footnote-4) This has led the Chinese government to continuously focus on market stabilization and food price inflation as major components of its policy initiatives since the 1980s. On a related note, the Chinese economy has experienced remarkable growth in the decades following Deng Xiaoping’s economic reforms in 1989. However, economic growth is uneven, and has taken place mostly along China’s eastern coastline. There is a rising income inequality between China’s rural and urban areas, specifically between city dwellers in central and eastern regions, and farmers in western and southern regions. This rising inequality is tied closely to issues of food security, as the rural poor are earning less compared to the urban workers whose incomes are rising; thus it has become difficult for some farmers to expand beyond subsistence levels and afford food for their families that can provide adequate nutrition.

Additionally, while China’s total grain production has increased, agriculture itself only makes up about one-tenth of the entire $9.4 trillion economy.[[5]](#footnote-5) According to the National Bureau of Statistics of China, in 2013, China’s first industry grew by 4 percent; however, manufacturing and construction, or the secondary industry, grew by approximately 7.8 percent, and services, or the tertiary industry, grew by 8.3 percent, and made up the bulk of the GDP for the first time in Chinese history.[[6]](#footnote-6) Thus, China’s agricultural industry is being outpaced by its other industries. This, when viewed alongside China’s dwindling number of farmers, suggests that China’s agricultural growth will soon stagnate and become a food security issue, unless more incentives are given to farmers to encourage them to stay on their land, and are also given to agricultural research and development in order to improve China’s agricultural technology.

Another source of concern for China’s future food security lies in rapid its economic growth and development. In a quest to rapidly expand their economy and cater to the world’s insatiable demand for cheap Chinese goods, China has displayed agricultural negligence. Chinese officials have argued that the nation cannot be expected to sacrifice their economic growth for the sake of the environment. According the Chinese government, one-fifth of Chinese soil, an area the size of the entire country of Belgium, is fallow, due to high levels of pollution, the overuse of pesticides and fertilizer, and water scarcity.[[7]](#footnote-7) China’s main source of pollution comes from industrial contamination, primarily in chemical and coal-fired power industries.[[8]](#footnote-8) These industry and coal-fired plants emit millions of tons of pollutants each year, including cadmium, lead, mercury, nickel, and arsenic.[[9]](#footnote-9) These, and other inorganic materials, accumulate in the soil and mimic the functions of nutritive minerals, so that plants will absorb them. These heavy metals cause damage that is practically irreversible, as they cannot be easily diffused or diluted. For example, some plants absorb lead in place of the nutrient calcium. When lead levels exceed calcium levels in soil, the result is ecological destruction, and subsequent damage to human health. Xu Shaoshi, the head of China’s top economic planning agency, and other prominent Chinese leaders, have expressed the need for action, as environmental degradation is beginning to challenge China’s traditional growth pattern.

There are many concerns among Chinese citizens that toxic soil has already begun to spoil crops and make people sick, which poses a huge threat to food security, particularly if the spoiled crops are staples in the Chinese diet. One highly publicized occurrence involved rice originating from the Hunan Province. In 2013, at Yiyang’s Lianxi Rice Market in the north-central Hunan province, one of China’s largest wholesale markets for rice, seller’s stalls fell empty and silent. The market was traditionally a trading center for 20 percent of all rice grown in Hunan; yet, business came to a standstill in face of a heavy metal contamination scare.[[10]](#footnote-10) In some parts of the Guangdong Province, Hunan-grown rice was banned entirely. This ban resulted from an inspection of local restaurant kitchens by Guangzhou’s Municipal Food and Drug Administration, which found unsafe levels of cadmium in eight out of eighteen samples of rice and rice products, of which six were grown in Hunan. Additional inspections found dangerous levels of cadmium in 31 of 762 batches of grain pulled from inventories in each of Guangzhou’s rice production and processing companies, of which 14 batches came from Hunan.[[11]](#footnote-11) According to officials, cadmium is one of several heavy metals that have seeped over the years from Hunan mines and chemical factories into area waterways, particularly the Xiang River and tributaries. Water from contaminated bodies of water gets diverted into region’s rice paddies, where the metals settle into the water and taint the crops and the soil. However, the cadmium dilemma runs much deeper than this single incident. In 2010, a study by a Nanjing agricultural university found that approximately 10 percent of all rice grown and sold in China failed to meet government standards for maximum cadmium levels.

This cadmium incident and study has far-reaching implications for future Chinese food security. It illustrates that certain agricultural areas that have been subject to intense pollution threaten the food security of the entire country, as toxic staple products grown in these regions move to various areas across the mainland and affect the health and safety of an unknown number of Chinese people. As rice is the main staple grain in the Chinese diet, producing enough rice is immensely important for the Chinese government in ensuring that Chinese people are all meeting their baseline nutritional requirements, particularly in caloric intake. This example is an indication that supplies of rice and other staple crops have become threatened by polluted fields and water sources, and the Chinese government must devise a way to reverse the effects of environmental degradation, or be forced to start importing an essential crop of which it has historically enjoyed a surplus.

Additional environmental issues of deep concern to Chinese future food security are drought and water shortage. Experts estimate by 2030, water supply will not be able to meet the demand if Chinese businesses and industries continue their current, essentially unchecked, water usage. Of Chinese administrative units, in terms of their water availability, eleven have been termed “safe,” nine have been termed “at risk,” and another eleven have been termed “dry.”[[12]](#footnote-12) The “dry” eleven administrative units account for 38 percent of total agricultural output, and of the top ten agricultural producers that accounted for 60 percent of agricultural output in 2011, 5 regions below the Water Poverty Mark accounted for 34 percent of that total output.[[13]](#footnote-13) Henan, Shandong, Jiangsu, Hebei, and Liaoning are all among China’s top ten agricultural producers, and are also on the list of “eleven” dry regions. In 2011, China suffered what state media described as one of the worst droughts in six decades, affecting eight of the northern provinces. According to the United Nations Food and Agricultural Organization, 2.57 million people and 2.79 million head of livestock faced shortages of drinking water, with roughly a third of China’s total wheat fields affected.[[14]](#footnote-14) As a result of the drought, the Chinese government announced measures to drill more than 1,300 new wells, improve irrigation measures, and raise the prices paid to farmers for their rice crops in order to encourage them to cultivate more rice.[[15]](#footnote-15) These measures are extremely important for the years to come, as China’s drought has the potential to explode into not just a domestic food security issue, but also a global food security issue with vast implications. If China has to import significant amounts of wheat, the result would be a major spike in prices on the global market.

The No. 1 Central Document is a policy document released annually by the Central Committee of the Communist Party and the State Council, which details the Chinese government’s policy goals and initiatives for the year. Illustrating the importance of agricultural reform and food security issues to the Chinese state, this document has focused on rural issues for the past eleven consecutive years.[[16]](#footnote-16) Some of the most important goals outlined have been improving the national food security system, deepening rural land system reform, and improving rural governance. In 2014, the document listed eight aspects and 33 points for detailed government reforms related to three rural issues: agriculture, rural areas, and farmers.[[17]](#footnote-17) The document put improving the national food security system on top of the reform list, and stated that it will continue to do so for the next few years. The document continues to underscore the importance of food security policies by stating, “Taking good control of its own bowl is a fundamental principle the government must stick to over a long period of time.”[[18]](#footnote-18) One of the most important aspects of the document was the creation of a “red line” for arable land, or an absolute minimum area below which the amount of arable land in China should never fall, in order to ensure the country’s food security. The government set this line at 120 million hectares; yet, according to a survey released at the end of 2012, China’s arable land totaled only slightly higher than the minimum line, after deducting land arranged for forest restoration, or land not suitable for farming because of pollution.[[19]](#footnote-19) This document, which maintains a heavy focus on the importance of achieving Chinese food security, as China is the most populous nation in the world, also illustrates that China must look to outside sources in order to complement its domestic food supply.

There are several solutions that the government has already begun to implement in order to solve its rural and agricultural issues, which it must continue to strengthen in the next following years if it is to avoid its impending food crisis. Although China can continue to rely on domestic grain production, it must also branch out to external sources, and make good use of international markets as a complement to domestic supply. The Chinese acquisition of food producers all over the world has been quipped by the media as “borrowing foreign chickens to lay golden eggs.”[[20]](#footnote-20) Although overseas acquisitions by Chinese companies used to be marked by debacles, the most public being with the French yogurt maker Yoplait between 2010 and 2011, borrowing foreign chickens to lay golden eggs is now a regular practice. In 2014, China Bright Food, the second largest food group in China, acquired a controlling stake in Israel’s largest dairy producer, Tnuva.[[21]](#footnote-21) This was an extremely calculated business decision, as Israel’s dairy cows produce significantly more milk than other countries’ cows. Additionally, even though Israel and China face similar geographical challenges to food security, as only 20 percent of Israel’s land is naturally arable and it has very scarce water resources, Israel is still a world leader in agricultural technology, an area in which China lags behind. More successful acquisitions of foreign companies by Chinese food groups include Bright Food’s purchase of diary group Mundella Foods in Western Australia, and COFCO’s purchase of a 51% stake in Nidera, a Dutch agricultural products company.

Additionally, on a domestic level, many Chinese food groups and companies are undergoing intense corporate restructuring in an effort to strengthen the largest champions in China’s food industry and increase domestic production. At the end of 2013, a merger with China Grain Logistics Corporation, another state-owned enterprise, boosted COFCO’s supply chain and port capabilities.[[22]](#footnote-22) On a similar note, China Bright Food is also devising a restructuring plan under the leadership of an extremely qualified new chairman. Thus, if China’s food groups and companies can restructure at the domestic level, along with improving their acquisitions on the international level, a significant step could be made towards reducing dependence on over-polluted, arid farmlands.

The Chinese government has also laid out plans for a number of extensive land repair efforts in its recent No. 1 Policy Documents. Although much of the damage done by pollutants in the soil is irreversible, according to Vice Minister of Land and Resources Wang Shiyuan, the Chinese government has pledged to spend “tens of billions of yuan” every year to repair land with heavy metal contamination and to restore over-exploited ground aquifers.[[23]](#footnote-23) In a recent report released by the Ministry of Water Resources and the National Bureau of Statistics, the Chinese government revealed that about 28,000 rivers have vanished since 1990, which is more than half of the rivers previously thought to exist in China.[[24]](#footnote-24) Thus, government efforts to replenish the soil and restore its water sources are necessary to restore lost soil fertility, and improve China’s potential for domestic agricultural production. The government has also stated that it will gradually begin to discontinue farming on land with medium-to-heavy levels of pollution, including areas in the Yangtze River Delta, the Pearl River Delta, northeast China, and the Hunan Province. This would help to ensure that toxic and unsafe products are kept out of the market, and would gradually make Chinese consumers more food secure, in having more protection against dangerous products. While focusing on importing food and relying on international markets to produce Chinese products outside of the country is more of a short-term, immediate fix to this problem, investing money into replenishing and restoring soiled land is a long-term, sustainable solution.

Finally, the government must enhance the effectiveness of the previous two solutions by intensifying policy supports to protect the agricultural industry and encourage farmers to remain on their lands. According to the Chinese government, such policy supports would include promoting increases in agricultural expenditures, improving subsidizing policies for agriculture, and setting up an interest compensation mechanism. [[25]](#footnote-25) The more the government invests in rural agriculture, the more it will be able to promote much needed technological innovation by developing a modern seed industry and agricultural mechanization. Technological innovation, including developing strains of seeds that can flourish in drier climates, could also help China produce more food with its slowly decreasing amount of arable land. Additionally, the Chinese government could incentivize farmers to stay in the countryside by adopting measures to improve the rural living environment, including providing basic public services in rural areas that are equivalent to those in urban areas. The government has also pledged to create new agricultural management systems, particularly by extending the presence of large and medium-sized commercial banks into counties and townships. By encouraging farmers to remain on their lands, the government can ensure that the growth and expansion of China’s agricultural industry is not completely outpaced by the second and third industries, which would be unsustainable in terms of agricultural innovation, production, and by association, food security.

Evidently, many problems have emerged in recent decades that have begun to challenge China’s ability to ensure that all of its citizens have access to sufficient, safe, and nutritious food at all times. If left unchecked, these economic and environmental problems, particularly unequal economic growth, environmental pollution and degradation, and drought, could reverse China’s traditional position as a net exporter of food, and might even go as far as threatening global food security. However, as long as the government continues its measures to acquire international companies and markets for food production to complement food imports, to reverse the effects of environmental degradation, and to invest in the rural infrastructure, agricultural technology, and the lives of the farmers, China will sustainably solve its food security challenges, and ensure that the negative effects of immensely rapid development will not plague the country forever.

Bibliography

“Annex 3: Agricultural Policy and Food Security in China,” *Food and Agricultural Organization of the United Nations*, accessed December 14, 2015, http://www.fao.org/docrep/004/ab981e/ab981e0c.htm

“China’s Economy Showed Good Momentum of Steady Growth in the Year of 2013,” *National Bureau of Statistics of China*, January 20, 2014, accessed December 14, 2015, http://www.stats.gov.cn/english/Pressrelease/201401/t20140120\_502079.html

“China,” *Global Food Security Index 2015*, accessed December 14, 2015, http://foodsecurityindex.eiu.com/Country/Details#China

“China Says Land the Size of Belgium Too Polluted for Farming,” *Bloomberg News*, December 31, 2013, accessed December 14, 2015, http://www.bloomberg.com/news/articles/2013-12-31/china-says-arable-land-size-of-belgium-too-polluted-for-farming

“China Water Crisis,” China Water Risk, accessed December 14, 2015, http://chinawaterrisk.org/big-picture/

Dexter Roberts, “China Aims for Food Security as Pollution Destroys Crop Land,”

*Bloomberg Business*, January 21, 2014, accessed December 14, 2015, http://www.bloomberg.com/bw/articles/2014-01-21/china-aims-for-food-security-as-pollution-destroys-crop-land

Emily Ford, “28,000 rivers vanish from Chinese map,” *The Times*, March 29, 2013,

accessed December 14, 2015, <http://www.thetimes.co.uk/tto/environment/article3725724.ece>

“Food Security,” The World Health Organization, accessed December 14, 2015, http://www.who.int/trade/glossary/story028/en/

Francis Markus, “China’s drought raises food security worries,” *International Federation of Red Cross and Red Crescent Societies*, February 16, 2011, accessed December 14, 2015, http://www.ifrc.org/en/news-and-media/news-stories/asia-pacific/china/chinas-drought-raises-food-security-worries/

Freda Wan, “China’s Food Security, 2.0 and Beyond,” *Forbes*, May 21, 2014, accessed December 14, 2015, http://www.forbes.com/sites/fredawan/2014/05/21/china-food-security/

Keshar Patel, “China’s Food Security Dilemma,” *World Policy Blog*, June 4, 2014, accessed December 14, 2015, http://www.worldpolicy.org/blog/2014/06/04/chinas-food-security-dilemma

“Ministry of Environmental Protection and Ministry of Land publish nationwide investigation of soil pollution bulletin,” *Ministry of Environmental Protection of the People’s Republic of China*, April 17, 2014, accessed December 14, 2015, http://www.mep.gov.cn/gkml/hbb/qt/201404/t20140417\_270670.htm

“No. 1 Central Document Targets Rural Reform,” *Ministry of Agriculture of the People’s Republic of China*, January 20, 2014, accessed December 14, 2015, http://english.agri.gov.cn/news/dqnf/201401/t20140120\_21064.htm

Pang Jiaoming and Gong Jing, “Confronting China’s cadmium-laced rice crisis,” *Market Watch*, June 6, 2013, accessed December 14, 2015, http://www.marketwatch.com/story/confronting-chinas-cadmium-laced-rice-crisis-2013-06-06

1. “Food Security,” The World Health Organization. [↑](#footnote-ref-1)
2. “China,” Global Food Security Index 2015. [↑](#footnote-ref-2)
3. Roberts, “China Aims for Food Security.” [↑](#footnote-ref-3)
4. “Annex 3,” Food and Agricultural Organization of the United Nations. [↑](#footnote-ref-4)
5. Roberts, “China Aims for Food Security.” [↑](#footnote-ref-5)
6. “China’s Economy,” National Bureau of Statistics of China. [↑](#footnote-ref-6)
7. “Ministry of Environmental Protection and Ministry of Land” MEP of the People’s Republic of China. [↑](#footnote-ref-7)
8. Patel, “China’s Food Security Dilemma.” [↑](#footnote-ref-8)
9. Ibid. [↑](#footnote-ref-9)
10. Jiaoming, “Confronting China’s cadmium-laced rice crisis.” [↑](#footnote-ref-10)
11. Ibid. [↑](#footnote-ref-11)
12. “China Water Crisis,” China Water Risk. [↑](#footnote-ref-12)
13. Ibid. [↑](#footnote-ref-13)
14. Markus, “China’s drought raises food security worries.” [↑](#footnote-ref-14)
15. Ibid. [↑](#footnote-ref-15)
16. “No. 1 Central Document,” MAO of the People’s Republic of China. [↑](#footnote-ref-16)
17. Ibid. [↑](#footnote-ref-17)
18. “No. 1 Central Document,” MAO of the People’s Republic of China. [↑](#footnote-ref-18)
19. Ibid. [↑](#footnote-ref-19)
20. Wan, “China’s Food Security, 2.0 and Beyond.” [↑](#footnote-ref-20)
21. Ibid. [↑](#footnote-ref-21)
22. Wan, “China’s Food Security, 2.0 and Beyond.” [↑](#footnote-ref-22)
23. “China Says Land the Size of Belgium,” *Bloomberg News*. [↑](#footnote-ref-23)
24. Emily Ford, “28,000 rivers vanish from Chinese map.” [↑](#footnote-ref-24)
25. “No. 1 Central Document,” Ministry of Agriculture of the People’s Republic of China. [↑](#footnote-ref-25)