

# The Challenges of China's Food and Feed Economy

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# China and Brazil in African Agriculture

## Working Paper Series

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This Working Paper series emerges from the China and Brazil in African Agriculture (CBAA) programme of the Future Agricultures Consortium. This is supported by the UK Economic and Social Research Council's 'Rising Powers and Interdependent Futures' programme ([www.risingpowers.net](http://www.risingpowers.net)). We expect 24 papers to be published during 2015, each linked to short videos presented by the lead authors.

The CBAA team is based in Brazil (University of Brasilia, Gertulio Vargas Foundation, and Universidade Federal do ABC), China (China Agricultural University, Beijing), Ethiopia (Ethiopian Agricultural Research Institute, Addis Ababa), Ghana (University of Ghana at Legon), Mozambique (Instituto de Estudos Sociais e Económicos, Maputo), Zimbabwe (Research and Development Trust, Harare), the UK (the Institute of Development Studies, the International Institute for Environment and Development and the Overseas Development Institute).

The team includes 25 researchers coming from a range of disciplines including development studies, economics, international relations, political science, social anthropology and sociology, but all with a commitment to cross-disciplinary working. Most papers are thus the result of collaborative research, involving people from different countries and from different backgrounds. The papers are the preliminary results of this dialogue, debate, sharing and learning.

As Working Papers they are not final products, but each has been discussed in project workshops and reviewed by other team members. At this stage, we are keen to share the results so far in order to gain feedback, and also because there is massive interest in the role of Brazil and China in Africa. Much of the commentary on such engagements are inaccurate and misleading, or presented in broad-brush generalities. Our project aimed to get behind these simplistic representations and find out what was really happening on the ground, and how this is being shaped by wider political and policy processes.

The papers fall broadly into two groups, with many overlaps. The first is a set of papers looking at the political economy context in Brazil and China. We argue that historical experiences in agriculture and poverty programmes, combine with domestic political economy dynamics, involving different political, commercial and diplomatic interests, to shape development cooperation engagements in Africa. How such narratives of agriculture and development – about for example food security, appropriate technology, policy models and so on - travel to and from Africa is important in our analysis.

The second, larger set of papers focuses on case studies of development cooperation. They take a broadly-defined 'ethnographic' stance, looking at how such engagements unfold in detail, while setting this in an understanding of the wider political economy in the particular African settings. There are, for example, major contrasts between how Brazilian and Chinese engagements unfold in Ethiopia, Ghana, Mozambique and Zimbabwe, dependant on historical experiences with economic reform, agricultural sector restructuring, aid commitments, as well as national political priorities and stances. These contrasts come out strikingly when reading across the papers.

The cases also highlight the diversity of engagements grouped under 'development cooperation' in agriculture. Some focus on state-facilitated commercial investments; others are more akin to 'aid projects', but often with a business element; some focus on building platforms for developing capacity through a range of training centres and programmes; while others are 'below-the-radar' investments in agriculture by diaspora networks in Africa. The blurring of boundaries is a common theme, as is the complex relationships between state and business interests in new configurations.

This Working Paper series is one step in our research effort and collective analysis. Work is continuing, deepening and extending the cases, but also drawing out comparative and synthetic insights from the rich material presented in this series.

*Ian Scoones, Project Coordinator, Institute of Development Studies, Sussex*

## Abstract

China's transformation from a net food exporter to a net food importer has occurred in a very short period of time and this has implications for both China and the world. This paper argues that there is strategic and practical significance in China-Africa agricultural cooperation, as the current import structure of food and other agricultural products is imbalanced and China's food supply-demand imbalances will continue to expand. This raises the possibility of political and economic crisis for China and threatens those poor countries who are relying on international food markets. Africa possesses substantial areas of arable land that can be developed and utilised; thus, China-Africa agricultural cooperation can potentially enhance African nations' productive capacity and contribute to local food security, through which it can indirectly improve global food security and stabilise the international food market under China's increasing food demand context.

**Keywords:** China, Africa, Food security, Agricultural cooperation

## Introduction

China is the world's largest food market and Chinese consumption has widespread repercussions because of the increasingly global reach of how and where that food is produced (GRAIN 2012). Over the last several decades, China has kept a watchful eye on food security, especially after the Great Chinese Famine which occurred from 1958-1961 and harmed the entire nation. It has put forth a great effort and demonstrated that with technological development and innovation, the country is capable of feeding 22 percent of the world's population with only 7 percent of its cultivated land and 6 percent of its fresh water. Despite this achievement, the international community has continued to debate China's food security, exemplified in the title of the 1995 book *Who Will Feed China?* (Brown 1995). In November 2008, China's National Development and Reform Commission promulgated the 'National Medium and Long-term Program for Food Security (2008-2020)'; and set the main index to ensure national food security in 2020 to be 'a stable domestic food and consumption ratio [namely its self-sufficiency rate of grain] of more than 95%.' Other key indicators included the protection of land resources and sustainable agricultural development. There is no denying that over the past six decades, the country has made great strides in food production and demonstrated that China can rely on its own capacity to realise food self-sufficiency.

The concept of 'food' (粮食) in the discussions of Chinese scholars has both a broad and narrow sense, and both of these are much more specific than the English word. In a narrow sense, food refers to the category of cereals. This includes rice, wheat, maize and others, in line with the definition of 'cereal' given by the Food and

Agriculture Organization of the United Nations (FAO). In the broader sense, Chinese scholars may also use food to refer to a collection of cereals, beans and potato. This paper uses the narrow sense of food, but also looks at the importance of soybean, usually classified as a 'grain legume' or 'pulse'.

Traditionally Chinese diets have been based on rice, wheat and coarse grain (mainly maize). This is usually divided in terms of Northern Chinese diets based on wheat and coarse grain to make foods such as noodles, steamed buns (馒头) and millet porridge (粥). Southern Chinese diets by contrast have largely been based on rice, either by boiling the grains or by grounding it into flour to produce dumpling skins and noodles. These food customs are deeply engrained in local culture by now, as any visitor to China will know, and so it is unlikely that the demand for rice, wheat and coarse grains will be significantly displaced by any other agricultural products in the near future (Ma and Lan 2008: 117). Although soybean is also involved in staple Chinese diets (for its oils or the production of tofu, for example), it is most important in China's current agricultural sector as animal feed, as will be discussed in greater detail below.

Demand for these four agricultural products has grown significantly over the past few decades, and is set to grow even more in the coming years. This is largely explained by both growing population pressures and rising incomes, the latter often associated with urbanisation.

This paper will begin by looking at the nature of China's population growth, income growth and urbanisation and their impacts on the use of cereals in traditional Chinese diets. This will be followed by a look at how Chinese diets are shifting, and the implications of a growing meat market. Lastly this paper will look at the role of imports to meet these increased demands and the politics that surrounds these dependencies.

## Population and pressures on maize, rice and wheat

By the late 1990s China's grain production had achieved a basic balance between total supply and demand, and at this stage it witnessed a structural surplus. After entry to the World Trade Organization (WTO) in 2001, however, China fully liberalised its food markets and its grain market entered into a new stage in the regulation of the relationship between supply and demand. The grain production cost in China is not only higher than in the USA and other developed countries but also higher than in African countries; therefore, producers in China were unable to compete against their counterparts in the USA and Africa. By 2014, China's grain production had witnessed continuous growth for eleven consecutive years and the total output exceeded 500m tons for seven consecutive years, providing solid support for coping with the impact of the international financial

crisis and for maintaining stable and rapid economic development. On the whole, China's food security situation is good. For example, comprehensive grain production capacity is steadily improving, the food supply is increasingly diversified and supply and demand are almost balanced. But from the perspective of development trends, the situation of rain-fed farming has not changed fundamentally; grain output fluctuates with rainfall and faces high risk of drought disaster.

Even before the challenges of market liberalisation, academics were forecasting acute gaps in China's ability to match grain supply with grain demand. In the early 1990s, the Chinese Academy of Agricultural Sciences predicted that by 2020, China's total grain demand would reach 650-710m tons while grain output would come to 640-680m tons. This would mean there would be a supply and demand gap of 40m tons or so (Research Group of the Food Development in Medium and Long Term in China, 1991). Ma and Gao's (1993) 'Research Report on Chinese Food' separately produced findings consistent with this, stating that by 2020, the average grain shortfall in China would reach 40-52m tons. Huang and Rozelle (1998: 25) predicted that with people's increasing demand for livestock and aquatic products, the total food supply in China would fall short of demand after the mid-1990s and China would turn from a rice exporter into a rice importer. More recently, Ma and Lan (2008: 129) have predicted that by 2020, China's total consumption demand for food will reach 546.4m tons, including 186m tons of rice, 97.7m tons of wheat and 165.4m tons of maize, and Zhu (2004) predicted that Chinese demand for food will peak at 600m tons. In short, China's grain supply is inadequate and the import of an appropriate amount of food is needed for the long run (Wan 2008).

Other recent scholars give similar forecasts, vindicating concerns from the 1990s. Lu et al. (2011) concluded that China's food gap will expand from 10.24m tons in 2007 to 59.58m tons in 2020, and declines in maize and soybean self-sufficiency rates will be the most obvious. Lv and Hu (2012) predicted that China's grain consumption, production and imports in 2020 will be, respectively, 695m tons, 644m tons and 49m tons, and the overall food import proportion will be 7.08 percent. Huang et al. (2012) predicted that China's grain output will reach 575m tons in 2020, with an average annual growth of approximately 0.52 percent, but the demand for food will reach 663m tons in 2020, with an average annual growth of about 1.1 percent. Thus China's overall food self-sufficiency rate will decrease from 92.5 percent in 2009 to 87 percent in 2020. The self-sufficiency rate of maize will decrease significantly. By 2020, the maize supply-demand gap will be about 20m tons and the self-sufficiency rate will drop to 91 percent. The soybean supply and demand gap will further expand. By 2020, import of soybean is expected to reach 72m tons and the self-sufficiency rate will drop to 18 percent. If soybean is included in the calculation, therefore, in 2020, China's grain supply-demand gap will reach 100m tons.

However, these problems are confounded by the fact that China is also facing a serious shift in its consumption patterns. With ongoing rapid industrialisation and urbanisation, the population continues to increase and its overall structure evolves. By the end of 2013, 730m Chinese people are estimated to be living in urban areas, which equates to 53 percent of the entire Chinese population. This is the first time in China that urban people have exceeded those living in the countryside. At the same time, in addition to the increasing demand for food—which shows a rigid growth trend—food consumption habits have also changed and people have begun to pay more attention to the quality rather than quantity of food. From the perspective of market demand, rural-to-urban migration has led to increased consumption of meat, which in turn has resulted in a large demand for feed grain. The per capita consumption and aggregate demand for rice and wheat, however, show a downtrend. Huang et al. (2012) pointed out that from 2000 to 2009, China's total demand for rice witnessed an average annual decline of 0.7 percent; total demand for wheat witnessed an average annual decline of 0.3 percent; and the future consumption demand for rice and wheat was also projected to decrease. With continued flows of migrant workers to cities, the number of agricultural products consumed is expected to increase, bringing dynamic structural changes.

Dietary patterns based on singular starchy foods have therefore become more diverse, including meat, eggs and milk. Ma (1997) believes that each increase of one percentage point in the level of urbanisation will lead to an increase of 10.54m tons in food consumption, and every increase of ten percentage points in per capita GNP will increase indirect food consumption by 4.3m tons. Wang and Sun (2003) conducted a comparative analysis of the relationship between income and household food consumption structure among the residents of China's 31 provinces and autonomous regions except Hong Kong, Macao and Taiwan in 2001 and drew the conclusion that with the increase in their income, people have higher demands for dairy products, meat, wine and beverages than for cereals, oil and other basic foods.

Thus, urbanisation has driven the consumption of livestock, aquatic products, fruits and other non-staple food and reduced the consumption of energy-supply food (Huang and Rozelle 1998: 153-170). In 2009, China's annual per capita consumption of livestock and poultry products was about 53kg (including meat, eggs and milk) in 1995 it was 28kg, and in 2000 it was 39kg. As of 2012, China's meat consumption was about twice that of the United States, reaching 71m tons (Brown 2012: 21). Based on this trend, according to the National Bureau of Statistics, the demand for industrial grain will reach 88bn kg by 2020 (Wan 2008).

About 8kg of grain feed is needed for the production of 1kg of beef, and 2kg of grain feed is needed for the production of 1kg of chicken (Yin 2009), which means

that changes in people's diet structure directly lead to rapid growth of feed grain demand. The proportion of feed grain and industrial grain in national food consumption rose from 16 percent in 1990 to 26 percent in 2003 (Ma and Lan 2008: 117). From 2003 to 2008, feed grain consumption by aquaculture also witnessed an average annual increase of 3 percent or so (Wan 2008). Correspondingly, the consumption and total demand

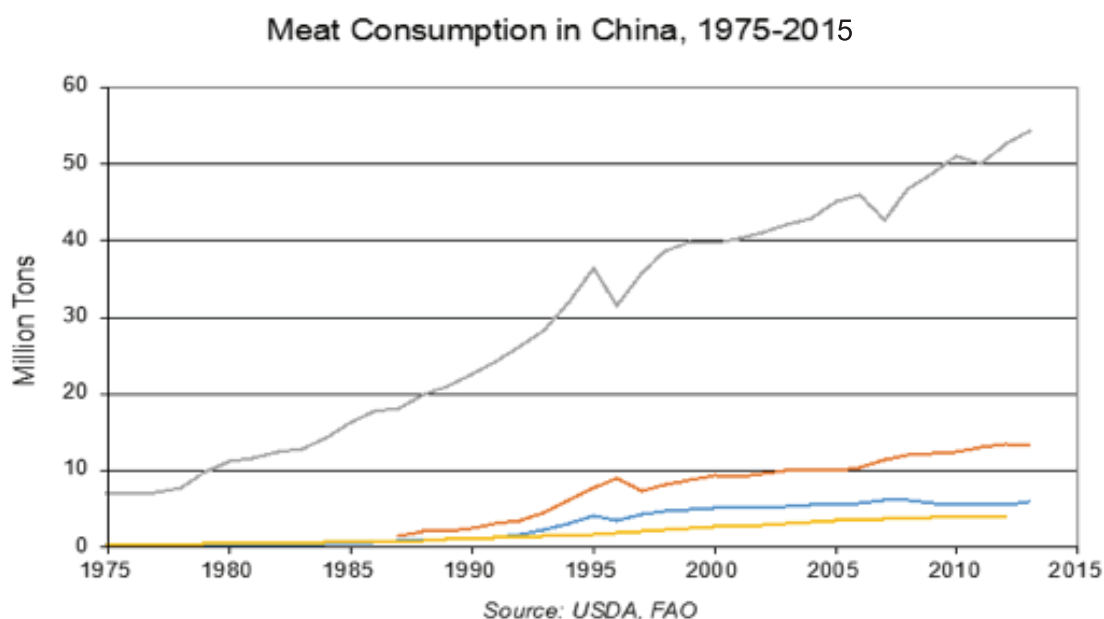
for wheat and rice, the main staples of the food structure, both show a downtrend, while the proportion of maize, the main feed, rises. Some scholars have predicted that the increase in the size of China's food shortages in future will mainly be in feed grain rather than staples such as rice (Huang and Rozelle 1998: 255).

**Table 1: China's poultry and livestock products in the period 2007-2013**

|      | Domestic livestock production (ten thousand tons) |         |        |        |         |         |
|------|---|---------|--------|--------|---------|---------|
|      | Meat  | Pork    | Beef   | Mutton | Milk    | Eggs    |
| 2007 | 6865.72   | 4287.82 | 613.41 | 382.62 | 3525.24 | 2528.98 |
| 2008 | 7278.74   | 4620.50 | 613.17 | 380.35 | 3555.82 | 2702.20 |
| 2009 | 7649.75   | 4890.76 | 635.54 | 389.42 | 3518.84 | 2742.47 |
| 2010 | 7925.83   | 5071.24 | 653.06 | 398.86 | 3575.62 | 2762.74 |
| 2011 | 7965.14   | 5060.43 | 647.49 | 393.10 | 3657.85 | 2811.42 |
| 2012 | 8387.24   | 5342.70 | 662.26 | 400.99 | 3743.60 | 2861.17 |
| 2013 | 8535.02   | 5493.03 | 673.21 | 408.14 | 3531.42 | 2876.06 |

Source: calculated based on data from National Bureau of Statistics of China.

**Figure 1: Meat Consumption in China, 1975-2015 (cited in Brown 2014)**



Some scholars have predicted that China's GDP will increase by 6.5 percent per year from 2007, its population will reach 1.45bn, and roughly 53.38 percent of the population will live in urban areas by 2020. However, China's arable land area will remain at 120m ha. At the same time, China's grain supply and demand will also face the opportunities and challenges of the appreciation of the Chinese RMB, the rapid development of biofuels and the improvement of domestic food subsidies in the context of globalisation. Although the specific figures based on different methods are slightly different, scholars believe that China's future food self-sufficiency rate can hardly remain at 95 percent, and it may already fall below this measurement (Schneider 2014), so it is inevitable

that China will become a major importer of food in the future (Lv and Hu 2012; Lu et al. 2011; Huang et al. 1996). That is to say, from 2015 to 2020, China's oversupply of food will change to short supply and the domestic food gap will further expand. The question, therefore, is not just how much food will China need in the future, but who will supply it?

## Political analysis of imports

China has gradually turned from a net food exporter to a net food importer. Wheat, rice and maize, the three major staple foods, all need to be imported. In addition,

since 2010, other agricultural products such as grain, cotton, oil, sugar, milk and meat have all been imported more and more. In sum, China has become increasingly dependent on other countries to meet its agricultural demands, most notably due to its increased demand for animal feed.

In 2013, China imported grain (including soybean for animal feed) exceeding 84m tons, which is nearly equal to the amount produced in that year by the two top agricultural provinces. Among these imports, 63.38m tons were soybean. After World War II, the United States, Brazil and Argentina became the major exporters of soybean and China the fourth in rank. Since the late 1990s, however, China's soybean imports have been growing, overtaking exports in 1996. China's soybean imports exceeded 10m tons in 2000, exceeding domestic production for the first time, and reached 20.74m tons in 2003, mainly from the United States. In 2010, soybean imports were nearly 55m tons, accounting for 80 percent of China's total demand for soybean; by 2012, demand had reached 58.38m tons. At the same time, China imported 2m tons of soybean oil, equivalent to more than 1,000 tons of soybean. These imports mostly come from the United States, Brazil and Argentina, who contribute roughly 90 percent to the total trade volume. Over the past 17 years, the soybean imports purchased by China accounted for nearly 60 percent of the international trade volume of soybean (Brown 2012). The latest data predicted that China would import 76m tons of soybean between October 2014 and September 2015 due to the improvement of requirements for soybean meal.

Furthermore, the imports of other agricultural products also showed increasing trends, arousing concern from the public (Huang et al. 2012). Before 2011, China only allowed the import of a small amount of high-quality rice and wheat and almost no maize was imported. In 2012, however, China became the world's second largest rice and barley importer and ranked the world's top ten and top twenty in terms of import of maize and wheat.<sup>1</sup>

With regards to maize, in the 1990s China's average annual maize exports exceeded 5.5m, and this reached 16m tons in 2003. From 2004 to 2009, however, the exports of maize witnessed an average annual decline of 2.6m tons or so. In 2010, China became a net importer of maize and imported a total of 1.57m tons of maize from abroad. Meanwhile, China also imported 3.16m tons

of dried distillers grains (a by-product of ethanol production) to meet domestic demand for maize and soybean meal. In 2011 and 2012, the import of maize was respectively 1.75m tons and 5m tons, with an annual growth of 185 percent.<sup>2</sup> During this period the United States was China's largest source of imported maize, accounting for 98 percent of the supply (Lv and Hu 2012). Farmers in Wisconsin, a major grain-producing area of the United States, benefited hugely as China's imports grew nearly 50 percent every year (Liu 2013). Wang (2013) believes that the three main reasons China's maize imports increased so rapidly were i) to stockpile reserves; ii) to meet the rising demands for animal feed; and iii) because overseas maize was cheaper than China's domestic output. According to the Chinese Food Network (中华粮网), for example, from the fourth quarter of 2011 to the first half of 2012, the price of imported maize in South China was, on the whole, lower than that of maize from northeast China. This phenomenon is not restricted to maize, as lower prices have become one of the reasons why China imports increasingly large numbers of agricultural products. In fact, data shows that in 2013 China also imported over 1m tons of meat (including 553,000 tons of beef and mutton, and 584,000 tons of pork).

In terms of rice, in the past five decades China was a net importer for only four years. Since 2011, China became a net importer of rice for two consecutive years. In 2011, China's total import of rice was 570,000 tons. In 2012, this figure hit a record high, reaching 2.4m tons, with an increase of more than 320 percent. Before 2011, China mainly imported high-quality rice from the Thailand at a high price. In 2012, however, China also started importing lower-quality rice from Vietnam (accounting for 66.7 percent of the total imports), Pakistan (accounting for 25 percent) and Thailand (accounting for 7.6 percent). This was mainly by domestic Chinese enterprises for the purposes of processing rice noodles and rice wine. In addition, over the past four years, the amount of wheat imports also rapidly increased. In 2011, China's imports of wheat reached 1.25m tons. In 2012, this figure was 4m tons or so, with an increase of 220 percent,<sup>3</sup> of which two-thirds came from Australia, mainly to be used as feedstuff.

More and more, therefore, China's domestic agricultural producers are facing competition from lower prices on the global market. A comparison of some of China's key agricultural imports versus their costs when domestically produced is presented in the table below.

| Agricultural Product   | Price of imported (CIF, RMB/ton) | Price of domestic produced (RMB/ton) | Price gap (RMB/ton) |
|------------------------|----------------------------------|--------------------------------------|---------------------|
| Indica rice (Thailand) | 3329                             | 3800                                 | 471                 |
| Wheat                  | 2017                             | 2400                                 | 23                  |
| Maize                  | 1766                             | 2400                                 | 634                 |
| Soybean                | 3900                             | 4800                                 | 900                 |
| Rapeseed               | 3977                             | 5100                                 | 1023                |
| Cotton                 | 15400                            | 19800                                | 4400                |
| Sugar                  | 3000                             | 5000                                 | 2000                |
| Beef/mutton            | 26000                            | ~ 52000                              | ~ 26000             |
| Pork                   | 12000                            | ~ 24000                              | ~ 12000             |

Data Source: sorted out according to Chen Xiwen's keynote Speech on the 2<sup>nd</sup> Longping Forum, 24 Nov. 2014. See links: <http://news.sina.com.cn/o/2014-11-24/092231192687.shtml>. [红网, 陈锡文: 中国农业发展形势及面临的挑战, 2014年11月24日]

## China's food imports under globalisation

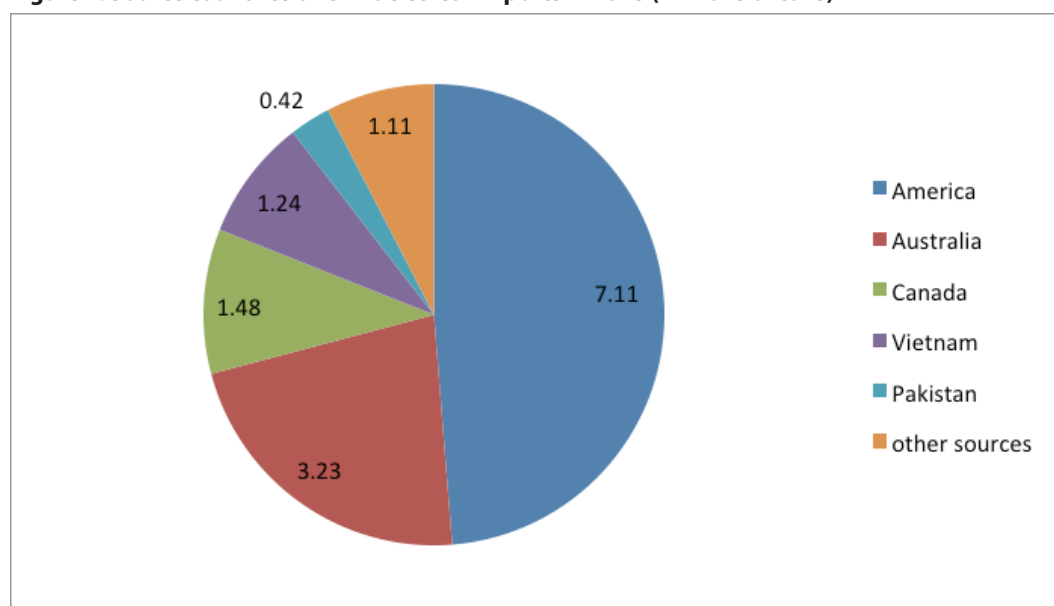
No country is immune to the impacts of food shortages (Brown 2009). Food security is a global problem, not just China's own problem, and so it is important that Chinese food security be analysed and discussed from a global

perspective. Part of the problem is the dominance of a few producer countries. From 1990 to 2007, for example, among the 176 countries covered by FAO statistics, we can see from the table below that the number of net food-importing countries is much greater than the net food-exporting countries for all four key crops discussed in this paper.

|   | Wheat     |           | Maize     |           | Soybean   |           | Rice      |           |
|---|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|   | 1990-1992 | 2005-2007 | 1990-1992 | 2005-2007 | 1990-1992 | 2005-2007 | 1990-1992 | 2005-2007 |
| <b>Number of countries in sample</b>                        | 176       | 176       | 175       | 175       | 127       | 127       | 176       | 176       |
| <b>Number of net importers</b>                              | 147       | 147       | 129       | 145       | 73        | 98        | 143       | 154       |
| <b>Number of net exporters</b>                              | 25        | 29        | 23        | 28        | 16        | 17        | 25        | 20        |
| <b>Number of countries not involved in import or export</b> | 4         | 0         | 23        | 2         | 38        | 12        | 8         | 2         |

Source: Based on relevant data of FAO and Food Security Statistics; cited from Bao (2011)

**Figure 2: Source countries of China's cereal imports in 2013 (millions of tons)**



Source: Agricultural Trade Office of the Ministry of Agriculture, etc. China Agricultural Trade Development Report 2014, Beijing: China Agricultural Press, 2014: 25 [农业部农产品贸易办公室等, 中国农产品贸易发展报告 (2014), 北京: 中国农业出版社, 2014:25]

Affected by climate change and other factors, food is in increasingly short supply, and as a result a new geopolitics of food has gradually formed (Brown 2012: 8). Currently, China mainly imports grains from countries with surplus food production, such as the United States and Australia. To guarantee China's food security in the future, though, it is important to take into account political and economic risks in the context of globalisation.

Firstly, when the world's cereal production cannot meet the demand, some exporting countries will limit exports to curb domestic food prices. For instance, when grain and soybean prices soared in the United States in the 1970s, the country immediately restricted exports. When global grain and soybean prices rose during the 2008 global food crisis, Russia and Argentina restricted wheat exports and Vietnam restricted rice exports to ensure national food supply (Brown 2009).

To mitigate such risks, several countries have sought to boost agricultural production by purchasing or renting land in other countries, but this has also encountered some challenges. For example, some Chinese provincial enterprises signed agreements with the Philippines to rent 2.24m ha of land to plant maize. However, the entirety of the Philippines has a total of only 5.3m ha of arable land. In the end, the Philippines annulled the agreement. Even many countries with a large land area, such as Brazil, Argentina, Australia and New Zealand, have laws and regulations that prohibit large-scale land lease by foreign countries (Chen 2012).

Secondly, there is a lot of risk in food price volatility. One such factor with regards to grain is the high proportion used for automotive fuel in the United States. In 2009 alone, one-fourth of US grain (粮食) was used to produce automotive fuel, and according to the consumption level at that time, this grain were enough to feed 125m Americans or 500m Indians (Brown 2009). From 2005 to 2011, the amount of maize used for fuel production in the United States rose from 41m tons to 127m tons, accounting for one-third of the total production and leading food prices to rise. In addition to this, climate change such as drought is also an important factor affecting global maize production and prices. In 2012, the United States' maize belt suffered a severe drought, dramatically reducing production. As a result, the international market price of maize soared. As of mid-2012, the world's wheat, maize and soybean prices nearly doubled than the highest price in the history, reaching the highest prices in history (Brown 2012: 29-30).

Thirdly, political contexts also affect the international grain market. One concern that China has is that some exporting countries may use food as a weapon to achieve political objectives. For this reason, China has been reluctant to import large quantities of food (Lin 2004). In addition, although some major grain-producing countries such as Ukraine still have huge potential to increase food production, their turbulent political

situation could easily affect the fragile international grain market and bring about rising food prices.

Facing the great challenge of China's soaring grain imports, the Chinese government has been promoting the diversification of import channels. Moreover, its two major grain traders, COFCO and China Grain Reserves Corporation, who are tasked with much of China's grain imports, are also constantly looking for new import sources around the world. With regards to rice imports, for example, it was reported by Liu (2013) that China Grain Reserves Corporation's Guangzhou Branch imported 200,000 tons of all kinds of rice from Cambodia in 2011 at the price of US\$800 per ton of Grade I rice and US\$500 per ton of Grade II rice. In the same year, COFCO also signed a contract on rice imports with Cambodian rice exporters and the first batch of imports was 100 tons. At the end of December 2012, COFCO then signed a Memorandum of Understanding with the Ukraine Farming Group, the largest agricultural enterprise in Ukraine, which planned to export at least 5m tons of maize to China every year in the coming five years. The Group was approved by the Chinese government to import maize to China and is now seeking import licenses for soybean and wheat. In January 2015, Ukraine transported 470,047 tons of maize to China, which exceeded the quantity from the US in that month.<sup>4</sup>

## Conclusion

Since 1949, China has accumulated a wealth of experience and attained significant achievements in agricultural production, making important contributions to domestic food security while simultaneously promoting the world's food security. However, with the acceleration of industrialisation and urbanisation in China, land, labour and other resource constraints (i.e. overuse of fertiliser and pesticide) pose limits on further increases in food production. At the same time, urbanisation has altered most Chinese food consumption habits, resulting in a tight balance between food supply and demand in an inevitable trend. Within this context, China's entry into the WTO has also weakened China's ability to meet its own demands. As a result of all of these factors, it seems likely that China will increasingly rely on the international market to fill the gaps between domestic food supply and demand. This will require a keen awareness of -\*/both the opportunities and pitfalls present in the geopolitics of food.

## End Note

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- ii Forestry Department of Guangxi Zhuang Autonomous Region, Nanjing, 530028
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