

**China Agricultural Expansion:
An Investigation into a
Future World Food Production Strategy for China**

by

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Introduction

Food Security, the ability of China to produce enough food to for the its own increasing population is a very important issue today and will be an even greater one in the future as China's population continues to grow at a rate of a little over 1.06% a year. Currently, China has about one-fifth of the world's population (1.3 billion people), yet only one-fifteenth of the world's arable land available for agriculture. However, as the country's rapid economic growth progresses along with population growth and urbanization, this will lead to an increase in food consumption. "Agriculture still contains a large share of the population, and is an important source of rooting out poverty and keeping urban food prices low, an essential ingredient of urban political stability (Index-China.com, 2000)."

In the late 1970s, when reforms in China began to take place, China was one of the world's poorest countries with almost 60% of its 1 billion population living in poverty. Over the past few decades, China has gone from a rural culture "to an urban society and from a command economy to a market based one (Index-China.com, 2000)," experiencing one of the fastest agricultural and economic growth rates.

Many of those interested in the topic of China's future food security have focused mainly on China's stability coming from internal reliance on current resources or from increased imports from other countries. This paper proposes a different plan of food security for China which involves looking outward rather than inward for agricultural production. China, a very experienced agricultural producer, has continued to successfully provide food for its population of 1.3 billion people. China's agricultural experience and know-how in terms of crop species, agricultural technology, and agricultural equipment are desired by various developing countries. If this is the case, then China has both the capital and attractiveness to potential foreign investments. Proposed ideas include external, foreign investments in land, water management, port facilities, and scientific research for a world food market infrastructure.

Current Status of Agriculture in China: Overview of Imports and Exports

China has a large labor force in agriculture and the majority of China’s population lives in rural areas. China has become rather self-sufficient in food production and has become a major food exporter, but the country is still a major importer of agricultural commodities.

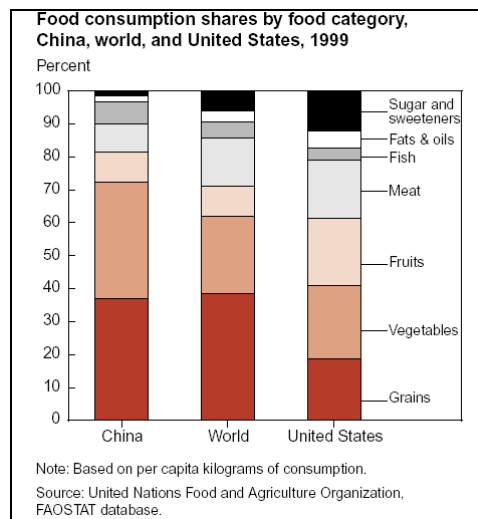


Figure 1: 1999 Food Consumption breakdown by category for China, the United States, and the World (Gale, 2002)

As evidenced by figure 1 above, “grains (mostly rice and wheat) and vegetables, by weight, make up about 70 percent of per capita food consumption in China, a much higher share than in the United States (Gale, 2002).” China’s per capita consumption of grains, vegetables, and fish surpasses that of the world and U.S. averages, and given China’s limited land resources, the majority of these commodities are currently imported from other countries.

As an example of land efficiency, China makes efficient use of the land they have by producing high quantities of vegetables (crops which are easy to produce), thus making efficient use of their limited land resources, and imports the majority of the soybeans they need for

consumption given that growing soybeans on land in China does not produce a yield as great as vegetables and other crops. Figure 2 illustrates China’s yield of certain agricultural commodities per hectare of land.

Item	Unit	China	World	United States
Production per hectare of land:				
Rice, paddy	Tons	6.2	3.9	7.0
Wheat	Tons	3.7	2.7	2.8
Corn	Tons	4.6	4.3	8.6
Soybeans	Tons	1.7	2.2	2.6
Vegetables and melons	Tons	18.4	15.7	17.1
Fertilizer consumption per hectare	Kilograms	271	94	111
Farm workers per 100 hectares ¹	Number	310	82	2
Land irrigated	Percent	40	18	13
Tractors per 1,000 hectares	Number	6	18	27

¹For China, farm employment is the sum of those engaged in crop planting, animal husbandry, and agricultural services reported in 1997 agricultural census. Other employment figures from FAOSTAT.

Source: Estimated from United Nations Food and Agriculture Organization, FAOSTAT database.

Figure 2: 1997 Yields per hectare of cropland for China and the United States (Gale, 2002)

As stated before, China currently imports more than it exports in terms of agricultural commodities. Illustrated in figures 3-4 below, soybean, barley, plant oil, and palm oil are four agricultural commodities which China constantly imports more than it exports. For example, from January to August of 2001, China imported 9.566 million tons of soybeans, but only exported 0.153 million tons, a net export of -9.9413 tons. Agricultural imports, especially grain imports, make both economic and environmental sense for China since China’s own resources and farmland are currently under much strain from overuse. “China maintains its high level of food production by double- and triple-cropping and applying large quantities of fertilizer and labor to its limited land base (Gale, 2002).” Although China does have a significant amount of land, most of the land cannot be used for agricultural production to do factors such as growing urbanization, unsuitable terrain, and other complicated issues.

(Unit: 10,000 tons)

Items	Aug., 2001		Jan. - Aug., 2001		Net Export	Comparing with the same period of the pervious year (%)	
	export	import	Export	import		Export	Import
Rice	11.1	1.8	119.8	15.3	104.5	-44.3	17.2
Wheat	9.5	1.5	36.5	23.2	13.4	184.3	-72.4
Corn	34.6	0.8	399.0	2.4	396.6	-43.1	1226.8
Barley	0.0	13.9	0.1	151.0	-151.0	33.3	12.1
Soybean	1.3	176.4	15.3	956.6	-941.3	-1.6	38.0
Edible plant oil	1.6	10.6	8.8	107.5	-98.7	58.4	-10.5
Rapeseed oil	0.7	0.4	3.8	4.0	-0.2	72.4	64.4
Soybean oil	0.6	0.2	3.7	5.2	-1.5	74.1	-81.4
Peanut oil	0.2	0.0	0.9	0.5	0.4	-3.6	4.1
Palm oil	0.0	10.0	0.0	95.0	-95.0	-59.0	15.9

Figure 3: The Volume of Import and Export of Grains and Oil Products in August 2001 in China (Ministry of Agriculture, P.R. China, 2003)

Category	Average annual trade, 1995-2000		
	Exports	Imports	Net exports
	<i>Billion dollars</i>		
Manufactured food and beverages ¹	3.5	.3	3.3
Animals and animal products ²	2.2	.5	1.7
Vegetables	1.6	.1	1.5
Fish and seafood	1.9	.8	1.2
Tobacco, coffee, tea, and spices	1.1	.2	.9
Fruits and nuts	.4	.2	.2
Grains, feeds, and milled products ³	1.4	2.6	-1.3
Oilseeds, fats, and oils	1.3	2.9	-1.6
Fiber, fabrics, hides, and skins ⁴	5.5	7.2	-1.6
Fertilizers	.2	2.8	-2.6
Other agricultural products	.4	1.2	-.9

¹ Baking products, preserved food, beverages. ² Live animals, meat, dairy, eggs, honey, and other animal products. ³ Cereals, feeds and food waste, and flour and other milled products. ⁴ Silk, animal hair, cotton yarn and fabric, and hides and skins.

Source: ERS analysis of China customs statistics reported in Hsin-Hui Hsu and Fred Gale, *China: Agriculture in Transition*, USDA/ERS Agriculture and Trade Report WRS-01-2, November 2001, appendix tables 5 and 6.

Figure 4: 1995-2000 Agricultural imports and exports for China (Gale, 2002)

In August 2001, China imported little soybean from America, however, “the importation from Argentina per month increased up to 1.15 million tons, the importation from Brazil kept at around 0.62 million tons (Ministry of Agriculture, P.R. China, 2003).” As seen in figure 5 below,

the main countries from which China imported soybean from between January and August 2001 were: America (47%), Argentina (30%), and Brazil (23%).

(Unit: 10,000 tons)

	Total	Percentage	Jan.	Feb.	March	April	May	June	July	Aug.
Total	957	1	38	69	86	125	140	139	183	176
America	451	47%	38	67	85	124	106	15	17	0
Argentina	285	30%	--	--	--	--	5	62	102	115
Brazil	218	23%	--	1	-	1	29	62	64	62

Figure 5: The Import of Soybean into China in 2001 and the Major Source Countries (Ministry of Agriculture, P.R. China, 2003)

Agricultural E-Commerce in China

The first agricultural e-commerce web site to be launched by China is (<http://6688.ccec.com>) in the northeastern Jilin Province of the country. The website is operated by the Jilin provincial government and China Commercial Trade Center. The website “provide[s] services including information, news, on-line contracts, accounting and product distribution (english.peopledaily.com.cn, 2000)” in addition to regularly posted statistics. By getting the necessary information to local farmers, agricultural e-commerce websites enable local farmers to keep up with the current grain market in order to facilitate their agricultural development.

The Ministry of Agriculture (MOA) states that, “there are more than 2200 agricultural web-sites in China now while there were only 200 in 1998 (Ministry of Agriculture, P.R. China, 2003).” The MOA conducted another survey of agricultural web sites in the latter part of 2000, and discovered that there are almost 2,600 national and overseas agricultural web-sites, with 2200 of the web sites being national ones. Approximately 1600 of the agricultural web-sites are in normal operation and half are based in Beijing and the following major coastal provinces: Zhejiang, Jiangsu, Shandong and Guangdong. “Agro-enterprises are the major force of the web-site construction, [and of] these 1600 web-sites, 37% belongs to enterprises, 17.4% to governments, 16.4% to science and technology and education institutes (Ministry of Agriculture, P.R. China, 2003).” The sector and information contents of the websites cover all subjects in agriculture and rural economy.

Another example of a bustling agricultural e-commerce web site in China, FarmChina.com is “a premier full service e-commerce player in the \$324 billion food & agricultural trading market in China (SeedQuest, 2000).” This website allows users to efficiently

trade food and various agricultural commodities, find business partners in China, as well as stay on top of current agricultural data and policies. FarmChina.com's support base comes from almost 200 different partners in China and abroad, including government regulatory agencies and trading service corporations. "FarmChina.com's services and web-based marketplace help Chinese agricultural companies purchase inputs such as Monsanto's seeds and New Holland's tractors, as well as facilitate selling their outputs domestically and internationally (SeedQuest, 2000)." FarmChina.com has a user base of almost 28,000 both nationally and internationally.

Moreover, the Deputy Director-General of Department of Market and Economic Information of MOA, Zhang Yuxiang, said the China Agricultural Information Network, which is one of the first government web-sites, "has properly played its role in the industrialization and market-orientation of agriculture, structural adjustment of agriculture, regional economic development,...it is an agricultural information bridge providing services for production operation and market (Ministry of Agriculture, P.R. China, 2003)."

Agricultural E-Commerce merges agribusiness and Internet resources to empower buyers and sellers with information to facilitate trade in China. These websites are assisting China in conducting Agricultural E-Commerce, yet another step in building an infrastructure for world food marketing.

Agricultural Biotechnology and Food Patents

Because of China's large population, increasing food output is the country's highest agricultural priority. "It is projected that the population of China will reach 1.6 billion by the year 2030 (Zhang)." Food output demand will increase by at least 60 percent in order to accommodate this rising population. Not only will there be an even larger demand for increased crop production, but currently, there already exists a large demand for improvement in the quality of food products, especially the quality of grain crops. As China's population continues to increase at a rapid rate, a rapid rate of urbanization will follow, resulting in the loss of potential farmland. One way to increase food production in China is to increase the productivity of current farmland, but that is already being done to a great extent and is wearing away at China's farmland. Another problem Chinese agriculture is encountering is the decay in quality of the environment. "We have seen increasingly frequent natural disasters such as floods, drought, insect pests, and diseases, and also expanding areas of soil desertification, salinity, and acidity (Zhang)." One possible solution to this problem involves using genetically modified crops and seeds which are well suited to this harsh agricultural environment.

"While battles over genetically modified foods have slowed the technology's progress in Europe and North America, countries such as China and India are now gearing up to commercialize dozens of genetically modified plants in the next few years (Stikeman, 2001)." Coincidentally, China is the one country that has the scientific power to move forward with agricultural biotechnology research due to their rapidly growing demand for additional food. Recently, there have been swift developments in China in research areas of biotechnology and molecular biology of different crop plants. Based on information from the Ministry of

Agriculture in China, biogenetic research has already been conducted in 47 plant species in China using 103 different genes. Currently, China has almost 1 million farmers growing genetically enhanced cotton, corn and soybeans. Developing nations, such as China, have the potential to become the main producers of genetically engineered crops.

One major hurdle to the development of genetically engineered crops in China is the fact that China currently does not have an Intellectual Property Rights (IPR) structure in place to handle the large scale biotechnology research used to develop genetically engineered crops. A good majority of the genetically engineered crops China has developed thus far involve complex intellectual property issues. Another factor weakening China's ability to deal with intellectual property issues is that there are very few experts in China who are knowledgeable about IPR, and have experience in dealing with IPR issues. With the concept of food patents coming into play, China, if they are able to get up to speed with biogenetic research and IPR issues, could have the option of charging the United States, Europe, and others abroad excessive fees for the right to grow the new crops that result from their biogenenic research. In other words, if developed countries desire some of the genetically engineered seeds and crops China develops, China could export these items or charge farmers in other countries a fee to grow them if they acquire the necessary intellectual property rights or 'food patents.'

The United States and Europe have already invested billions of dollars in the research of genetically modified crops and animals in order to produce better tasting and more nutritious foods which will not ravage the land during the cropping process. Agricultural biotechnology can play a major role in increasing crop production and overall crop quality in China.

"Biotechnology will contribute significantly to food production and food security in China in the coming century (Zhang)." As developing countries struggle with ways to provide adequate diets

for their increasing populations, the “choices are stark...they can either use biotechnology to raise yields, grow more low-yield crops by clearing tropical forests or import food from the West (Avery).” Many developing countries are either too small or poor to move forward with agricultural biotechnology by themselves. For example, Brazil could amass the scientific resources necessary for agricultural biotechnology research, but “they're afraid of losing their export sales to nervous European and Japanese consumers (Avery).”

As a case example, Golden Rice is a type of rice which has been genetically modified to increase its Vitamin A content. Golden rice is currently revolving around seventy patents owned by thirty-two different companies and institutions. Golden Rice is entrapped in so many legal issues around intellectual property rights and licensing that the original inventors of the strain of rice merely turned over their rights to the project to a biotech company, Greenovation, who then created a deal with AstraZeneca. In the end, “forging an alliance with AstraZeneca seemed to be the only option available to gain "freedom-to-operate" and speed up the transfer of the technology to developing countries (South Centre, 2001).” Golden Rice was originally created with public funding, as claimed by the inventors of the rice, to assist the malnutrition situation in developing countries. But IPR and licensing issues caused the creators to sign the rights of their research over to a private corporation for handling.

”The AstraZeneca deal gives the corporation full commercial rights to the invention worldwide and "non-commercial" rights to the inventors for license-free use by national and international research institutes and resource-poor farmers in developing countries (South Centre, 2001).” Ownership of the rights to golden rice gives AstraZeneca the power to tell a poor farmer they may utilize golden rice, but only if they do not profit by more than \$10,000 a year from it, and anyone else who wants to produce golden rice commercially that they must obtain a license

from AstraZeneca. “This lack of clarity casts a huge question mark over how “free” the agreement really is and has huge implications for the accessibility, availability and affordability of golden rice to farmers around the world (South Centre, 2001).” It seems that instead of resolving the intellectual property issues around golden rice, the inventors have passed the buck to developing countries and public institutions to sort out the mess themselves.

Although the intricacies of IPR issues surrounding golden rice are much more involved, this is an example of the power China, an agricultural expert, can have to assist in the country’s own development and control of food production nationally and internationally. Interestingly, China has already been exploring the realm of agricultural biotechnology and “the only developing nation to have engineered its own genetically modified crop—insect-resistant cotton—and brought seeds to market (Stikeman, 2001).”

Opportunities of Land Investment in Brazil

China has become greatly connected to Latin America in terms of trade and investment, and more specifically, Brazil has become China's biggest trading partner in Latin America. In addition, China is also one of Brazil's top ten export destination countries. As a result, over the past couple of decades, China and Brazil have established strong diplomatic relations. In 2001, China had either invested in or built 59 corporations in Brazil, with the majority of them being trading corporations. The actual investment resulting from these deals is approximately \$110 million U.S. dollars.

Brazil is a very attractive investment to China. "Brazil is one of the world's greatest producers and exporters of agricultural commodities...Brazil has almost a fifth of the world's arable land and seventy per cent of its territory is suitable for cultivation (Trade Partners UK, 2002)." Favorable climate, ample water, and a mostly flat topography yield good crop conditions. Agribusiness comprises almost forty per cent of Brazilian exports, with soy, meat, sugar, leather, maize and cotton being the country's main export commodities.

The continual devaluation of the Brazilian dollar has attracted many foreign agribusinesses who are currently investing in Brazil or are planning to do so in the near future. There are many opportunities for China to invest or obtain valuable assets in Brazil cheaply. "The challenge for those companies interested is to identify opportunities to join forces with local entrepreneurs through know-how and technology transfer, partnerships, joint ventures and consultancy...all of these are effective ways into the Brazilian market because local producers are currently looking to improve and secure their medium and long-term competitiveness (Trade Partners UK, 2002)."

As stated by Trade Partners UK (www.tradepartners.gov.uk), there are many sectors of opportunity in Brazil as well as sectors that are actively looking for and offering investment opportunities. These opportunities, as stated by Trade Partners UK, are listed below:

Main Sectors of opportunities:

1. Biotechnology with direct application in agriculture and food production
2. Organic and GM food: production, technology and market trends (consultancy services)
3. Organic packaging for organic produce
4. Basic minerals such as potash, phosphate and nitrogen
5. Precision agriculture, remote sensing and precision machinery
6. Fruits and post-harvest technology
7. Prawn and fish farming
8. Pre-cooling chambers and pre-chilling technology
9. Packinghouse design, constructing and equipment
10. Deep sea fishing and fishing vessels

Specific sectors offering investment opportunities:

1. Irrigated tropical fruit production
2. Fish and prawn farming
3. Poultry/pigs

4. Organics production
5. Grain production

Brazil's government "is committed to agriculture as a vehicle for economic growth, and there are few restrictions on foreign ownership of land (Minnesota Issue Watch, 2003)." Crop-ready land in Brazil can be purchased by local or international buyers for about \$400 to \$500 an acre, which is a large contrast to purchasing reclaimed farmland in China that is scarce and poor quality land for almost \$2,000 to \$20,000 per hectare depending on the area. Some predict a return on investment in Brazilian farmland to be about 20 percent depending on the crop. Foreigners, such as investors from China, have the ability to readily own prime land in Brazil through a Brazilian corporation. Production costs in Brazil are lower and the country's tropical climate enables what is known as double-cropping (growing two crops a year).

According to the U.S. Department of Agriculture's (USDA) Foreign Agricultural Service there are approximately 160 million acres (65 million hectares) of virgin farmland in Brazil, and almost 222 million acres (90 million hectares) of pasture in the Center-West region of Brazil that have the potential to be converted to grain and oilseeds fields. The USDA also estimates that Brazil could increase its useable farmland almost five times and have 420 million acres (170 million hectares) into production which would almost equal the total amount of farmland in the United States.

As an example, currently, soy production dominates about 39.5 million acres of Brazilian land. Soybeans could take up half of the potential farmland expansion (about 247 million acres) if the market demand exists and improvements are made in transport, as illustrated in figure 6

below. Since Brazil has such a vast amount of arable land, the possibilities for soy production expansion are unlimited.

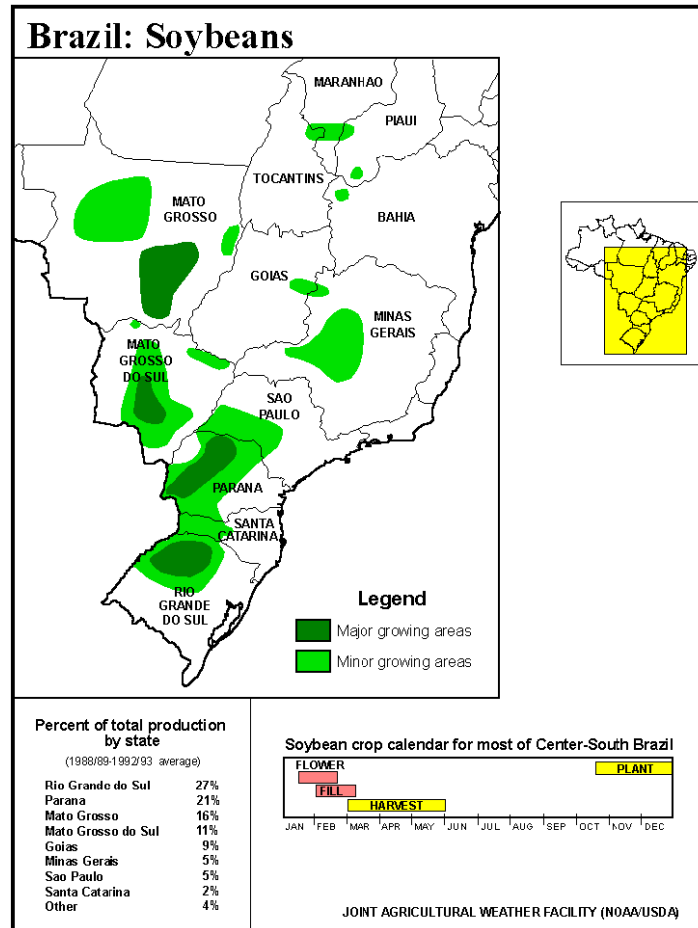


Figure 6: Soy Production in Brazil (Spectrum Commodities, 2000)

Contrastingly, China’s ability to produce soy is very limited when compared to Brazil, given China’s lack of arable land as seen in figure 7.

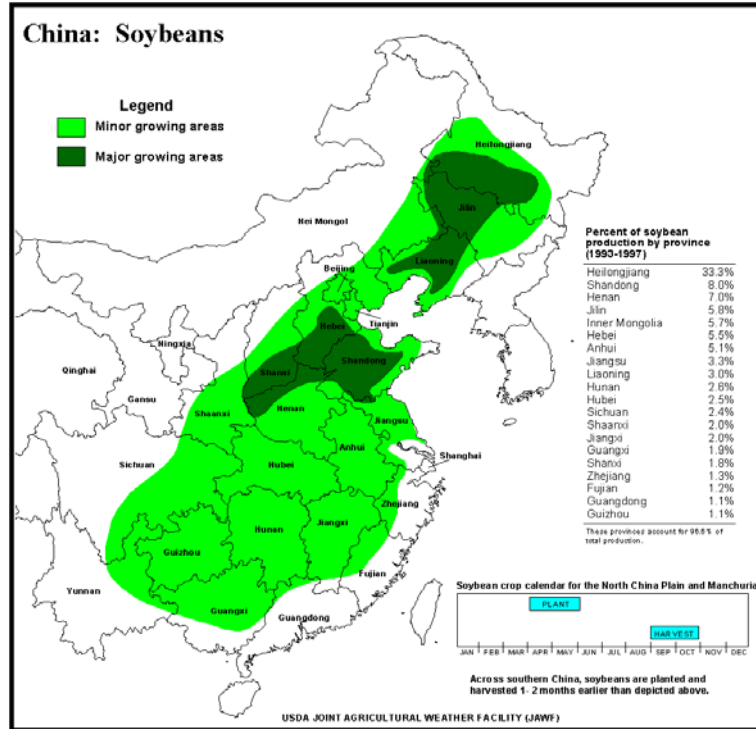


Figure 7: Soybean Production in China (Spectrum Commodities, 2000)

Selling prices for soybeans “achieved new highs for the 2002 crop year as a result of continued export demand from China (Hurt, 2003).” Although the United States has been and still is the leader in soybean production, South America is starting to knock the U.S. off the number one position through large increases in annual soy production and exports each year. As world demand for soybeans continues to increase, especially in China, South America seems to be stepping up to the task to meet increasing soy demand by increasing soy production (15% in Brazil and 29% in Argentina in 2002) as seen in figure 8. Since 1996, soy production in Brazil has increased by almost 90%.

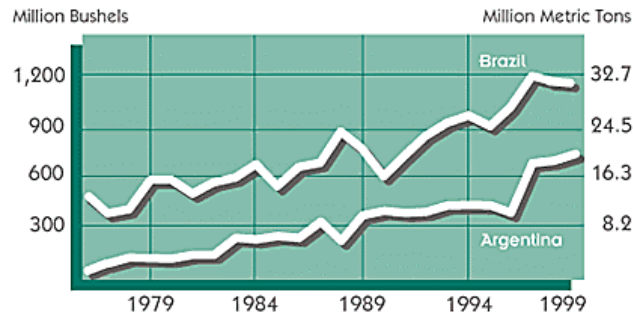


Figure 8: Brazil & Argentina Soybean Production 1974-1999 (United Soybean Board, 2000)

Brazil’s left leaning president, Luis Inacio Lula de Silva was recently quoted as saying, “Brazil’s new foreign policy has defined China as a fundamental partner (Smith, 2003).” Given the favorable diplomatic relations between China and Brazil, the vast opportunities for investment in Brazil, and China’s need to expand its agricultural output, investing in reasonably priced crops and land in Brazil can be a strong aspect of China’s future and current agricultural expansion for world food production to sustain its country and people.

Chinese Investment in Africa

China and Africa have had good relations over the years due in part to many Chinese initiated aid projects in various parts of Africa that began in the 1960s, allowing a strong agricultural cooperation to develop. As mentioned before, agricultural production is one of China's greater concerns, especially after the country's recent accession to the World Trade Organization (WTO). Many Chinese government officials and farmers have looked towards investing in farmland overseas, especially in Africa, in order to deal with the many troubles China is facing as a result of joining the WTO.

One example of a successful case of Chinese investment in agriculture in Africa is the Zhongken Farm, “established near Lusaka with an investment of 220,000 US dollars in 1994, sold a total of two million chickens, 1,000 heads of beef cattle, 6,000 pigs and 1.80 million liters of milk by the end of 2001 (Xhiuna, September 2003).” Han Xiangshan, who is the deputy general manager of the China State Farms Agribusiness Corporation and owner of Zhongken Farm stated, "we are proof that Africa is a top option when we are about to invest in the agricultural sector abroad...We can make great profits through investing in the farming sector and processing farm produce (Xhiuna, September 2003).”

For poverty relief and economic development, agriculture is a top priority for Africa. Many countries in Africa are interested in working with China in agricultural ventures such as: crop cultivation, vegetable and flower-growing, agricultural technology promotion and training, irrigation systems, and aquaculture to name a few.

Zimbabwe

Zimbabwe has recently turned to China for assistance in restoring Zimbabwe's agricultural production after two years of turmoil involving land disputes and seizures, a major cause of a famine threatening millions of the country's people. The controversial land seizures in Zimbabwe reduced the number of white-owned farms from 4500 to 600. Due to various reasons, many of the seized farms are now idle and not producing during the prime growing season (generally a method used to keep food prices high, but not in this case) because many black farmers who have been allotted the land have not yet begun farming due to a lack of capital to purchase seeds, fertilizer, and other equipment necessary for crop production. As a result of the situation, now "nearly two-thirds of the 12 million population risk starvation (Meldrum, 2003)."

"In a tacit admission of the failure of President Robert Mugabe's land seizure program, Zimbabwe has awarded a Chinese state company, the China International Water and Electric Corporation, a contract to farm 100,000 hectares in the country's south (Meldrum, 2003)." It is estimated that the new irrigation project could yield 2.1 million tonnes of maize annually if triple cropping is used. However, no one has revealed how much it will cost Zimbabwe to pay back China for the development of the new, expensive irrigation system and agricultural design plan for the country. "Because of Zimbabwe's drastic shortage of hard currency, it is believed that payment will be made with tobacco, which China buys in large quantities from Zimbabwe each year (Meldrum, 2003)."

Aquaculture

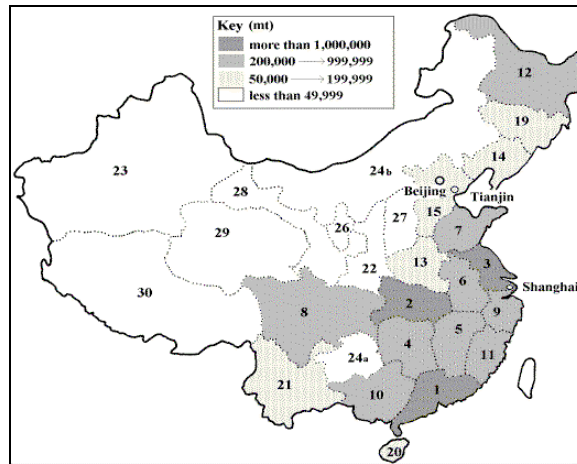


Figure 9: The administrative divisions of the People's Republic of China, showing ranked freshwater aquaculture production for 1995 in each area (Rana, 1997).

Aquaculture is the cultivation of aquatic animals and plants in fresh or marine waters. Aquaculture is not a new art by any means as it can be dated as having been practiced even back at the earliest accounts of human history. Thirty percent of world fish production is the result of aquaculture production. The main locations of aquaculture production today are China (57%), Asia (17%), Europe (11%), North America (7%) and South America (3%). As evidenced by the number breakdowns, China is currently the leader and expert in aquaculture. Similar to foreign land investment opportunities abroad, China could explore the possibility of expanding aquaculture overseas, especially in South America and Latin America. Although South America only represents 3% of the world's aquaculture production, South America has the marine water resources for aquaculture development, while China has the experience, expertise, and technology. As a proposed plan similar to that of Brazilian farmland investment, to meet the demands of expansion, China could invest in aquaculture development in South America to further expand their food production capabilities.

For the Latin American and South American regions, “the difficulties encountered in promoting aquaculture for domestic markets... are not linked to existing physical resources, but mainly to institutional factors, as well as to research and entrepreneurial capacity...with very few exceptions, aquaculture in the region is not properly integrated into government structure and policy frameworks (Martinez and Pardini, 1997).” China is experiencing a land shortage and is already efficiently utilizing the majority of available water resources for aquaculture (as seen in figure 9), however if the option is explored, China has the expertise and ability to assist South America and Latin America with aquaculture in order to help further China’s own food production, either through direct collection of aquaculture output for compensation or compensation through another commodity China currently imports from that region in lieu of direct monetary payment.

Ports and Shipping

Hutchinson Whampoa

As a prime example of trade and control expansion, Hutchinson Whampoa Ltd. is one of the world's largest independently owned operators of container terminals. Although once only a UK based company, the company is now a Chinese based Hutchinson Whampoa company which currently has interests in 31 ports world-wide, with 175 berths in 15 different countries. In 2002, turnover rates for the ports and related services division of Hutchinson Whampoa amounted to HK\$20,572 million (handling 35.8 TEU), a 33% increase over the previous year. Since the mid-1990s, Hutchinson Whampoa, Ltd. has expanded its operations to locations in 15 countries in Asia, the Middle East, Africa, Europe and North and South America. Hutchinson Whampoa currently operates a total of 175 berths in 31 ports throughout the world.

Lately Hutchinson Whampoa has been referred to as the Red Dragon that is gobbling up prime investment opportunities for China all over the world.

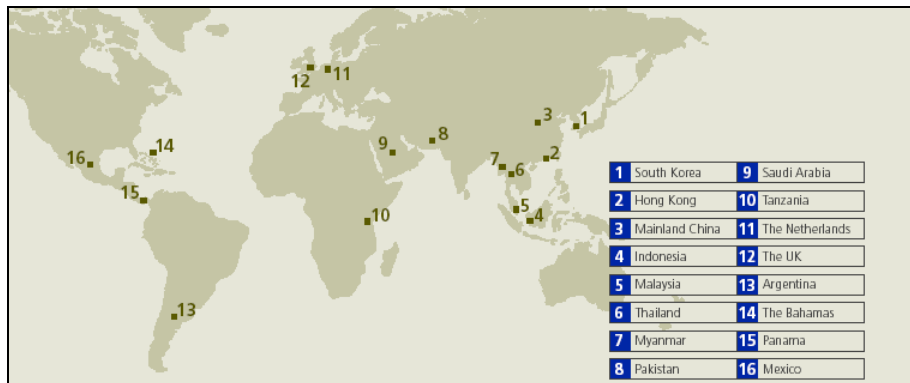


Figure 10: Location of Current Hutchinson Whampoa Ltd. Port Holdings (Hutchinson Whampoa, Ltd., 2002)

Panama: China's growing role in Latin America

“The People's Republic of China [PRC], through the Hong Kong-based Hutchison Whampoa Ltd. (HPH) company, which has close ties to the PRC government and People's Liberation Army [PLA], was granted a 25-year lease, with an additional 25-year option, for control of the Canal's Atlantic and Pacific Ocean ports of Balboa and Cristobal and adjacent facilities (Santoli, 1999).” The Panama Canal is known as one of the world's most strategic waterways. For the United States, the Panama Canal is an important part of American trade and defense. “It remains the vital sea link in the Western Hemisphere between the Atlantic and Pacific Oceans, and an economical and logistical bridgehead between North America and South America (Santoli, 1999).” However, in 1997, the Panama government awarded Hutchinson the 25 year contract (with the possibility of an additional 25 year extension) to run the two major ports on the canal's Atlantic and Pacific entrances, Cristobal and Balboa specifically.

The infiltration of Panama ports has been done by Panama Ports Company, which in actuality is a front corporation for Hutchison-Whampoa Ltd., the Chinese-controlled company owned by Hong Kong billionaire Dr. Li Ka-Shing. About ten percent of Dr. Li's Ka-Shing's shipping empire is owned by China Resources, the commercial subset of China's Ministry of Trade and Economic Cooperation

Since the deal, Hutchison Whampoa has been conducting major port expansion at both newly acquired ports. The company is upgrading and transforming the two ports into major centers to serve the Atlantic and Pacific trade routes. Both ports are currently going through refurbishment and redevelopment, and shipping operations still continue.

Hutchison Whampoa will control the stevedoring, which is defined as the loading and unloading of ship cargo, at the newly acquired Pacific and Atlantic ports. It has also been noted

that the company also has a great interest in the railroad line that organizes cargo transportation between the ports for either purchase or expansion. On top of this, the Chinese based company “is a major bidder on construction of a new suspension bridge that will link "land canal" highways that will truck oversized cargo containers between the Atlantic and Pacific coasts (Santoli, 1999).” In terms of foreign use or ownership of ports in the Panama Canal, the United States is first, followed by Japan, with China and Taiwan tied at third.

Mainly through the Chinese based Hutchinson Whampoa, and various China invested trading front companies, China appears to be positioning itself commercially for trade (as well as militarily) along the following key access points as specified by Santoli (1999):

- Indian Ocean [its bases in Burma];
- South China Sea [Hong Kong];
- Straits of Malacca [the Spratley Islands and a growing role in Cambodia];
- central Pacific [a major land satellite tracking station on Tarawa];
- coast of Hawaii [a major ocean mining tract];
- Caribbean [Cuba and the Bahamas]
- Panama Canal.

Currently, aside from military and political speculations, China expects to profit off the unloading and loading of cargo in the canal, but having access to the Panama waterways allows China to take another big step into Latin America for the possibility of expanding food production through either direct investment or monetary gain from port operations.

China Owned Ports in the Bahamas

A good majority of Chinas exports go to Bahaman ports. “According to the statistics of China General Administration of the Customs, the total Sino-Bahamas trade volume in 1999 amounted to US\$5,403,000, with sole export from China. The major Chinese exports to The Bahamas are vessels, clothing, shoes and hats, medicine, ready-made oil, toys and light industry products while Chinese imports from The Bahamas mainly are crude material and fertilizer. In 2001, the trade volume between China and the Bahamas totaled US\$ 34.79 million, with China's imports worth US\$ 20,000 and its exports US\$ 34.77 million.”



Figure ?: An aerial view of Hutchison Whampoa's sprawling facility, includes container port, cruise port and air cargo facility (www.newsmax.com/hutchison/)

HPH recently finished “developing a deep-water trans-shipment container port in Freeport, Grand Bahama (Hutchinson Whampoa Ltd., 2000).” The Freeport Container Port (FCP) has a capacity of 1,103 meters of container berth length and offers an annual handling capacity of about 950,000 TEU, and is the largest container port in the world. Freeport is a frequent port for some of the world's major cruise lines and container shipping lines.

“Situated 65 miles east of Florida, Freeport is the closest offshore port to the east coast of the United States, at the cross-roads of routes between Europe and the Americas and through the

Panama Canal (Hutchinson Whampoa Ltd., 2000).” HPH also controls and runs the Grand Bahama Airport (GBA) which is next to Freeport, consisting of an 11,000 foot runway which has the ability to handle the world’s largest air vehicles.

Of note, Several U.S. military experts suspect that the Chinese government has an intense interest in the Hutchinson Whampoa’s activities for military reasons as the port is strategically located near the Unites States east coast. According to Michael Powers, who Hutchison Whampoa's current General Manager for the Freeport development, “the container port is simply a dedicated deep water trans-shipment hub...[with] large container ships coming from several directions can off-load their container boxes, which can be re-routed on to other large or small container ships for delivery (Archer and Ruddy, 2000).”

Panama Puebla Plan

The Panama Puebla Plan (PPP) is a major development project occurring in Latin America, formed out of the failure of the Panama Canal to meet the shipping needs of international corporations. Since its inception, Mexico, Nicaragua, Colombia and other countries are moving forward with Plan Puebla Panama which “includes the construction of five mega-projects that would connect the east and west of Mexico through railroads and railways, as well as industrial infrastructure and transportation that connects Southern Mexico with all of Central America (Castillo, 2002). The PPP is a venue through which South American and Latin American natural resources will become open to capital and private investment “which would threaten indigenous autonomy and the collective use of land and natural resources (Castillo, 2002).” The PPP includes the expansion of transoceanic canals, new roads and highways for trucks to travel through North and South America.

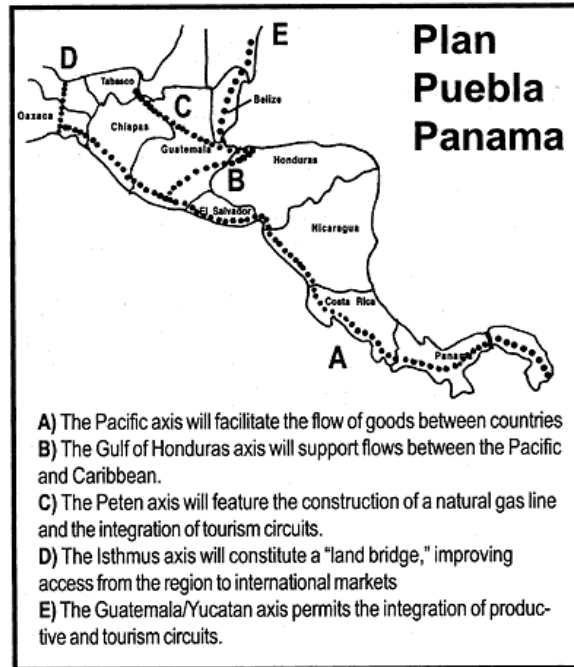


Figure 11: Map of Plan Puebla-Panama (Castillo, 2002)

Since the nature of the plan allows private interest groups to have access to natural resources at a price, this is another venue through which China can become more involved in Latin America South America, areas it already has great interest and investment in, while continuing to expand agricultural trade.

Conclusion

Many of the opportunities for agricultural expansion in China discussed in this paper are items which China has already explored and is finding great success with them, or the opportunities are ones China has its eye on, but has not yet fully dived into the option. Opportunities to enhance and expand food production are abundant for China given the country's expertise in many areas and urbanization rise. The China State Commission of Economics and Trade "declares that China encourages overseas investment in the following 10 areas [listed below] (InfoPacific Development Co, 1997)."

1. Comprehensive and new technological agro-economic projects like the retooling of low-and medium-yield farmland and the development of high yield varieties.
2. Construction of infrastructural facilities in the sectors including energy and communications, and basic industrial projects, such as the production of key raw and processed materials.
3. State designated pillar industries, including machinery, electronics, petrochemicals and automobile.
4. Projects capable of introducing advanced technologies to improve economic returns and productivity of domestic enterprises, and the products that can meet the demands in the home market.
5. Projects that can increase foreign exchange earning through export.
6. Projects using new technologies and equipment to comprehensively use resources and recycled resources.
7. Technologies and equipment helpful for pollution control and environment protection.

8. Emerging industrial technologies and equipment, such as bio-chemical, telecom networking systems, isotope radiation and laser, marring development and the development of oceanic energy.
9. Service industry, such as consultancy services, maintenance and after sales service of precision instruments.
10. Projects that can make good use of the labor-force and natural resources in central and western China.

This paper took a look at E-Commerce and biotechnology opportunities, potential direct farmland investments in South America and Africa, and as well as China's already expanding port and shipping control overseas. There are numerous avenues for China to explore in order to develop the necessary infrastructure for a Chinese World Food Market Strategy to sustain China in the future as the population grows and demand for food quantity and quality increases quickly over the next 10 to 20 years.

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