

Land grabbing, conflict and agrarian-environmental transformations: perspectives from East and Southeast Asia

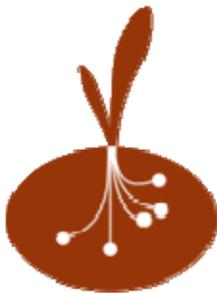
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Seeds, Grain Trade, and Power Off-land: Chinese Agribusiness in Global Agrarian Change

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Abstract

When the initial discussion of land grabs began in 2008-09, China was identified as a primary source of actors engaged in land purchases leading to dispossession (GRAIN, 2008; Zoomers, 2010). However, since these early reports, the centrality of China's role in the global land grab has been questioned (Brütigam & Zhang, 2013). This paper offers an alternative perspective to the existing scholarship, instead using Chinese corporate actors in the grain sector (with varying attachment to the Chinese state) as a lens for understanding China's role in global agrarian change. I argue that to define China's role in global agrarian change with too strong a focus on grabbed land overlooks the massive changes in Chinese and global agribusiness, which themselves have tremendous implications for global land politics. Despite calls to broaden the focus from land (Amanor, 2012; Hall, 2013; White et al, 2012), land grab debates have remained centered on particular investments and expulsions at the expense of examining the broader restructuring of global agribusiness. Situating China's broader international agribusiness investments will help us to understand its broader orientation in global agrarian change, of which land grabs are only one part. As Lang (2010, 88) argues, focus must be on "food supply chains, beyond as well as including agriculture, because power and capital have moved off the land, controlling access to mostly urban markets." Off-land developments in the grain sector help to explain aspects of the land grab and understand emerging influence on agrarian change. With this in mind, cases from the seed and processing sectors will be examined to illustrate China's position in relation to global agribusiness and land grabs. In order to situate the implications of China's rise for global agrarian change, I will first examine China's place in land grab explanations and the context of the global agrifood system. I will then briefly examine current Land Matrix data and China's developing agribusiness networks in both grain (including corn, rice, soybean) seed and processing/trade industries. The implications of these changes for global land food, land, and environmental politics are explored, noting that off-land changes have important relationships to agrarian systems globally.

Introduction

When the initial discussion of land grabs began in 2008-09, China was identified as a primary source of actors engaged in land purchases leading to dispossession (GRAIN, 2008; Zoomers, 2010). However, since these early reports, the centrality of China's role in the global land grab has been questioned (Bräutigam & Zhang, 2013). This paper offers an alternative perspective to the existing scholarship, instead using Chinese corporate actors in the grain sector (with varying attachment to the Chinese state) as a lens for understanding China's role in global agrarian change. I argue that to define China's role in global agrarian change with too strong a focus on grabbed land overlooks the massive changes in Chinese and global agribusiness, which themselves have tremendous implications for global land politics.

Despite calls to broaden the focus from land (Amanor, 2012; Hall, 2013; White et al, 2012), land grab debates have remained centered on particular investments and expulsions at the expense of examining the broader restructuring of global agribusiness. Situating China's broader international agribusiness investments will help us to understand its broader orientation in global agrarian change, of which land grabs are only one part. As Lang (2010, 88) argues, focus must be on "food supply chains, beyond as well as including agriculture, because power and capital have moved off the land, controlling access to mostly urban markets." Off-land developments in the grain sector help to explain aspects of the land grab and understand emerging influence on agrarian change. With this in mind, cases from the seed and processing sectors will be examined to illustrate China's position in relation to global agribusiness and land grabs.

In order to situate the implications of China's rise for global agrarian change, I will first examine China's place in land grab explanations and the context of the global agrifood system. I will then briefly examine current Land Matrix data and China's developing agribusiness networks in both grain (including corn, rice, soybean) seed and processing/trade industries. The implications of these changes for global land food, land, and environmental politics are explored, noting that off-land changes have important relationships to agrarian systems globally.

China and the Global Food System

China in the Land Grab: Focus and Explanation

Previous views of land grab literature focus on several explanations, including the search for biofuels, speculation caused by the global food crisis of 2007-08 (repeated in 2011), changing diets toward meat, and national food security goals to produce food for export (Cotula, 2012; Schneider, 2014a; Vermeulen & Cotula, 2010). However, when the trends related to actors from China are examined in relation to the main hypothesized drivers of land grabs, we see that these explanations are only partially appropriate. Indeed, the initial focus on China as a (or even *the*) primary nationality of actors in the acceleration of land grabs (GRAIN, 2008; Zoomers, 2010; Muldavin, 2012), has been critiqued due to the under-emphasis on other actors and the overemphasis China's own role (Borras et al., 2012; Bräutigam & Zhang, 2013). Nevertheless, there are still a significant number of recorded land deals in which actors originate from China (Land Matrix, 2015), and these land deals have a relationship to off-land development discussed below. As such, it is worth reviewing the some of these common explanations.

In relation to biofuels, China's national biofuel mandates and push towards alternative (agriculture-based) energy sources seem to be much less pertinent. While domestic biofuel production is increasing, it started from a very low number relative to top producers (Qiu et al., 2012). Though biofuels were stated to be of interest in China both as a means to ease environmental pressures related

to coal and automobile emissions, the use of food grain and sugar as biofuel sources was immediately seen as threatening to domestic food security priorities (Qiu et al., 2012; Yang, Zhou, & Liu, 2009). Currently, biofuel production has fallen well below the 12th 5-year plan targets, which would indicate that biofuels are no longer a priority in the short term (Voegelé, 2015). Further, only certain provinces have a blend mandate, meaning that these provinces are testing out the system and it is being withheld for countrywide policy (Voegelé, 2015). Given these constraints, and though there are certainly some biofuel operations among China's land deals, it remains a less significant factor.

While the global rise in food prices in 2007-08 (and again in 2011) may have contributed generally to China's overseas investment, it is important to note that these activities began accelerating in the early 2000s (Taylor, 2007; Zafar, 2007). Before the land grab literature emerged in 2008-2009 (post-food price crisis), there was a somewhat separate literature on China's engagement in Africa countries – here the concern was labour export, land grabbing to an extent, and particularly human rights and competing development models (Alden & Hughes, 2009; Bräutigam, 2009). In other words, Chinese actors (both state and private) were increasing investment abroad, including in African countries, but also in countries across world before the food price crisis hit its peak. These transactions may have increased nearer to the food price spikes, but the trend began beforehand. As such, the confluence, or “perfect storm” (Headey & Fan, 2008), of factors leading to the food crisis in itself is not a satisfactory explanation of China's land investments.

The rapid and significant increase in meat consumption in China has also been put forward as a primary driver of China's land grabs (Schneider, 2014a; Sharma, 2014). Though meat consumption is certainly at the heart of the majority of China's bulk food commodity imports (ie. soybean, corn, sorghum), most of the instances of China's land grabs do not involve feed grains and it has been difficult to tell whether production is being exported directly back to China (Land Matrix, 2015). Those deals that do result in shipment back to China include a tiny percentage of the country's overall feed grain imports, which are mainly sourced from the United States, Brazil, Argentina, as well as Australia and Ukraine (Gale, Hansen, & Jewison, 2015). In terms of dairy, which contributes to livestock feed needs, China sources dairy and milk powder mainly from New Zealand and Australia (Muirhead, 2014). That being said, there is cause for broadening this concept to more generally reflecting the North American diet, as sugar plantations and food oils (Schneider, 2014a; Schneider & McMichael, 2010).

The more general national food security priority in the sense of producing abroad for re-export, or “security mercantilism” (McMichael, 2013a), has also been questioned. In particular, Bräutigam & Zhang (2013) have argued that production from the vast majority of Africa-specific land investments are bound for local or regional markets rather than for export to China. In contrast, the product of rubber operations in Southeast Asia (particularly Laos, as well as Burma and Cambodia) is typically destined for China or other countries in Asia (Baird, 2010; Land Matrix, 2015; Woods, 2011). Again, production for the purpose of export to China is often not a satisfactory explanation, most appropriately fitting rubber but less appropriate for grains. However debate over whether production is destined for local or global markets is mainly focused on the export of labour (ie. from China) and the subsequent process of producing agricultural goods (McMichael, 2013). In maintaining this focus on labour and final output, despite recognizing a broader corporate food regime under the WTO and the rise of value chain agriculture (McMichael, 2012, 2013b), other segments of the food supply chain are left under-examined.

While all of the above may contribute to understanding China's presence in global land grabs, the focus is much less on “off-land” changes in which China is implicated. In other words, while many have made general mention of the issue of technology and infrastructure (Borras et al., 2010; Cotula, 2012; Margulis et al., 2013; Wolford, forthcoming), there has been less substantive focus on the relationship between the production that takes place on grabbed land and the inputs that go into

production (seeds) or the infrastructure that facilitates transportation of output (processing/shipping). Amanor (2012) provides an exception, adding empirical detail of the creation of an enabling policy climate for land grabs, and the role of concentrated agribusiness in smallholder dispossession. These off-land changes (changes that occur outside and potentially apart from land “grabbed”) may have an important role both in driving land grabs and creating new pressures in global agrarian change. As an emerging actor in markets that are already concentrated with international agribusiness, dominated by global capital, China has motivations beyond land ownership to expand its international agribusiness. This off-land explanation will be explored in more detail below by examining the role of seeds and the role of processing/trade in China’s position in global agribusiness. To better explain China’s broader place in global agrarian change, we must examine what is happening off-land as well as taking into account the structure of global agribusiness, of which direct acquisition of land is only a part.

Global Food System Context

There are several sectors involved in the land grab debates, but for the purpose of this paper I will be focusing on the grain sector given that it represents some of the most traded food (and biofuel) commodities, and is central to China’s changing food self-sufficiency policy (Veeck, 2013; Wong & Huang, 2012). Global agrifood chains are highly concentrated, including inputs such as fertilizers and pesticides, the breeding and sale of seeds, processing, storage, trading, and retailing (David Burch & Lawrence, 2007; Lang & Heasman, 2004; Murphy, 2008). Multinational agribusiness firms are seen to have market power in that their structural position related to infrastructure, employment, connections to buyers and sellers, intellectual property ownership, access to finance, and scope of operations on value chains, all reinforce market positions and lead to other forms of power (Amanor, 2012; Lang, 2003; Murphy, 2008; Murphy, Burch, & Clapp, 2012). Agribusiness is increasingly involved in national and global lobbying as well as devising rules, setting agendas, and shaping ideas (Clapp & Fuchs, 2009; Falkner, 2008; Fuchs, 2005; Hopewell, 2013). In both seeds and processing-trading, concentration is particularly noted with a handful of companies in each industry dominating over two thirds of global markets and profiting from barriers to entry (ETC Group, 2013; Lang, 2003; Murphy, 2008; Murphy et al., 2012).

In the seeds sector, while the vast majority of seeds globally are sown by peasants from locally bred varieties (ETC Group, 2013), the global commercial seed business is enormous, with sales reaching approximately US\$45 billion in 2012 (ISF, 2013). Within the global seed business, only three companies hold over half the market share (measured by revenue) (see Table 1). In 2011, Monsanto, DuPont/Pioneer, and Syngenta made up 53.4% of the global seed market, with the two top companies headquartered in the United States (ETC Group, 2013). Among these top companies, the most represented “nationality” is the United States, followed by European countries (Switzerland, Germany, and France) and Japan. While the relative presence of these companies certainly vary by country, region, and crop type, they are highly networked and possess global research and sales infrastructure, along with owning significant intellectual property.

Table 1: World's Top Seed Companies, 2011

Rank	Company	Seed Sales, 2011 US\$ millions	% Market Share
1.	Monsanto	8,953	26.0
2.	DuPont Pioneer (USA)	6,261	18.2
3.	Syngenta (Switzerland)	3,185	9.2
4.	Vilmorin (France) (Groupe Limagrain)	1,670	4.8
5.	WinField (USA) (Land O Lakes)	1,346 (est.)	3.9
6.	KWS (Germany)	1,226	3.6
7.	Bayer Cropscience (Germany)	1,140	3.3
8.	Dow AgroSciences (USA)	1,074	3.1
9.	Sakata (Japan)	548	1.6
10.	Takii & Company (Japan)	548	1.6
Total Top 10		25,951	75.3

Source: from ETC Group, 2013

Moving to grains, most of the cereals produced globally are intended for domestic consumption however just over 13% of total production ends up in global trade (FAO, 2015). While exact numbers are difficult to tabulate, the four largest grain traders (Archer Daniels Midland, Bunge, Cargill, Louis-Dreyfus – ABCD) account for anywhere from 75% to 90% of globally traded grain, though other firms such as Marubeni and Glencore are increasing market share (see Table 2) (Clapp, forthcoming; Murphy et al., 2012). While three of these firms are headquartered in the United States, the others are headquartered in Japan and Europe. These firms hold vast global infrastructure networks including silos, shipping, storage, and processing, not to mention commodity trading and finance. There is national, regional, and crop-type variation where national companies hold significant domestic market shares, and there is greater or lesser regional presence between grain traders, as well as specialization in different grains and other agricultural goods.

Table 2: Largest Grain Trader Revenues

Revenue in 2013	
Cargill	\$136 billion
ADM	\$89 billion
Louis Dreyfus	\$63.6 billion
Bunge	\$61 billion

Source: Clapp, forthcoming

The context of land is only one important link (though often the site of most directly related to issues of expulsion) among many sectors. By focusing on these issues we can ask new questions about grabbed land, such as whose technology is being employed and who controls secondary sectors related to processing and trade (be it domestic or international). The ownership of intellectual property that accompanies seeds, and the control of distribution markets, are forms of power that have influence over landholders and the types of agricultural systems that are promoted (Amanor, 2012; Deininger & Byerlee, 2012). The two global industries examined here are largely controlled by the interests of industrialized countries, and agribusiness actors from China have until recently held only scattered overseas operations. Indeed, China has attempted to prevent its own domestic agricultural markets from coming under the control of these large global firms (Schneider, 2014b; Schneider & Sharma, 2014). The relationship between China, land grabs, and technology/infrastructure therefore becomes a key area of analysis in better understanding the place of China in global agrarian change.

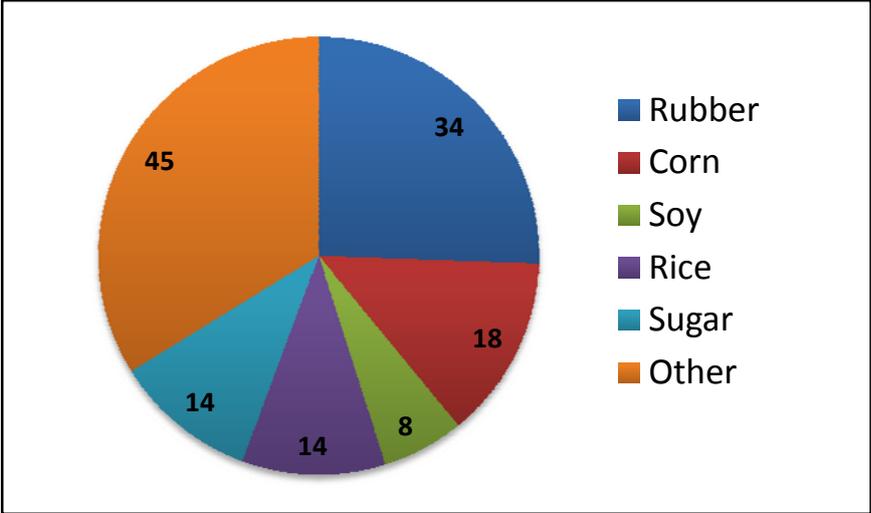
China's Agribusiness Networks

Overview of the Current Land Matrix database

Building on the argument I began above, it is useful to briefly examine the breakdown of the most recent Land Matrix data. This data is indeed imperfect, as many have indicated (Anseeuw et al., 2013; Cotula et al., 2014; Oya, 2013), however it does provide a window into the kinds of land deals in which investors from China have been interested. Indeed, while the Land Matrix only counts 108 entries for mainland China, the range given by government officials on numbers related to overseas farm investments are between 300-600 firms farming in 46-93 countries, with the lower estimate being given by the Ministry of Agriculture and the upper estimate given by the Ministry of Commerce (Zuo, 2014). Nevertheless, this provides a window into the types of investments broadly undertaken.

Figure 1 shows the distribution of crops involved in the 108 Land Matrix entries recorded as being outbound from China (excluding Hong Kong), whether they are failed, intended, concluded or operational deals (Land Matrix, 2015). Of the 108 entries, 13 did not have an associated crop type, and multiple crop-types were listed in many of the remaining 95 entries. As a result, a total of 133 crop entries are listed in graph, in six crop-type categories. An additional point of interest is that there are over 75 companies listed as investors from China, indicating very little repetition in recorded land deals. Some of the most prominent of these companies are discussed below.

Figure 1: Land Matrix Deals by Crop Type (China Outbound)



Source: Land Matrix (2015)

Upon initial examination, it is clear that there is a top handful of crop-types within Land Matrix entries. Rubber clearly dominates, and it along with corn, sugar, and rice make up well over 50 percent of the total. Soybean remains more common at eight entries. The remaining “other” category is made up of 16 other crop types that had fewer than eight instances. Among these crop-types, biofuel-specific crops are present in the form of jatropha (3), cassava (7), and acacia (5), thus together representing less than 15 percent of the total recorded entries. Thus China’s primary grain commodities (corn, rice, soy) are located among the top entries, while wheat (also prominent in China) tallies only six entries.

Focusing in on the top three grains (corn, rice, soy) helps to show the variation between countries and regions in which the projects are taking place. Table 3 presents a breakdown of the three crop-types by country, also listing continental representation. While countries in Africa hold the most crop-type entries, there is still a wide geographic diffusion of these deals between Africa, Asia, South

America and Eastern Europe. The two most represented countries are Angola and the Philippines, with only five deals recorded in each, as such no single country has been a clear target relative to others.

Table 3: China Land Matrix Deals - Corn, Rice and Soy by Country

Country	Soy	Corn	Rice	Total
Angola	2	2	1	5
Argentina	1			1
Bolivia	1	1	1	3
Brazil	1			1
Cambodia		1	1	2
Cameroon		1	1	2
Cuba			1	1
DRC	1	1		2
Mozambique		1	2	3
Namibia		1		1
Nigeria	1	1	2	4
Philippines		3	2	5
Russia	1	1		2
Sierra Leone			1	1
Sudan		1		1
Tanzania			1	1
Uganda		1	1	2
Ukraine		1		1
Zambia		1		1
Zimbabwe		1		1
Total Projects	8	18	14	40
Asia Total		4	3	7
Africa Total	4	11	9	24
South America	3	1	2	6
Total				
Eastern	1	2		3
Europe				

Source: Land Matrix (2015), author's calculations

Whether these remaining crops are headed to Chinese, global, regional, or local markets, an important aspect is not only land that is being acquired, but also the types of accompanying industries and companies that are represented by Chinese investors. In other words, in a global food system dominated by a hand full of seed, and trading-processing companies (among other sectors such as chemical inputs and retail, not discussed in this paper), China's land grabs and general global agribusiness engagement have pushed new players in global agrarian change.

Seeds

China has the second largest domestic seed market in the world next to the United States, estimated at US\$9.95 billion in 2012 (ISF, 2013). Despite the similar large size of these markets, they have very different domestic structures. While in the United States, domestic seed markets are oligopolistic both in specific crop-types and across the grain sectors (for example the top six firms take 80% of market share), in China the picture is much different (Xinhua, 2014). The Chinese seed industry has dozens of companies that hold domestic share in varying regions of China, with thousands of companies becoming the target of industrial consolidation policies. Indeed between 2011 and 2014, the number of

domestic firms in China's seed industry dropped from over 7000 to 5200 (Xinhua, 2014).

A major difference also exists in the global linkages of China's seed industry. For example, a significant share of the United States seed market involves traded seed (mostly conducted through the businesses identified above), while this figure is much smaller in China (see Table 4). As such, when we look at exports and imports as a percentage of total seed markets, China's trade/market ratio is only slightly more than 5 percent, whereas the US is 23.7% (ISF, 2013a, 2013b). By comparison, France and Brazil, the next largest seed markets in the world, also both have higher ratios than China, with France heavily dependent on trade in seeds and Brazil only slightly more so than China. Note that within these four largest seed markets (by market value, which is not a perfect indicator), China is the only country that imports seed more than it exports.

Table 4: Top 4 Domestic Seed Markets, 2012

	Market Value (million US\$)	Export Value (million US\$)	Import value (million US\$)	Exports/ Market	Imports/ Market	Trade/M arket
United States	12 000	1 531	1 312	12.76%	10.93%	23.7%
China	9 950	251	268	2.52%	2.69%	5.2%
France	2 800	1 804	687	64.4%	24.53%	89%
Brazil	2 625	165	120	6.28%	4.57%	10.9%

Source: ISF (2013a, 2013b)

Because of the relatively low level of exported seeds from domestic companies, the Chinese government has promoted the export of its seed technologies, particularly in rice but also in corn (Bräutigam, 2009). There is an important link between seed export promotion and global land grabs, as domestic rice and corn technologies are a crucial component of land grab cases. In fact, it is useful to re-examine land deals that have corn, rice and/or soy components to understand where the input technology is coming from.

Among others, the Land Matrix data points Yuan Longping High Tech Agriculture (隆平高科), Chongqing Grain Company (重庆市粮食集团), Jilin Fuhua (吉林富华农业科技发展有机公司), Beidahuang (北大荒集团), and ZTE (中兴能源有机公司) as being land grabbers. However upon closer inspection, there are diverse approaches between companies. Table 5 overviews the types of deals that these companies are engaged in, both from the Land Matrix as well as additional financial news sources and company websites. It is clear that the implicated deals cover a wide range of land sizes, from smaller test sites of 300ha to much larger tracts of land. While the larger cases (which often fail, see Cotula et al., 2014) may well be intended to grow crops for export markets (to China or elsewhere), many of the other cases are much too small and dispersed (recall Table 3) to be intended for overseas export, or focus on marketing of seeds.

Table 5: Chinese Companies, Deals and Seed

Company	Type of Deal	Location/Size	Main Seed Type
Yuan Longping Hi-Tech	Smaller test sites, seed marketing	- Mali, Tanzania, Pakistan, Indonesia, Bangladesh, Brunei and the Philippines	Rice and corn seed
Chongqing Seed Company	Smaller test sites, seed marketing	- Nigeria (300ha) - Tanzania (300ha) - Vietnam - Laos (5000ha)	Rice and corn seed
Jilin Fuhua	Large scale land lease	- Philippines (350 ha)	Sorghum, Corn, Rice

Beidahuang	and test sites	- Philippines (1 million ha, failed)	
	Large scale land lease	- Philippines (200000 ha, intended) - Argentina (320000 ha, failed)	Wheat, Soybeans
ZTE	Test sites intended for scaling-up	- DRC (865ha, abandoned) - Sudan (10000ha)	Corn, Soybeans

Sources: CAIU (2014); Gaudreau (forthcoming); Land Matrix (2015); YLPHT (2015); ZTE (2015)

In each of these example cases, the common objective was to plant and adapt Chinese grain varieties, while the size and nature of acquisitions vary. In other words, in a general sense these “land investments” (while they may reflect dynamics of dispossession) can be understood as being less about owning land for investment or production purposes, and much more about testing, adapting and marketing Chinese owned seed varieties. The end focus is not so much on land, but on the future uptake and use of intellectual property. In terms of land grabs, it is important to consider what seeds are being sewn for agricultural or biofuel related cases. It is notable that within the Land Matrix, neither, Monsanto, nor DuPont Pioneer, nor Syngenta are registered. On the other hand, many of China’s top firms engaged in seed development and marketing are bringing their own technologies abroad and not local or leading international seed varieties.

In a speech in early 2014, hybrid rice researcher Yuan Longping indicated that Chinese hybrid rice is planted on 5.2 million hectares of land abroad, growing from 4.7 million in 2013 (Financial Daily, 2013; SinoCast, 2014), an area almost five times larger than China’s recorded land grabs on the Land Matrix. This figure at once opposes the view that China is simply growing food abroad for the purpose of shipping back home (given that China is a consistent rice *exporter*), and confirms the importance of seeds in China’s off-land agribusiness.

Processing/Trading

While seeds are a direct input in farming, on the other side of the food supply chain is processing and trading of crops. China’s long-term position of having very limited agricultural trade volumes changed in the mid-1990s with the liberalization of soybean trade and even more so after accession to the WTO in 2001 (Lardy, 2004; Schneider, 2014a; USDA, 2013). Prior to this period, China’s ownership of foreign grain trading infrastructure was limited, with China’s state commodity trading company, China National Cereals, Oils and Foodstuffs Corporation (COFCO, 中国粮油食品有限公司), being restructured between the late 1980s and mid-1990s into an internationally operating entity (McCorriston & MacLaren, 2010). Though COFCO expanded its trading desks abroad, investment in infrastructure remained limited. In recent years, however, Chinese agribusinesses, including COFCO, have increasingly invested in such off-land infrastructure.

There are multiple examples of such investments connected to individual companies and countries. For example, in Australia, Heilongjiang Beidahuang (also present in the section above) purchased not only agricultural land, but also ports in Albany through the their company Vicstock (Thompson, 2015). In both Cambodia and Myanmar, Chinese firms are investing in rice processing projects (Far Eastern Agriculture, 2015; Xinhua, 2013). Over the last decade, China’s largest privately owned agribusiness, New Hope Group, has opened three plants in the Philippines, three in Vietnam, two in Indonesia, as well as facilities in Sri Lanka, Cambodia, Egypt, and Bangladesh. However, the most important and expansive overseas investments were in 2014, with COFCO’s purchase of two international grain traders, Nidera and Noble Agri (Meyer, 2014; Thukral & Flaherty, 2014).

To better understand the significance of COFCO’s off-land transaction, Figure 2 maps the country-presence of additions to COFCO’s international grain trade/processing assets resulting from the acquisition of Nidera and Noble Agri. As noted above, COFCO previously only held subsidiaries coordinating grain trade logistics in various countries worldwide and held very little in the way of trade infrastructure such as storage, processing, transportation and port facilities. Instead, its orders for agricultural goods had been filled either through major grain traders, or through China’s state-owned shipping businesses. For example, COFCO and China Ocean Shipping Company (COSCO) agreed to a strategic partnership in 2007 given COFCO’s position as a “VIP customer” (COSCO, 2008).

Figure 2: COFCO - Nidera and Noble Agri’s Global Infrastructural Presence



Source: Nidera (2015); Noble Agri (2015)

The acquisition of Noble Agri and Nidera has led to COFCO increasing (or initiating) its presence in 21 countries, over six continents. This expansion includes processing, storage, and shipping and infrastructure covering corn, soybean, rice and wheat among other commodities and fertilizer inputs. Though the majority of China’s land deals listed in Table 3 are dispersed among 12 countries in Africa, the grain trade network created under COFCO does not include significant infrastructure in the continent, which only has representation in Cote d’Ivoire and South Africa (neither of which have Land Matrix-recorded land deals related to China). This mismatch provides some additional contextual evidence supporting Bräutigam and Zhang (2013) that China’s land deals in Africa are not typically intended to satiate food security driven exports.

Of particular interest in Figure 2 is the combined presence of both companies in Argentina, Brazil, Ukraine, and the United States, which are China’s most significant source of soybean and corn imports (USDA, 2013). Though there is very little in the way of direct land purchases/leases involved in these transactions (even less in terms of new expulsions), there is a significant increase in large and small farms becoming more closely connected to purchase channels and infrastructure owned by China. While the ABCD firms certainly retain the majority of global market share, there are already significant structural shifts at the country-level, with COFCO controlling over 10% of Argentina’s grain export market (Clarín, 2014). In addition, the purchase of both Nidera and Noble Agri is accompanied by research and development infrastructure in corn and soybean, including intellectual property over internationally planted seed varieties. Given these major changes in global infrastructure networks, it is clear that actors from China are now increasingly involved in food supply chains before and after on-land production, both of which increase the international presence of Chinese actors in highly concentrated industries.

Conclusion

China's presence in global land grabs should be seen from the broader point of view of expanding seed and processing agribusiness. Overseas projects often involve the use of China's domestic seed companies and their own intellectual property from seed-types developed in China, such as in the cases described above. Further, major shifts in ownership of processing and trading firms translate to a much broader global grain infrastructure owned by subsidiaries of COFCO. While they do not always represent major acquisitions of land and dispossession (though some, of course, do), these two off-land developments translate to access to millions of hectares of farmland in terms of new seed-types being planted, and to many more millions of hectares in the form of buying channels from farms worldwide. By widening the scope of analysis, these off-land developments provide an additional element of explanation for China's land grabs as well as its role as a driver of agrarian change.

The implications for land grab research is that privileging a focus on land as the unit of analysis, while important for understanding local inequality and changing property rights regimes, can come at the expense of recognizing off-land pressures on local agrarian systems. The planned introduction of new seeds to a region may not only displace people from land, but may displace local seed varieties from cultivation in favor of foreign owned technologies. Further, the introduction of new/consolidated buying channels may influence the prices paid or standards faced by farmers (Amanor, 2012). For example, China's domestic regulatory political economy has affected planting decisions in the United States, Brazil, and Argentina given recent rejections of GM corn shipments (ICGA, 2014; NGFA, 2014; Rice, n.d.). While the implications on the ground are not yet clear, the movements on both the side of seeds and grain processing/trading give actors from China much more control over international grain markets than was the case even a decade ago.

Given these dynamics, future 'land grab' research should broaden focus off-land in order to develop deeper empirical analysis of the broader food system in which specific land grabs are engaged. It is not only the direct capital investment in land that should be of interest, but the larger "circuits" involved through the participation and cooperation in land deals (White et al., 2012). Focus should not only be on the immediate "who" in terms of the land being acquired (Bernstein, 2010; White et al., 2012), but extend to, "whose seeds" and "who will handle the output and trade"? These questions of control over input and output are important not only for China, but also more broadly in the investigation of global agrarian change in the context of a concentrated global food system. This change in questioning also leads to broader questions of the role of nationality in seemingly global capital – to whom does it make a difference whether seeds are owned Yuan Longping or by Syngenta? Between grain shipped by Bunge or Noble Agri? There is a stated difference for China (Xinhua, 2014), but does this resonate with peasants and smallholders?

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