



Chinese Investment in Sub-Saharan Africa: Food Security Implications

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Introduction

Food insecurity is an issue which remains very nebulous in modern development discourse, mainly due to the fact that because it is so multi-faceted, it is nearly impossible to fashion any sort of 'magic bullet' to eradicate it. We can, however, draw some links from it back to its antecedent circumstances and forward to certain development interventions and policies. This article is not and does not try to be comprehensive in its discussion of food security nor in its quick survey of Chinese investment in Sub-Saharan Africa (SSA). The goal is to encourage the reader not only to question and be constructively critical of Chinese (and other South-South) investment as opposed to OECD³ investment, but also to reflect upon all of the requisite articles of development beyond mere agricultural production which must be in place for any group, community, or nation to be considered 'food secure'.

Since colonial times, and certainly in the more recent neoliberal era, Sub-Saharan Africa has certainly had its bouts with food security issues. Drought, famine, political upheaval, graft, trade imbalances and more have all contributed in some way to the food crisis so readily apparent in many nations and communities in the region. Recent years, however, have seen something quite new in the field of international development. Whereas before, international aid came nearly exclusively from industrialized OECD countries, often (and still) tied to political and humanitarian agendas such as good governance, human rights promulgation and so on, up-and-coming BRIC⁴ countries are now increasingly wading into the waters of transnational development, often without these 'strings attached'. This paper takes a broad sweep of this phenomenon particularly in regards to China's engagement with SSA and how that is having both direct and knock-on effects on food security/sovereignty in that region. Following this panorama, the focus tightens on Ethiopia, where agricultural as well as extra-agricultural interventions by China are having some very interesting repercussions.

Overall Food Security/Sovereignty Situation in SSA

Before we can go into arguments revolving around development aid, let's first try to engage with some basic indicators of food security itself. Being the ability to access food, any measurement of food security will necessarily include such variables as food availability, physical access, financial/economic access and utilization; each of these indicators can have sub-variables as well. As one can see, these four variables form, in a sense, a chain of dependency. The benefits of taking steps to ensure proper utilization of food will be fundamentally limited if few can afford to buy it. Likewise, promoting economic means of food access will meet with limited success if physical access has not been secured, and so on. Let's take these four variables in turn and see what general snapshot image develops.

3 Organisation for Economic Co-operation and Development

4 Brazil, Russia, India and China

Food availability is something which continues to plague many SSA nations despite extensive indigenous agricultural knowledge and a wealth of arable land. This phenomenon can be attributed to new factors to which these domestic resources have not yet been fully attuned. One of these factors is an unprecedented trend upward in population growth. With a population that more than quadrupled from 180 million in 1950 to 769 million in 2005⁵, with some estimates tipping the scale at 2.4 billion people by 2050⁶, SSA truly has a food crisis looming, especially considering its current agricultural sector which is struggling to keep up with all of these new and future mouths to feed.

While net agricultural output rose by 36% between 1960 and 2002⁷ and continued on at more than 3.5% annually throughout the 2000s⁸, we can see that this growth has not kept up with SSA's growth in population. The fact that these agricultural figures undoubtedly include non-food products such as tobacco as well as food products for export compound this problem.

Another touchstone we can use to verify this struggle between agriculture and population pressures is the incidences of malnutrition. Although malnutrition can be attributed to any or even all of the aforementioned four factors of food security. We'll mention it here as it truly testifies to the serious root problem of food availability that SSA is facing today. Recent decades have seen the number of undernourished rise by 41% from 169 million in 1990 to 239 million in 2010⁹ while stunting afflicted 38% of children in 2009¹⁰. These sobering figures categorically illustrate the preponderance of hurdles which exist between farm and mouth in SSA today.

Physical access is also a growing concern in many SSA countries. The food may be there, but may be reserved for others. Of course, concerns regarding graft abound. Maxwell, et al¹¹ delve deeper into the subject of food aid targeting and how corruption (among other things) can and does lead to diversions of food resources and therefore a loss of physical food access among certain populations.

5 Henderson, J.V., Roberts, M. and Storeygard, A., 2013. *Is Urbanization in Sub-Saharan Africa Different?*. The World Bank – Development research group, Environment and Energy Team, <https://openknowledge.worldbank.org/bitstream/handle/10986/15842/WPS6481.pdf?sequence=1>

6 VOA, *Africa to Record Largest Population Growth Over Next 40 Years*, http://www.voanews.com/content/africa-to-record-largest-population-growth-over-next-40-years/1748380.html?utm_content=buffer12c53&utm_source=buffer&utm_medium=twitter&utm_campaign=Buffer

7 IFAD, *Brief 124: The Decline and Rise of Agricultural Productivity in Sub-Saharan Africa Since 1961*, <http://www.ifad.org/drd/agriculture/124.htm>

8 FAO, *How to Feed the World in 2050: The special challenge for sub-Saharan Africa*, http://www.fao.org/fileadmin/templates/wsfs/docs/Issues_papers/HLEF2050_Africa.pdf

9 PBL Netherlands Environmental Assessment Agency, *Food Security in Sub-Saharan Africa: An Explorative Study*, http://www.pbl.nl/sites/default/files/cms/publicaties/PBL_2012_Exploring%20food%20security_555075001_0.pdf

10 FAO, *How to Feed the World in 2050: The special challenge for sub-Saharan Africa*, http://www.fao.org/fileadmin/templates/wsfs/docs/Issues_papers/HLEF2050_Africa.pdf

11 Maxwell, D., et al., 2011. *Targeting and distribution in complex emergencies: Participatory management of humanitarian food assistance*. Food Policy, 36(4)

Graft notwithstanding, universal food access in SSA is still taunted by systemic artifacts such as post-harvest losses and foreign land acquisitions colloquially known as “land grabs.” “Presently, the agricultural sector supports over 80% of the people in SSA, which is also the major contributor of GDP.”¹² With a statement such as this, one would expect food access to be a matter of course, but on taking a slightly closer look, it isn't necessarily so. Most countries in SSA have become net food importers.¹³ Post-harvest loss is a key element of this problem. In Southern and Eastern Africa alone, losses in grain have totaled \$1.6 billion per year, accounting for 13.5% of the total production.¹⁴ Infrastructural improvements (much like the ones China is installing, which will be discussed later) would help to reduce this number, allowing presently wasted foodstuffs to be circulated and consumed within the economy. However, the same roads that circulate local goods to local and international markets can also be used for simple foreign extraction with little in return. It is the terms of trade that will ultimately signal progressive development or diminishing returns.

This idea of terms of trade leads us to foreign land acquisitions (“land grabs”), the concept of trading a portion of one's own food sovereignty (not to be confused with food security) for perceived economic gain... “perceived” because there are few issues in international development more hotly debated than land grabs. Proponents of such land deals laud the visible development that generally goes with them: new roads giving increased access to markets, greater crop production from knowledge sharing, and of course the fact that the land is not actually sold but rather leased.¹⁵

Critics, of course, are equally well-provisioned with counterarguments:

- land grabs displace native peoples (including pastoralists) and therefore disturb traditional food supply chains as well as native culture
- the (alleged) contradiction of exporting food to import food
- many land grabs are intended for biofuel production rather than food
- land grabs cause a loss of food sovereignty and therefore expose already vulnerable populations to volatile, global commodity markets
- land grabs increase the exposure of Southern countries to the virtual water trade, which is highly skewed toward the North¹⁶

12 Kihara, J., et al., 2012. *Improving Soil Fertility Recommendations in Africa using the Decision Support System for Agrotechnology Transfer (DSSAT)*. London: Springer

13 UNDP, *Africa Human Development Report 2012*, <http://www.afhdr.org/the-report/>

14 World Bank, *Missing Food: The Case of Postharvest Grain Losses in Sub-Saharan Africa*, http://siteresources.worldbank.org/INTARD/Resources/MissingFoods10_web.pdf

15 The Guardian, *Land deals in Ethiopia bring food self-sufficiency and prosperity*, <http://www.theguardian.com/global-development/poverty-matters/2011/apr/04/ethiopia-land-deals-food-self-sufficiency>

16 Interactive intelligence, *Land-grab strategy doesn't hold water*, <http://callcenterinfo.tmcnet.com/news/2011/05/28/5540348.htm>

The only thing people seem to agree on is that it is happening in SSA and seems to show no sign of abating. In fact, land acquisitions in Africa (continent-wide) in 2009 alone roughly equaled the size of France.¹⁷

Economic access to food is also an issue highly discussed with reference to SSA. Much goes into economic access estimates: income divergences between rich and poor, growth of the middle class, purchasing power, taxes, etc. This being said, there are two general, major factors which go into determining economic access: income and food prices. Without dwelling too much on the subject, SSA is severely lagging behind in income growth. Although there are wide variations between SSA countries and social strata, average income only increased 2.7% from 1993 to 2008 (\$742 to \$762) whereas “mature countries” increased by 29%, India by 29.1%, and China by 178.3%.¹⁸ This, coupled with the sharp rise in food prices (particularly the 2008 price shocks) has led to personal coping mechanisms as well as national “adaptive capacity” becoming severely strained. With future such price shocks forecast, food security in the region will become even more difficult to achieve.¹⁹

Food utilization, the last (and in this paper, the least explored) of our food security factors, is a highly complex indicator which comprises conditions such as food safety (in manufacturing, transportation and storage), the quality of the diet, even health care which can affect how well ingested food is metabolized. One factor that continues to impact food utilization in SSA is the lack of an appropriate road network. With a fit-for-purpose and stable road network, food has a much higher chance of reaching the consumer without becoming spoiled or diseased. Total road length is a quick and easy (albeit somewhat skewed) infrastructure indicator. Unfortunately, such estimates are difficult to acquire for SSA, mainly because the figure is so volatile. New roads are constantly being built not only by SSA governments but also by international investors and nations. But at the same time, road deterioration is quite high, caused by vehicle overloading, inadequate maintenance or poor design/construction,²⁰ making seasonal impassibility a fact of life for many.²¹

So we return to the four pillars of food security: availability, physical access, financial/economic access and utilization. This next section engages briefly with China's history in SSA, what its main interests in the continent appear to be now, and how these interests and initiatives may or may not be addressing each of these pillars.

17 FAO, *Annan warns hunger could become permanent disaster*, <http://www.fao.org/news/story/en/item/80646/icode/>

18 World Bank, *Policy Research Working Paper 6719 – Global Income Distribution: From the Fall of the Berlin Wall to the Great Recession*, http://www-wds.worldbank.org/external/default/WDSContentServer/IW3P/IB/2013/12/11/000158349_20131211100152/Rendered/PDF/WPS6719.pdf

19 Thornton, P., et al., 2011. *Agriculture and food systems in sub-Saharan Africa in a 4 °C+ world*. *Philosophical Transactions of the Royal Society*, 369

20 European Court of Auditors, *Special Report No 17: The European Development Fund (EDF) Contribution to a Sustainable Road Network in Sub-Saharan Africa*, <http://eca.europa.eu/portal/pls/portal/docs/1/19834746.PDF>

21 Infoasaid, *South Sudan: Introduction*, <http://infoasaid.org/guide/south-sudan/introduction>

State of Play in China

China's intent toward Africa has been described in an array of ways, from “securing access to markets, acquiring resources and cultivating political influence”²² to having “a key role to play in ensuring sustainable development”²³. However, what is not frequently heard is the fact that China is certainly not a newcomer in the field of African development. Although only recently in the limelight, Chinese investment in Africa stretches back decades. Only seven years after its birth in 1949, China began becoming involved in development initiatives in Africa.²⁴ Starting with Egypt and slowly expanding its operations into other African countries, China began sending both funds and experts to the region.

Although exceedingly difficult to acquire, some information regarding China's current development projects continent-wide has been compiled by AidData. Spanning the years 2000 through 2012, China had committed to 1686 official projects in Africa amounting to \$84.81 billion USD.²⁵ Apparently lacking any overall aid model such as replicability or scalability, or a focus on, for example, education or health (so synonymous with many Western donors), China instead has tended to focus its attention on individual projects designed to satisfy an immediate or acute need. For example, the construction of the Bui Dam in Ghana will greatly increase that nation's capacity to generate electricity.²⁶

Although much of this attention seems to be directed toward resource extraction and infrastructural improvements, agriculture and food security have managed to steal some of the limelight. In 2009, representatives from China and 49 African nations met at Sharm El Sheikh, Egypt to discuss ways forward for increased cooperation. Among issues such as peace and security as well as trade, delegates agreed to make food another priority, noting that food security “is essential for Africa's endeavor to eradicate poverty, ensure people's livelihood and develop the economy.”²⁷ Pursuant to this agreement, China pledged to send 50 agricultural teams to the continent as well as increase the number of agricultural technology demonstration centers to 20. Additionally, China has committed to operate these centers, carrying forward experimentation and training in agriculture as well as aquaculture.

In the same vein, Chinese institutions have been increasingly willing to engage in multilateral agriculture and development initiatives. One of the ways in which this willingness is being

22 The China Monitor, *Issue 65 – China's Special Economic Zones: A Bright Future for Africa?*, http://www.ccs.org.za/wp-content/uploads/2011/09/China_Monitor_SEP_2011.pdf

23 China Daily, *On the frontline of development*, http://africa.chinadaily.com.cn/weekly/2014-01/10/content_17228598.htm

24 Bräutigam, D., *China, Africa and the International Aid Architecture*, <http://www.american.edu/sis/faculty/upload/rev-working-paper-china-africa-aid-architecture-august-2010.pdf>

25 AidData, *Current Stats*, <http://china.aiddata.org/>

26 Centre for Chinese Studies, *How China delivers development assistance to Africa*, <http://collection.europarchive.org/tna/20080305120132/http://dfid.gov.uk/pubs/files/china-dev-africa.pdf>

27 Southern African News Features, *Forum of China-Africa Cooperation Sharm El Sheikh Action Plan (2010-2012)*, http://www.sardc.net/editorial/newsfeature/china_africa2.htm

made manifest is the Green Super Rice project. For this endeavor, the Chinese Academy of Agricultural Sciences has partnered with the Bill & Melinda Gates Foundation as well as several African institutions in order “to develop 'Green Super Rice (GSR) varieties that produce high and stable yields under low-inputs' and to transfer corresponding crop management technology to the resources-poor [*sic*] rice farmers in fifteen countries across Africa and Asia and four Southwestern provinces in China.”²⁸

As we can see, China tends greatly to favor funding projects over promoting any particular political policies on the continent. Motives, however, have been increasingly called into question as China insinuates itself into the international development world. The People's Republic is certainly no stranger to using international aid to Africa for its own ends. The 1960s saw extensive aid flows from China to the newly decolonized nations in Africa in order to secure votes in the UN, which culminated in the accession of the PRC into the UN Security Council in 1971. Derided by many, China is seen in some current mainstream aid institutions as being on the same tack, pursuing a “charm offensive”²⁹ whose true goals are to acquire natural resources to fuel the growing industrial giant.

Does this accusation have any merit? Perhaps, perhaps not. Suffice it to say, China does face tremendous food security pressure domestically as well. With only 12% of its land arable³⁰ and over a billion mouths to feed, some are beginning to question what China hopes to achieve in SSA... and why.

The question at hand is, “does such intervention address the four pillars of food security, and if so, how? Put simply, 'yes, with caveats'. Efforts such as Green Super Rice, despite reservations held by some, as well as establishing knowledge sharing programs and institutions certainly seem to be aimed at addressing food availability by increasing yields. This is, of course, if said yields are not meant to be mainly for export.

As for physical access, China's involvement in “land grabs” is present. “However, as yet there are no known examples of Chinese land acquisitions in Africa in excess of 50,000 hectares where deals have been concluded and project implemented. China's “Friendship Farms” in various African countries are formally owned by a Chinese parastatal organisation, but are mostly medium scale, usually below 1000 hectares.”³¹ Indeed, given China's comparatively small footprint, some scholars question the emphasis being placed on its involvement in land

28 Green Super Rice, *Green Super Rice for the Resources-Poor of Africa And Asia*, <http://thegsr.org/>

29 The Guardian, *China commits billions in aid to Africa as part of charm offensive*, <http://www.theguardian.com/global-development/interactive/2013/apr/29/china-commits-billions-aid-africa-interactive>

30 World Bank, *Arable land (% of land area)*, <http://data.worldbank.org/indicator/AG.LND.ARBL.ZS>

31 FAO, IIED and IFAD, 2009. *Land grab or development opportunity? Agricultural investment and international land deals in Africa*, http://www.ifad.org/pub/land/land_grab.pdf

acquisitions, pointing to the dominance of the United States, the United Kingdom and other 'Northern' countries in several SSA nations.³²

Additionally, misreporting has compounded attempts to gauge China's involvement in this field. "The Economist repeated (without endorsing) a report that more than 1 million Chinese farmers were cultivating crops in Africa (The Economist 2011). A prominent magazine, *The Atlantic*, repeated a story that the Chinese had set up a US\$5 billion fund to invest in agriculture in Africa (French 2010). CBS news posted an article stating 'It has been widely reported that China recently purchased half the farm land under cultivation in the Congo' (O'Brien 2010)... None of these stories has turned out to be true."³³

That being said, Chinese projects that are indeed involved in may provide a unique benefit. With a shorter term and tighter focus, there may be less of a temptation for local graft than longer, locally 'owned' international development programs. Helping to improve locals' ability to purchase food in SSA is also something with which China is less engaged, but also cannot be said to be causing any overt harm. It is not actively encouraging any sort of wealth redistribution policies, but is, arguably, aiding the plight of the poor indirectly as its projects provide greater and easier market access to producers, electricity to power more efficient growing methods and machinery, etc. This may, of course, lead only to a sharpening of income disparities in-country if not properly overseen. Finally, it may be said that food utilization is being addressed by China as the effort spent on improving and expanding SSA's infrastructure could very well reduce or even prevent the consumption of spoiled or diseased products... that is, if what is being transported is intended for the domestic market and not for export.

Although criticisms abound and all four pillars are not at the moment directly engaged, China does seem to be playing a positive, although minor role in SSA's food security situation. However, one must keep in mind that China is facing food security issues itself. So only time will tell if the dragon has teeth.

Ethiopia Case Study

Before we discuss any particular development plans or interventions, let's briefly go over a few of the facts as they relate to food security and the general development landscape in Ethiopia. Ethiopia's economy is heavily dependent on agriculture (46% of GDP and 85% of total employment³⁴), most of which being rain-fed and smallholder agriculture. Despite the prevalence of low input/low output practices and their inherent limitations, in the past two

32 Cotula, L., et al., 2014. *Testing Claims about Large Land Deals in Africa: Findings from a Multi-Country Study*. The Journal of Development Studies, <http://www.tandfonline.com/doi/pdf/10.1080/00220388.2014.901501>

33 Bräutigam, D., 2013. Chinese engagement in African agriculture. In: T. Allan, M. Keulertz, S. Sojamo and J. Warner, eds. 2013. *Handbook of Land and Water Grabs in Africa*. Abingdon: Routledge. pp.91-103

34 Index Mundi, *Ethiopia Economy Profile 2013*, http://www.indexmundi.com/ethiopia/economy_profile.html

decades Ethiopia has made great strides in increasing its output and feeding its people. From 71% in 1992, the prevalence of undernourishment had been reduced to 40.2% by 2012³⁵, while child stunting (under 5 years) had dropped from 50.7% in 2004 to 44.2% in 2013.³⁶

Infrastructural development has also been rapid. While the total length of road in Ethiopia was only 18000 km in 1991, by 2011 it had reached 49000 km and is projected to be 64500 km by 2015.³⁷ The telecommunication network has also grown to include 797500 main lines and 20.524 million mobile telephones in use in 2012.³⁸ All of which are no doubt a boon to farmers and other producers looking to sell their commodities. However, despite these impressive gains, Ethiopia still struggles with myriad issues related to food security, including an agricultural sector that imports far more staples than it exports and a lack of sufficient domestic capital to mobilize all of its natural resources.

Despite all of these achievements, there seems to be an oversimplified logic at work (high agricultural output + increased infrastructure = growth, and therefore food security). In reality, any causal correlations attempting to link impetus with effect, whether on a country or even project level can be fraught with peril. Reductions in malnutrition may very well be just as much the result of national policy in a neighboring country as they are the benefits of any particular domestic initiative being examined. However, with an understanding of what Ethiopia wants to achieve, we may be able to find out if China's methodology of projects over policy promotion may be compatible and produce fruit.

Ethiopia is an interesting case among contemporary donor-recipient relationships because, unlike many of its African peers, it has retained not only a good relationship with several major donors including the US, World Bank, and many multilateral agencies, but also has retained a firm hand in its negotiations with them. On the whole, international development initiatives must fall in line with Ethiopia's development agenda before they are allowed to proceed. To be blunt, Ethiopia doesn't simply chase the money.

Keeping that in mind, it should be known that the Ethiopian government has long been aware of food pressures its citizens are facing. In fact, one can hardly mention food security and Ethiopia without mentioning the National Growth and Transformation Plan (GTP) and its associated five year plan, the Plan for Accelerated and Sustainable Development to End Poverty (PASDEP).

35 Trading Economics, *Prevalence of Undernourishment (% of Population) in Ethiopia*, www.tradingeconomics.com/ethiopia/prevalence-of-undernourishment-percent-of-population-wb-data.html

36 Trading Economics, *Malnutrition Prevalence; Height for Age (% of Children Under 5) in Ethiopia*, <http://www.tradingeconomics.com/ethiopia/malnutrition-prevalence-height-for-age-percent-of-children-under-5-wb-data.html>

37 The World Bank, *Ethiopia Overview*, <http://www.worldbank.org/en/country/ethiopia/overview>

38 Central Intelligence Agency, *The World Factbook - Ethiopia*, <https://www.cia.gov/library/publications/the-world-factbook/geos/et.html>

Although the GTP is wide-ranging, it does have 5 general aims:³⁹

1. Enhance productivity and production of smallholder farmers and pastoralists
2. Strengthen marketing systems
3. Improve participation and engagement of the private sector
4. Expand the amount of land under irrigation
5. Reduce the number of chronically food insecure households

Working within that framework, PASDEP aims to “accelerate the transformation from subsistence to commercialization of smallholder agriculture through attaining increased productivity and increased share of marketed production and continued support to pro-poor basic agriculture within the framework of the national food security program.”⁴⁰ It does so through the pursuit of eight pillar strategies:⁴¹

1. Building all-inclusive implementation capacity
2. A massive push to accelerate growth
3. Creating the balance between economic development and population growth
4. Unleashing the potentials of Ethiopia's women
5. Strengthening the infrastructure backbone of the country
6. Strengthening human resource development
7. Managing risk and volatility
8. Creating employment opportunities

However, how does China fit in with Ethiopia’s GTP and PASDEP? From 2000 to 2011, China has run 111 development projects Ethiopia, with only 6 of them directly aimed toward food production (listed as “Agriculture, Forestry and Fishing”)⁴². A quick survey of the available data confirms that the focus seems to be not on agriculture but rather on mining and infrastructure development (mostly power generation and the transportation network).

However, both countries certainly seem to be pursuing bilateral development initiatives with increased ferocity, and including with more and more prominence in these initiatives the issues of agriculture and food security. In fact, in a nod to the previously mentioned 2009 conference at Sharm El Sheikh, in January 2013 the Development Bank of Ethiopia finalized a loan agreement with the China Development Bank Corporation for \$25 million USD to

39 Ethiopian Agricultural Transformation Agency, *National Growth & Transformation Plan*, <http://www.ata.gov.et/priorities/national-growth-transformation-plan/>

40 Federal Democratic Republic of Ethiopia – Ministry of Agriculture and Rural Development, *Agricultural Policies, Programs And Targets for a Plan for Accelerated and Sustainable Development to End Poverty (PASDEP)*, <http://www.moa.gov.et/documents/93087/0/pasdep.pdf/5585cf56-fe2c-4069-91e9-a1c35dfdc14f>

41 The Federal Democratic Republic of Ethiopia – Ministry of Finance and Economic Development (MoFED), *Growth and Transformation Plan (GTP) 2010/11-2014/15 Draft*, http://www.ethiopians.com/Ethiopia_GTP_2015.pdf

42 AidData, *Country Explorer – Ethiopia*, <http://china.aiddata.org/map>

promote “Small and Medium sized Enterprise engaged in agriculture, agro-processing, manufacturing industries.”⁴³

As for land investment (“land grabs”), China's comparatively weak presence in this particular field of development strategy insofar as SSA is concerned has already been mentioned, at least insofar as patchy information allows us to perceive. However, this may soon change as evidence seems to show China scaling up its presence in Ethiopia with a new land deal to grow sugar cane in the Gambela region.⁴⁴

Another of the ways in which China is falling in line with Ethiopia's stated goals (especially with PASDEP's sixth “pillar strategy” of human resource development) is in its drive for agricultural education. China has quite a history of sending agricultural professionals to SSA in knowledge exchange programs. In 2001, Chinese experts were instrumental in the reformation of Ethiopia's national Technical and Vocational Education and Training program (TVET). Focusing highly on rural areas and commercialization of agriculture (as well as non-agricultural initiatives), TVET's stated goal is “to create competent and self-reliant citizens to contribute to the economic and social development of the country, thus improving the livelihoods of all Ethiopians and sustainably reducing poverty.”⁴⁵ Additionally, as of 2011, China has sent experts every year to 14 of the 25 agricultural schools established by TVET in order to provide practical experience and knowledge to native Ethiopian instructors whose education has been heavily theory-based. At Alage Vocational College in addition to contemporary agricultural techniques, Chinese instructors plan to introduce the study and practice of aquaculture, training students not only in agriculture, but also how “to become agricultural investors themselves, to build small-scale farms, export, or own small businesses.”⁴⁶

But of course, as has been previously stated, China has over the course of its relationship with SSA and Ethiopia, been far more interested in non-agricultural projects such as infrastructure development, most certainly in accord with PASDEP's fifth pillar. China's long-standing push to develop the road network in Ethiopia is widely known. Back in 1972, China funded the Wereta-Weldiya road which stretches across the Rift valley. More recently, it helped to finance Addis

43 Development Bank of Ethiopia, *Development Bank of Ethiopia (DBE) and China Development Bank Corporation (CDB) sign a loan agreement to finance SMEs in Ethiopia*, <http://www.dbe.com.et/DBE%20and%20CDB.htm>

44 The Oakland Institute, 2011. *Understanding Land Investment Deals in Africa*, http://media.oaklandinstitute.org/sites/oaklandinstitute.org/files/OI_Ethiopia_Land_Investment_report.pdf

45 Ministry of Education (Ethiopia), *National Technical & Vocational Education & Training (TVET) Strategy*, http://www.moe.gov.et/English/Resources/Documents/Eng_TVET%20strategy_Ver_1_22%20August%202008.pdf

46 International Food Policy Research Institute, *IFPRI Discussion Paper – An Overview of Chinese Agricultural and Rural Engagement in Ethiopia*, <http://www.ifpri.org/sites/default/files/publications/ifpridp01185.pdf>

Ababa's ring road.⁴⁷ Along with other road-building initiatives championed by China, those working in agriculture are finding the journey to market significantly easier.

A slightly lesser known feature of Chinese investment into infrastructure has been its massive push into Ethiopia's telecommunications sector. In 2013, Ethiopia's state-run telecommunications company Ethio-telecom forged a \$1.6 billion deal with two Chinese companies, ZTE (Zhongxing Telecommunication Equipment) and Huawei to expand Ethiopia's 3G network nationwide by 2015 while simultaneously developing a faster 4G network in the capital.⁴⁸

Proponents of such technological and infrastructural improvements would be quick to point out how a larger and more integrated road network increases links between urban and rural populations, allowing for increased activity in the peri-urban interface. These physical links between supply and demand allow for faster transport of more commodities and facilitate increased interaction between supplier and consumer while lessening the need for middle-men. Widespread telecommunications coverage allows greater and much more quick coordination along the value chain, resulting in higher profits for producers, while also promoting more fluid knowledge sharing and best practices. However, these 'improvements' don't necessarily come without their drawbacks. Pollack and Nierenberg⁴⁹ take as their example the town of Aksum to illustrate this point. Here, the Chinese have distributed mobile phones to farmers and built more than 150 kilometers of road. And truly, these advancements have afforded local producers much greater agency, efficiency, and ease. However, the very same produce that travels along these new roads is being quickly bought by the Chinese to ship back East once they reach market, leaving little access for local consumers.

So, Ethiopia's experience with China insofar as the implications to its food security seems to mirror the experiences of its Sub-Saharan African counterparts. Although minor and, in many ways, peripheral to China's main goal(s), food security in Ethiopia has not been affected greatly by China's efforts, and may have even been enhanced slightly, despite some drawbacks being evidenced. Speaking of this South-South cooperation, the former Prime Minister of Ethiopia Meles Zenawi described Chinese interest in his country as “nothing short of a godsend”⁵⁰ but went on to sound a note of caution as to how this relationship could be “capable of becoming a nightmare” if improperly managed.

47 The Guardian, *Ethiopia's Partnership with China*, <http://www.theguardian.com/global-development/poverty-matters/2011/dec/30/china-ethiopia-business-opportunities>

48 The Africa Report, *Ethiopia signs 3G & 4G deals with Chinese telecoms giants*, <http://www.theafricareport.com/East-Horn-Africa/ethiopia-signs-3g-a-4g-deals-with-chinese-telecoms-giants.html>

49 The Huffington Post, *Notes from the Road: China Invests in Ethiopia's Infrastructure*, http://www.huffingtonpost.com/bernard-pollack/notes-from-the-road-china_b_338734.html

50 De Birhan, *China Invests in Ethiopia but at What Cost?*, <http://debirhan.com/?p=755>

Conclusion

So what is the bottom line? Given the lack of data and African agriculture being given a back seat to infrastructure development, what can we say about Chinese investment's effect on food security? Realistically, not much. Again, as data regarding specific projects is, on the whole, unavailable, it is difficult to say what impact certain Chinese interventions in SSA are having. However, we can make some informed deductions.

Through China's and SSA's efforts, increased knowledge and experience sharing has been gained, which is hardly ever a bad thing. Also, greatly needed infrastructure has been built. In fact, projects such as these are excellent at providing the material inputs and proper foundation for development. Of course, if the resultant products are quickly shipped out of the country with little in return or if they are siphoned off through bad policies or graft, the effort would seem to have little to no domestic impact. Roads, bridges and mobile phones are invaluable, but if the locals don't have the means to use them or don't have any produce to transport, then these pro-poor advances become moot.

This being said, it seems that, given China's comparably small investment in Africa (compared to OECD countries and multilateral agencies) as well as its focus on infrastructure rather than agriculture, the current impact on Africa's food security by China is quite small. However, this 'small' impact may prove to be slightly positive as improved infrastructure is narrowing the gap faced by producers in rural and peri-urban areas and as local academics and agricultural practitioners are benefiting from Chinese experts.

On the whole, China seems to be stepping into the SSA development scene very gingerly, preferring shorter-term projects to longer-term policy promotion strategies. Perhaps this vision of project over policy will be more effective than the tack often adopted by China's Northern counterparts, and this South-South partnership can be mutually beneficial well into the future. Only time will tell. However, given internal pressures that are and will be faced by China, it seems unlikely that this agricultural assistance will remain so overtly magnanimous.