

**Situating Sino-African agricultural demonstrations in the  
global food order: Case studies from Rwanda and Uganda**

by

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## **Author's Declaration**

I hereby declare that I am the sole author of this thesis. This is the true copy of this thesis including any required final edits, as accepted by my examiners.

I understand that my thesis may be made available to the public.

## Abstract

This thesis explores two Sino-African agricultural centres in Rwanda and Uganda that demonstrate Chinese agricultural technologies, and examines them as they relate to the changing global food order. When Sino-African agricultural engagement emerged as a topic of discussion in critical food studies literature in the mid-2000s, a number of scholars assumed the relationship was emblematic of a Chinese foray into Africa to grab land. However, since the first appearance of claims that the Chinese government and associated agricultural firms were orchestrating an agricultural venture in Africa, many Sino-African specialists focused their attention on countering these claims, instead arguing that China's impact in rural Africa is quite modest, and the relation is in fact the continuation of a long history of engagement.

Despite the active debate among scholars about Sino-African agricultural relations on the question of land grabbing, very little attention was paid to how disseminating Chinese agricultural technologies in Africa relates to the shifting dynamics of the global food landscape. Food studies literature tends to project the historic tendencies of Western opportunism in Africa onto contemporary dynamics of Sino-African affairs – leading to claims that China is neo-colonial and grabbing land. In countering these claims, Sino-African specialists orient their findings on a case-by-case basis, and argue that China's presence in Africa is too small to make a considerable difference in Africa's rural sector. The back and forth between these two narratives has ultimately been unproductive when trying to draw conclusions about the current relationship between China, Africa, and the politics of global food and agriculture.

In this thesis, I aim to resituate the debate on Sino-African agricultural partnerships to consider it as part of the changing global food system. To do so, I ask a question that is seldom presented in existing literature: Why is it that African countries are keen to articulate with China in their own agricultural development? This seemingly simple question helps to bridge the gap between the opposing positions on Sino-African agricultural relations as it engages African countries on how they make decisions in determining their own agricultural trajectory. It also explores what it is that China offers in agricultural development from the perspective of those that it partners with. The study is based on two Sino-African agricultural technology demonstration centres that were born out of the Forum on China Africa Cooperation summit in 2006.

In asking this question, I arrive at three main conclusions. First, I find that China's agricultural technologies are relatively easy to adopt in the rural African setting, and that building partnerships with China offers a window of opportunity for African countries to determine their own developmental trajectory. Second, I find that the Sino-African agricultural development centres allow the Chinese companies that run them preferential access to local markets. Third, I find that the relationship is not without its problems, and its impact should not be inflated, as it ultimately remains a work in progress.

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## List of Abbreviations

|         |  |
|---------|--|
| ARDC    | Aquaculture Research and Development Centre                          |
| AGRA    | Alliance for a Green Revolution in Africa                            |
| CAADP   | Comprehensive Africa Agricultural Development Plan                   |
| CIDA    | Canadian International Development Agency                            |
| CIP     | Crop Intensification Program   |
| CPC     | Communist Party of China   |
| DFID    | Department for International Development                             |
| DSIP    | Agricultural Sector Development Strategy and Investment Plan         |
| EDPRS I | Economic Development Plan and Poverty Reduction Strategy             |
| FAFU    | Fujian Agriculture and Forestry University                           |
| FOCAC   | Forum on China Africa Cooperation                                    |
| GoR     | Government of Rwanda   |
| GoU     | Government of Uganda   |
| GRAIN   | Genetic Resources International                                      |
| MAAIF   | Ministry of Agriculture, Animal Industries, and Fisheries            |
| MINAGRI | Ministry of Agriculture  |
| NaCRRI  | National Crop Resources Research Institute                           |
| NaFIRRI | National Fisheries Resources Research Institute                      |
| NaLIRRI | National Livestock Resources Research Institute                      |
| NARO    | National Agricultural Research Organization                          |
| NEPAD   | New Plan for African Development                                     |
| NDP     | New Development Plan   |
| NRM     | National Resistance Movement   |
| OAU     | Organization for African Unity                                       |
| RAB     | Rwanda Agriculture Board   |
| RATDC   | China-Rwanda Agriculture Technology Demonstration Centre             |
| SPAT    | Strategic Plan for Agricultural Transformation                       |
| UATDC   | Uganda-China Friendship Agricultural Technology Demonstration Centre |
| USAID   | United States Agency for International Development                   |





## Chapter 1: Introduction and Methodology

### **Introduction**

In 2006, China and 48 African countries met in Beijing to discuss a new set of commitments in economic and developmental cooperation. This gathering was the third meeting of a platform created by China and African state leaders called the Forum on China-Africa Cooperation (FOCAC, or *The Forum*). While FOCAC had convened twice before, its third meeting in 2006 was a summit unlike the conferences that had preceded it. The 2006 summit went beyond the ministerial level, and it was attended by state leaders; it took place in the Great Hall of the People, in Beijing, and it was the largest gathering of Chinese and African delegates in history up to that point.

The Forum is a catchall venue for China and African states to discuss trade, development, and cultural exchanges, and it is used as a stage to decorate and publicize Sino-African relations. The 2006 summit precipitated an array of agreements between the Chinese government and African states, and it attracted a groundswell of attention from commentators around the globe.<sup>1</sup> However, the claim that the forum keeps with good faith, and benefits both China and African countries evenly has been a point of contention. Indeed, of all the arrangements that were made during the course of the summit, the proposal that spurred a particularly lively debate among observers was an agreement between 14 African countries and China to jointly develop agricultural training parks in Africa.

Attention to the training parks was, however, not an unexpected reaction. Since the mid-1990's tensions have been mounting about how China will feed its growing population,<sup>2</sup> and the FOCAC agricultural parks sparked a renaissance in this debate. The

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<sup>1</sup> Anshan and April (2013) discuss the conferences and summits in more detail in their book, *Forum on China-Africa Cooperation: The Politics of Human Resource Development*. More information about the summits including speeches and communiqués can be found at The Forum's website: <http://www.focac.org/eng/>

<sup>2</sup> Most notable in Brown's (1995) book, *Who will feed China?*.

largest remaining areas of the world's fallow agricultural land, and areas with high yield gaps, are spread across the African continent. The agricultural parks that were designed at the summit took form at the same time that there was a spike in global food prices, and China's agricultural ambitions in Africa came to be understood as a reaction to this price shock.<sup>3</sup> Observers began to discuss China's role in African agricultural development vis-à-vis claims that emerging and developed economies were rushing to acquire farmland in the global south to secure their own cheap food supplies.<sup>4</sup> It appeared that the longstanding questions of 'who will feed China' had been answered: Africa would.

The critique that China was orchestrating a foray into African agricultural sectors gained public traction, but Sino-African specialists challenged this assessment. These experts fact-checked claims that China was grabbing land, and argued that there is no evidence of a coherent plan on behalf of Chinese policy makers to take advantage of African countries' rural sectors, and very little evidence to suggest China was engaging in nefarious 'land grabbing' behaviour.<sup>5</sup> The alternate narrative on Sino-African agricultural engagement focused primarily on proving that China is not grabbing land in Africa, and aimed to show that China's impact on the rural sector across the African continent is much smaller than is often reported.<sup>6</sup> One consequence of the 'proving-the-opposite' approach is that it is based on making claims about how China is *not* articulating in the global food economy, and offers little commentary on how these dynamics between China and Africa link to broader shifts in the global food order. In this vein, observations on Sino-African agricultural cooperation have become detached from discussions on the global politics of food and agriculture.

The aim of this thesis, therefore, is to examine this link, and unpack how Sino-African agricultural demonstrations can be understood as a component of the global food system. Academic conventions about the architecture of the global food system are that it

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<sup>3</sup> GRAIN's (2008) article titled, *SEIZED! The 2008 land grab for food and financial security*, provides an early example of this narrative. Also see, Lisk (2013) pg. 567, and Zoomers (2010) pg. 434.

<sup>4</sup> Cotula (2009), pg. 57-58; GRAIN (2008), pg. 2; Hall (2011), pg. 194.

<sup>5</sup> In Cotula's (2009) article, the author argues that China is a leading culprit of land grabbing, but also suggests that the drivers of China's engagement with Africa's rural sector are multi-faceted, complex, and questionable (pg. 55). Also see Brautigam (2009), and Buckley (2013a).

<sup>6</sup> Pilling (2015) refers to this as 'proving the negative'.

is controlled by a Western-backed corporate food regime; however, in exploring Sino-African agricultural partnerships, we can see that there are dynamics within the global food system that do not fit this convention. While being cognisant that Sino-African agricultural engagements are not, ipso facto, a ploy by China to offshore its own food production, I will re-orient the conversation to understand Sino-African agricultural demonstration centres as a part of a changing global food and agricultural mosaic. I do so by focussing on the African institutions involved in the agricultural demonstrations as the primary agents of action in the Sino-African agricultural demonstration process. Specifically, I ask: Why is it that African institutions are keen to articulate with China in their own agricultural development? Asking this seemingly simple question has significant implications for re-orienting, and adding nuance, to both the discourse of global food politics, as well as Sino-African affairs. Answering this question requires that I couch the debate in the historic and contemporary Sino-African context, as well as within discussion on the current global food system, and these conversations have not been considered in tandem within the existing body of literature.

Moreover, Sino-African agricultural demonstration parks that were born out of the FOCAC summit in 2006 have largely been analyzed as they relate to China's *intentions* in Africa. But the *intentions* of African countries to partner with China have not been analyzed, nor have the *consequences* of the agricultural demonstration centres been explored. This missing piece of the puzzle has implicitly suggested that African agricultural sectors are stuck in a state of post-colonial stasis, perpetually vulnerable, and ripe for predation. Leaving the African narrative out of the discussion is what ultimately enabled commentators to suggest that China's engagement with Africa was predatory, and an iteration of Western-style self-interested global arrangements. The absent voice of African partners in the conversation insinuates that they are not active members of the shifting global order, but passive and ill-equipped to make decisions in their own best interest. Indeed, in asking the question I have outlined above, and basing my primary data on Rwandan and Uganda perspectives on China's role in African agricultural development I am able to unpack this crucial perspective that is often ignored.

Based on information gathered through primary and secondary data, I arrive at three conclusions that are significant for the field(s) of study. First, I argue that Chinese agricultural techniques are valuable in rural Rwandan and Ugandan settings, as they do not rely on the highly advanced and input-intensive methods that are typical of Western agricultural practices. In both Rwanda and Uganda the introduction of some Chinese agricultural methods, techniques, and crops, have assisted in the development of niche agricultural markets and businesses. Given these outcomes, Chinese agricultural demonstration centres have the overarching effect of contributing to the development of African rural sectors in that they provide a window of opportunity for African countries to determine their own developmental trajectories, and better navigate imbalances in the global food order that have locked many African countries into situations of slow-improvement.<sup>7</sup> In light of this, I find that it is not simply China's role in the global food economy that is changing. Rather, the growing agency of African countries to decide their own paths of development is often omitted from discussions about contemporary global food politics, and I argue that Rwanda and Uganda choose to articulate with China because China (and Chinese agricultural technologies) offer avenues of development whereby they can circumvent subjugation in the global food economy.

Secondly, this exploration sheds new light on what it is that China itself stands to gain from forming partnerships with African countries. Based on the vague protocols of engagement, as well as the tenacity of the Chinese companies that run the demonstration centres to continue operating after the demonstration process has concluded, I argue that agricultural engagement allows Chinese companies with very little overseas experience to gain knowledge *of*, practice *in*, and access *to* agricultural subsectors in which they could be competitive in the future. In exploring what it is that China stands to gain from the new partnerships it is forming in rural Rwanda and Uganda, I conclude that conventions about increasing American agribusiness control in the global food economy have largely

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<sup>7</sup> The most pronounced programs that have impeded African agricultural development came in the form of Structural Adjustment Loans introduced by the World Bank in the 1980's, which provided desperately needed development funding to African countries, but required strict adjustments to be made in receiving countries macro-economy – see Clapp (1997), pg. 12-35 – and trade conditions imposed through the World Trade Organization Agreement on Agriculture that took form throughout the late 1990's, see Weis (2007), pg. 128-160.

been ignorant of the ways that Chinese firms, and China's strategy to 'go global' could be introducing forms of diversity in the global food system. While Chinese firms may not be able to control African agricultural markets, the FOCAC demonstration centres are enabling Chinese firms to access markets where Western firms are relatively inactive.

Lastly, I echo the findings of many Sino-African scholars, and argue that the impact of Sino-African agricultural demonstration centres should not be inflated. The forging of these agricultural partnerships are indicative of the growing international agency among African countries, but it does not indicate that a grand agricultural transformation has already occurred. Rather, the mechanisms of extending Chinese agricultural technologies in Rwanda and Uganda are imperfect, at times the relationship is awkward, and its success is ultimately dependent on the personal relationships formed (or not formed) between the African and Chinese partners who work to institute the demonstrations.

### **Significance and contribution to field of study**

In 2008, Chan wrote that Sino-African studies is a place where "Africanists who are not Sinologists and Sinologists who are not Africanists, and political scientists who are neither, stray as amateurs into fields other than their own."<sup>8</sup> This quotation is emblematic of the issue that has punctuated the dialogue on Sino-African agricultural affairs most acutely since the 2006 summit. While food-studies literature was not always concerned with the 2006 summit directly, the agreements between China and Africa that followed this summit were foundational to the land grabbing narrative that spurred tensions about China's role in rural Africa. The food studies narrative spoke about China's role in Africa, but drew very little on the broader Sino-African literature.

Conversely, the field of Sino-African studies became pre-occupied with addressing misinformation that had pervaded public and academic forums, and much of the literature on FOCAC agricultural centres became fixated on fact-checking and challenging popular claims about China-in-Africa. Consequently, positive claims about

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<sup>8</sup> Chan (2008), pg. 339.

what Sino-African affairs actually are often became addendums, or afterthoughts, in the conclusion of studies that spent the lion's share of their word count clarifying what the relationship is not.<sup>9</sup>

After nearly a decade of challenging claims that China is intent on hedging against its own food insecurity by purchasing or leasing land in Africa, a leading Sino-Africa specialist published a book on the subject called, *Will Africa Feed China?* Brautigam (2015) answers the question posed in the title of her book with a resounding 'no'. However, as Pilling (2015) suggests, 'proving a negative' is unnecessary if an observer is unaware that the conversation existed in the first place. Brautigam's landmark book and decisive conclusion that China is not attempting to use African land to feed itself may lead lay observers to think that the debate surrounding Sino-African agricultural engagement has been resolved; I argue it has not.

I do not aim to challenge the notion that China's activity in rural Africa is modest. In fact, my own data collection and experience in the field lead me to agree with some of Brautigam's (2015) conclusions. Rather, I aim to build on this conclusion, and offer a foundational perspective on what I consider to be the beginning of a *post-clarification phase* of Sino-African agricultural studies. The major contribution that I make to the field of study in this thesis is that I add nuance to the debate, and provide new direction on how to consider and understand Sino-African agricultural affairs. I do this by understanding Chinese and African state level agricultural initiatives as a manifestation of the growing power of African and Chinese actors in the changing global food order.

In addition to the contributions that I make to the Sino-African academic field, this thesis – and area of study more broadly – has implications that reach beyond the immediate vicinity of the dialogue itself. There is a general consensus among China-focussed international relations scholars that mainstream and academic theories about

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<sup>9</sup> For example, Brautigam and Zhang (2013) offer one of the few discussions about the role of African agencies in Sino-African affairs, and while it is noted in both the introduction and conclusion of the article that African countries play an active role in the relationship, it is never discussed thoroughly in the body of the article – which focuses on the myth and reality of China's rural engagement in Africa.

China can inform conscious government policy, and it is every bit as damaging to magnify the global impact of China's development as it is to underestimate it.<sup>10</sup> Further, FOCAC itself and the agreements that it precipitates are indicative of China's increasing global confidence, and a consequence of this heightened global assertion means the dangers of misinterpreting China will become more profound.<sup>11</sup> The critical contribution that this thesis makes to this issue is that it offers an examination of the nature of Sino-African affairs from the perspective of those who have been peripheral in previous analyses, and in doing so presents a pragmatic version of Sino-African affairs. It is crucial that this type of analysis continues to be conducted, as misconceptions of China's impact in Africa could produce a ripe situation for political friction, and economic miscalculations – if they have not done so already.<sup>12</sup>

### **Background on Case Selection and Field Work**

Selecting cases for this study was a challenge. Some of the centres that were agreed upon at the 2006 summit have no information about them other than to say just that, 'they were agreed upon'. Rwanda was first identified as a good case for this study as the centre there focuses on crops such as rice, which have been highly politicized in existing literature,<sup>13</sup> as well as non-land intensive crops such mushrooms, and silk production (sericulture). Rwanda is also the most densely populated country in mainland Africa and poses unique farming challenges in that it is exceptionally hilly.<sup>14</sup> The geography of Rwanda alone provided a means to challenge the claim that China's ambition in rural Africa is solely focussed on land, and this helped delineate other

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<sup>10</sup> Nolan (2012) pg. 132. Shambaugh (2013) also makes note of this through an invocation of a speech given by Nye (2012) at the Aspen Institute, pg. 237.

<sup>11</sup> Osnos (2015) hints at this, though he does so in relation to Sino-American relations regarding disputes in the South China Sea.

<sup>12</sup> In 2012, Hillary Clinton toured six African countries, and stirred controversy when she encouraged students at a University in Senegal to pursue democracy and partnerships with 'responsible powers'. Clinton made her tour just a few months after a 2012 FOCAC meeting where China had extended a \$20 billion line of credit to the continent. Xinhua News referred to Clinton's speech as a 'thinly veiled criticism' of China's engagement with Africa and said, "Whether Clinton was ignorant of the facts on the ground or chose to disregard them, her implication that China has been extracting Africa's wealth for itself is utterly wide of the truth". See Associated Press (2012).

<sup>13</sup> One example of many is GRAIN's (2009) article that discusses a potential investment by Yuan Longping High-Tech Agriculture near Bamako, Mali, to introduce hybrid rice seeds following the 2008 food price crisis. Yuan Longping has stirred controversy before: see GRAIN (2006).

<sup>14</sup> Rwanda is nicknamed 'The Land of 1000 Hills'.

incentives behind the Sino-African demonstration parks.<sup>15</sup> One of the official languages in Rwanda is English,<sup>16</sup> and members of the Rwanda Agriculture Board (RAB) were receptive to inquiries about allowing me to access the centre. It was important to have a partner institution for this study and an individual link to that institution, as the goal of this study was to speak with people in institutions that negotiate and partner with China.

Initially, I was concerned about getting a research permit in Rwanda, as all foreign researchers require a permit, and my primary contact at the Rwanda Agriculture Board (RAB) explicitly requested that I get a research permit before beginning my study. The minimum timeline for acquiring a research permit is three months according to the Directorate General of Science, Technology, and Research in Rwanda (with the exception of some extenuating circumstances). It was unclear whether or not I would be able to get special consideration to hasten the permit process, and so I sought ethical clearance to do research in Uganda as well. This would have given me the option to conduct research in Uganda if the permit in Rwanda took too long. However, there were no issues with obtaining a research permit within a few weeks. Once research in Rwanda was under way it became clear that much of the information I was collecting was specific to Rwanda, and introducing another case for comparison would allow me to separate country specific issues from more general issues on Sino-African agricultural partnerships.

Initiating the research process in Uganda happened much more quickly. I contacted the National Fisheries Resources Research Institute (NaFIRRI) – the research arm of the ministry of agriculture in Uganda that hosted the Chinese – and they were keen to partner in my study. Researching in Uganda required far less travel due to the proximity of the demonstration centre to Kampala (where I was staying) and participants

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<sup>15</sup> One question I often posed to participants in Rwanda regarded land grabbing, and whether or not the demonstration centre seemed to be an entry point to access more land. Many participants would mention the unique farming challenges they themselves faced, and suggested that this challenge combined with the density of the population made Rwanda perhaps one of the least likely destination for land grabbing in Africa.

<sup>16</sup> The three official languages of Rwanda are Kinyarwanda, English, and French.



were generally available for interview on much shorter notice. In all, I spent roughly four months in Rwanda, and two months in Uganda.

I was also exposed to some informal research opportunities by chance. I was able to accompany the Rwandan and Chinese demonstration workers to an agricultural fair in Butare (Rwanda's second largest city), and talk with the team as they displayed the mushrooms and rice that they had grown at the centre to the public. I visited one of RAB's seed production outposts in an area outside of Butare called Mututu, where the Chinese team had experimented with upland rice varieties, and a rice cooperative had adopted one of their short-grain paddy seeds. In Uganda, I joined a researcher from NaFIRRI to an agricultural exhibition that showcased small agricultural industries in Uganda to Chinese investors. The Minister of Agriculture of Uganda spoke to the Chinese delegation publicly at the show, and in his address he (unwittingly) answered all the questions I would have asked him had he been available for interview. I was also able to access the original protocols for both the centres, as well as a few other documents relating to the negotiations of the centres.

## **Methods**

This thesis is based on a grounded analytical approach to Sino-African agricultural affairs. I have not relied on any one theoretical framework; rather, I have analyzed both primary and secondary data inductively. I began the process with a literature review prior to conducting fieldwork to verse myself in the currents of Sino-African agricultural relations, as well as the international relations of food and agriculture. I used this review to develop my understanding of what information was missing in the literature, and explore discrepancies between different bodies of theory.

During my fieldwork I conducted 44 formal and semi-formal interviews, which were based on set questions. Interviews were then recorded, transcribed, and coded according to theme. I also conducted five 'field visits', which were unrecorded, and therefore not transcribed or coded, though I have used some notes from these field visits in this thesis. Interviews were conducted with key-informants, which I classified as

Rwandan and Ugandan decision makers who coordinated the implementation and management of the centres; Rwandan and Ugandan researchers, technicians, and assistants who worked alongside the Chinese at the demonstration centres; and entrepreneurs, agricultural technicians, and farmers who had been trained at the centres, or associated with the centres. Interviews were conducted at the demonstration centres in Rwanda and Uganda, at the respective ministries of agriculture, or at government research institutions that oversaw the demonstrations. Some interviews were conducted informally with participants while they showed me demonstration plots, and a few others were conducted at cafés or restaurants. In Rwanda, most interviews were conducted at the Ministry of Agriculture (MINAGRI) and RAB headquarters in Kigali, or at RAB's southern research centre in Rubona (about two hours south of Kigali). Interviews in Uganda were mainly conducted in Kajjansi (just south of Kampala) at the Aquacultural Research and Development Centre (ARDC), or at the National Fisheries Resources Research Institute (NaFIRRI) headquarters in Jinja (two hours South of Kampala on the Nile River).

For various reasons, it was a challenge to interview Chinese staff at the demonstration centres. In Rwanda, there was no translator present at the centre. My interactions with the Chinese technicians were lively and positive, but limited given that I do not speak Mandarin. I did interview one of the three Chinese technicians in Rwanda who had the strongest grasp of English, but the interview was limited to basic questions. In Uganda, I was under a tighter time constraint, and I was unable to interview all the research officers at ARDC that I wanted to. Building rapport with the Chinese technicians was an added challenge. In my many visits to the demonstration centre, I only saw the Chinese technicians twice. Given that I was unable to interview Chinese technicians in Rwanda, and wanted to be consistent in my methods, interviewing the Chinese technicians in Uganda was not a priority. The conclusions I have drawn in this thesis about the benefits for China in partnering with African countries in agricultural development are the result of secondary data analysis; the analysis of documents pertinent to the demonstration centres that I collected in Rwanda and Uganda; and

reflections on experiences that Rwandans and Ugandans had with their Chinese counterparts that were discussed in interviews.

I analyzed my primary data using NVivo, and coded the data according to themes that emerged in the interviews. Some information that was coded focused on corroborating information, and clarifying facts and timelines between interviews. For example, I coded for discussions on the techniques that were demonstrated at the centres, and how they were different from techniques that had been used before. Concurrently, I coded transcriptions by theme, or opinions expressed about certain topics, as this helped to uncover the Rwandan and Ugandan narrative of the partnerships. Most codes related to specific questions that were part of my set questions, and where therefore repeated from interview to interview.<sup>17</sup>

I returned to my literature review after analyzing my primary data to highlight concepts that emerged during the field process. This was necessary for my method, as I was not looking to pull out particular themes during the interviews. Instead, I sought to corroborate information, pose existing criticisms of Chinese investments in agricultural to participants, and gauge responses to these criticisms. My method was to allow themes and questions to emerge during the field process, rather than trying to extract themes from the literature, and then fit the primary data to those themes.

### **Analytical approach**

I analyzed relevant primary and secondary data as it relates to the two main lenses of analysis in Sino-African agricultural affairs: what are often referred to as the optimistic and pessimistic lenses. I associate the pessimistic lens with food studies scholars who saw Chinese agricultural demonstrations as examples of land grabs for China's food security, and I associate the optimistic lens with Sino-African scholars who challenged these claims. However, I see both these lenses as problematic. Sino-African specialists have aimed to question the factual credibility of critical food studies, and argued that pessimistic claims about China's role in rural Africa are inaccurate. Alternatively, these

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<sup>17</sup> See appendices A and B for a full list of interview questions and transcription codes.

optimistic assumptions have been theoretically inconsequential for advancing our understanding of trends in the global food system. My analytical approach bridges the gap between these two narratives on Sino-African affairs, and explores the strengths and shortcomings of both.

In my analysis, I draw on comparisons between cases of Sino-African agricultural cooperation in Rwanda and Uganda to better understand the relationship. The comparative nature of the study allows me to differentiate between country specific phenomenon in the relationship, and more general trends about what it is that China can offer in agricultural development. Through the analysis of my primary data I find that there is reason to see merit in both optimistic and pessimistic views of the Sino-African demonstration centres in Rwanda and Uganda.

### **Thesis Structure**

This thesis begins with a review of relevant literature on Chinese and African agricultural demonstration centres (chapter 2). The review gives equal billing to the literature that forms the theoretical backdrop of critical food studies assumptions about Sino-African agricultural affairs, and that China's goal in rural Africa is to grab land. I also discuss Sino-African literature that challenged food studies, and argued that China's role in rural Africa is modest. In addition, chapter 2 will offer a history of Sino-African affairs so that the following analysis can be situated both theoretically, and historically. The literature review is largely based on academic sources, though I also draw on news sources, and include the works of African academics and African journalists where possible.

In chapter 3, I explore the food security status of Rwanda and Uganda, and the agricultural programs that those countries are employing to improve their respective rural sectors. Here I build the case that Rwanda and Uganda have well developed agricultural development plans of their own, and I lay the groundwork to show that the FOCAC demonstrations centres enable Rwanda and Uganda to achieve some of these developmental objectives. Information in the chapter is based on a combination of my

own primary data, as well as an exploration of Rwandan and Ugandan agricultural policies.

In chapter 4, I explore the inception of the centres – why it is, specifically, that Rwandan and Ugandan delegations sought to partner with China in agricultural development, and how the 2006 summit led to the centres’ emergence. I discuss the protocols of the demonstration centres, and outline the specific development programs within Rwanda and Uganda to which the demonstration centres contributed. I also rely on technical documents that I had access to during my fieldwork, and I use some primary data. In chapter 5, I will analyze chapters 3 and 4 in-light of the optimistic and pessimistic lenses, and engage more explicitly with the Rwandan and Ugandan narrations of their experience working with the Chinese. I conclude the study and discuss its broader implications in chapter 6.

## Chapter 2: Understanding China and Africa through theory and history

### **Optimists and Pessimists: Theoretical lenses on Sino-African Affairs**

Many scholars of Sino-African affairs note that analysts tend to understand Sino-African affairs through an optimistic or a pessimistic lens. For example, Shinn and Eisenman (2014) outline the optimistic and pessimistic lenses of analysis in their book *China and Africa: a Century of Engagement*, and offer an in-depth discussion of these camps in the first chapter of the book. Alden (2007) identifies three camps of thought, which he deciphers as those who see China as a *development partner*, a *competitor*, or a *colonizer*.<sup>1</sup> However, I would argue that two of these categories – the competitor and colonizer – could both ultimately be understood as pessimistic lenses.<sup>2</sup> Indeed, many other authors discuss optimism and pessimism as well.<sup>3</sup>

These lenses are particularly pronounced within the discussion of China's role in African agriculture, and the specifics of how they are expressed are unique to the field. Ultimately, food studies literature occupies the pessimistic camp, while Sino-African specialists are more optimistic about the relationship, and it is important to understand how these perspectives present themselves in the literature, as the way that optimists and pessimists responded to Sino-African agricultural relations forms the foundations of the analysis that I have used in this study.

### ***Pessimism, FOCAC, and the land grab***

Broadly speaking, the pessimistic view of China's role in Africa suggests that China's interest in Africa is largely based on gaining access to resources – or at the very

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<sup>1</sup> Alden (2007) pg. 5-6. See Buckley (2013a) for an example of how all three lenses were present in a report on a Chinese demonstration in Senegal. .

<sup>2</sup> The 'competitor' lens argues, according to Alden (2007), that China's engagement with Africa focuses on a resource grab, while the 'colonizer' lens sees China's role in Africa as one based on political control. Ultimately, these two lenses embody different forms of pessimism.

<sup>3</sup> See Adem (2013), and Shambaugh (2013).

least, that China's impetus to create cooperative structures with Africa is a product of its quest for power.<sup>4</sup> Pessimists do not always place much weight in China and Africa's historic engagement.<sup>5</sup> Rather, pessimistic assumptions about China's role in Africa focus narrowly on post-reform China's interest in economic growth and development. Concurrently, when pessimists do couch their arguments in terms of China and Africa's historic engagement, they tend to focus on China's revolutionary era when its propagandising of socialist revolution was particularly acute.<sup>6</sup> Ultimately, the pessimistic view understands China, and its policy in Africa, as one that will perpetuate African dependence on foreign governments, and reinforce imperialistic divisions of labour.<sup>7</sup> Adem (2013) discusses optimism and pessimism in *China's Diplomacy in Eastern and Southern Africa*, and argues in the book's conclusion that pessimists assume that the way that capital is used by states (which he describes as the 'logic of capital') is consistent, regardless of the state's domestic form of governance.<sup>8</sup> That being said, pessimists tend to understand China as an emerging global power, and they see capital as a tool that countries can use to gain, or assert, power. Indeed, this would mean that China's extension of capital to Africa reflects its desire for more global control.

Often when commentators discuss China's role in *rural* Africa their critique will extend from *food regime theory*, which is one of the most popular analytical tools for studying the international relations of the global food order. Early explorations of food regime theory sought to uncover the role that agriculture played in the construction and iterations of the global capitalist economy.<sup>9</sup> Food regimes are typically defined by periods of hegemony, and new regimes emerge as hegemonic powers shift. There are two undisputed regimes: *the first food regime* took place between the 1870's and the 1930's, and revolved around colonial Britain's orchestration of food imports from its various tropical colonies. *The second food regime* took place between the 1950's and 1970's, and

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<sup>4</sup> Moyo (2012) makes this observation, and does so quite clearly in her assessment of what function the 2006 FOCAC summit served for China (pg. 85).

<sup>5</sup> One notable example of this would be French's (2014) book, *China's Second Continent*.

<sup>6</sup> See Chau (2014) and Taylor (2006).

<sup>7</sup> Ibid.

<sup>8</sup> Adem (2013), pg. 237.

<sup>9</sup> See Friedman (1987), Friedman and McMichael (1989), and McMichael (2009b) for more detail on food regimes, and food regime theory.

was based on Cold War America's strategic use of its own domestic food surplus to court Third World countries into its "informal empire of postcolonial states".<sup>10</sup>

More recently, a discussion within food regime theory has emerged regarding a contested *third regime* that is said to operate at the behest of corporations, and argues that in recent decades the global food system has been governed in the interests of agribusinesses.<sup>11</sup> Food regime theory in contemporary discussions of food politics is often invoked to encapsulate a set of assumptions about the nature of the global food system; that it is controlled by corporations – and to a lesser extent states – that use capitalism and globally liberalized markets to construct a global food order that places them at the top. Given that food regime theory projects its assumptions onto the *global* food economy, it sees these provisions as omnipresent – hence, its tendency to assume that emerging powers' motives to participate in a more globalized food economy are based on aspirations for power.

While it was not always the case, there are many instances where food regime perspectives implicitly, or explicitly, informed pessimistic assumptions about China's role in rural Africa, and this trend emerged via discussions on the global land grab. One of the seminal discussions in food studies literature about land grabbing was written by an NGO called Genetic Resource Action International (GRAIN). GRAIN had been monitoring the global food price crisis when the organization noticed that a number of companies and diplomats were organizing the purchase of large swaths of land in Africa and Asia.<sup>12</sup> GRAIN argued that there were two main reasons why land was being purchased overseas: for financial gains, and to offshore food production. The organization made these arguments in a publication titled *Seized! The 2008 land grab for food and financial security*. The authors argued that China, India, Japan, Korea, Libya,

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<sup>10</sup> McMichael (2009a), pg. 141.

<sup>11</sup> At times, the notion of a third food regime is accepted as fact in food studies literature, See for example Hawkes and Plahe (2008), or Burch and Lawrence (2009), while others contest this notion, for example Pritchard (2009).

<sup>12</sup> In 2013, GRAIN published a retrospective article in the *Journal of Peasant Studies*, in which it discussed its flagship land grabbing document from 2008, and goes into more detail on how it came to observe land grabbing as an international phenomenon – see GRAIN (2013). For examples of authors who cite GRAIN's 2008 article see Cotula, (2009), Pinstup-Anderson, or Zoomers (2010).



Egypt, and a number of Gulf States were looking to purchase land overseas to offshore their domestic production.<sup>13</sup> Although GRAIN did not engage food regime theory explicitly, its discussion on land grabbing did focus on capitalist and market-based incentives for grabbing land.

The central role that China played in this article was likely due to the FOCAC summit that had been held shortly before it was written. While the article did not explicitly refer to the FOCAC demonstration centres as China's main thrust into African agriculture, the article argued that the China-Africa Development Fund had been established to invest in African agriculture, and that one of China's main reasons for investing in African agriculture was to extend Chinese farming techniques and technologies across the continent.<sup>14</sup> GRAIN's article laid the foundation for much of the critical food studies literature on land grabbing, and it placed China at the centre of the argument which suggested that land scarce countries were looking to offshore some of their agricultural production.<sup>15</sup> While the article did suggest that a number of other countries were engaging in similar practices, China received the better part of the focus.<sup>16</sup>

In the years following 2008, volumes of literature were produced about the land grab. China often found itself playing a central role in the debate, and the discussion moved into public forums as well. For example, Spencer (2008) wrote an article for the *National Post* titled 'China expands its farmland in Africa; Country hopes to feed 1.3 billion people' and cited the FOCAC agricultural demonstration centre in Tanzania as evidence of this. Another article written for the *The Economic Observer Online* and titled 'Hopes and Strains in China's Overseas Farming Plan' opened with the line, "China has

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<sup>13</sup> See GRAIN (2008) for the original article.

<sup>14</sup> GRAIN (2008), pg. 3.

<sup>15</sup> The section of GRAIN's (2008) article beginning on page 3 titled, *Food security seekers*, outlines this argument in more detail.

<sup>16</sup> Brautigam (2013) found that the word's 'China' or 'Chinese' appear 47 times throughout the article, pg. 1678. In my own search of the article I found that Saudi Arabia, the Middle East, and Egypt are only referred to 15 times. This imbalance does suggest, implicitly, to auditors that China is a major player in the global land grab.

planned to develop agriculture production abroad to guarantee domestic food security”, and cited the FOCAC demonstration centre in Sudan to prove its point.<sup>17</sup>

GRAIN’s (2008) article was without question a central player in introducing the land grab as a topic in food studies, and it was quickly incorporated into food regime theory. McMichael (2009), for example, mentions that states’ decision to offshore food production in the wake of the 2007-2008 global food price crisis reflected an unravelling of the corporate food regime, and actors within the global food system recognized that the neo-liberal architecture of the global food economy was insufficient at allocating food supplies during times of price volatility.<sup>18</sup> In making this argument McMichael (2009) cites the GRAIN (2008) publication about the land grab.

Many other analysts who evaluated the global food economy and land grabbing in the wake of the 2007-2008 food price crisis were equally pessimistic about the role of foreign states in African rural sectors. For example, Zoomers (2010) argues that there are seven processes driving the global land grab, but attributes the main process as being one of finance-rich, resource-poor countries who sought refuge from price volatility in the wake of the global food price crisis.<sup>19</sup> Robertson and Pinstup-Anderson (2010) echoed a very similar sentiment, saying:

The most common characteristics of foreign investors in the acquisition of land are capital-rich, natural-resource poor Arab and East Asian governments and corporations, many of whom suffered from the 2007 to 2008 rises in food prices<sup>20</sup>

Given that this was a common vision of the climate of the global food system in 2008, the discipline of critical food studies found itself situated against a theoretical backdrop that was insufficient to analyze the nuance of contemporary Sino-African agricultural cooperation. It either saw Chinese investments in African rural sectors as a

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<sup>17</sup> See Li (2008).

<sup>18</sup> McMichael (2009), pg. 292

<sup>19</sup> Zoomers (2010), pg. 1.

<sup>20</sup> Robertson and Pinstup-Anderson (2010), pg. 273.

product of power, or a scramble for land in the wake of a food crisis. One hint of optimism within the pessimistic understating of Sino-African affairs is that it understands that the fate of investments in Africa will be determined by regulation of the host countries, and not by the intentions of Chinese investors.<sup>21</sup> That is to say that the pessimistic lens sees colonial echoes in Sino-African relations, but understands that China's involvement in Africa will only have consequences that resonate with colonialism if the investments are not properly managed. If the investments are not regulated, pessimists see that Sino-African cooperation will solidify Africa as a continent to plunder.<sup>22</sup>

### ***Optimism and alternatives to the West***

The most optimistic version of Sino-African agricultural engagement emerged in the mid-1990's as an exploration of Chinese aid.<sup>23</sup> Brautigam (1998) provided the seminal analysis, and examined Chinese aid in rural Africa as a projection of the politics and aspirations of the Communist Party. However, it was not until the land grab emerged as a topic in food studies that the optimistic lens became more pronounced.

The optimistic lens has been highly China-centred, which is to say that it focuses on China's *intentions* in Africa, or it explores the outcomes of Sino-African engagement from the Chinese perspective.<sup>24</sup> It tends to ground itself in history, rather than theory, and often argues that the Chinese demonstration centres that are currently operating in Africa are ultimately extensions of agricultural aid that China has provided to African countries since the 1980s. In light of this, the optimistic lens often suggests that when China's investments are understood as distinctly Chinese, they will offer positive alternatives to Western-led versions of aid or engagement in Africa.<sup>25</sup> In addition, this lens seeks to challenge mainstream perceptions of China's involvement in Africa in two

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<sup>21</sup> Cheru and Calais (2010) discuss this concept at length in an essay titled, *Countering 'new imperialism': what role for the new partnership for Africa's development?*, in the book, *The Rise of China & India in Africa*, pg. 221-237.

<sup>22</sup> Ibid.

<sup>23</sup> Brautigam's (1998) book was one of the first to look at cases of Chinese rural aid, though the author had done some work on Chinese aid in rural Africa prior to 1998 as well. See Brautigam (1983, 1993)

<sup>24</sup> Notable examples are Brautigam and Tang (2009), Buckley (2013a), or Li et al. (2012)

<sup>25</sup> Brautigam (2011), pg. 3.

distinct ways. In a broad sense, it challenges the pessimistic assumption that China's engagement in Africa promotes illiberalism,<sup>26</sup> and with respect to China's rural engagement, the central tenet of the optimistic argument is that China's agricultural investments do not aim to grow food for Chinese markets, but sell their produce to local markets and encourage local development.

As Alden (2007) outlines, optimists often view China as being a development partner, and they see China's investments in Africa as part of a long-term commitment to build cooperative relationships across the developing world. This lens reaches to the early history of the CPC to suggest that China's involvement in African agriculture has been a steadfast component of its foreign policy.<sup>27</sup> It suggests that China's impetus to ally with Africa is based on China's historic tendency to identify with developing countries, and in doing so, offers different avenues of economic development.<sup>28</sup> Optimists draw on China's own historic experiences in its rural sector to argue that there could be lessons for African countries,<sup>29</sup> and this is where the optimistic narrative begins to conflict on theoretical grounds with the pessimistic lens, and food regime theory. China's domestic agricultural development is often measured against Johnston and Mellor's (1961) framework for analyzing the role of agriculture in economic development.<sup>30</sup> Johnston and Mellor's framework is based on capitalistic ideals of agricultural development, and outlines a developmental path that encourages industrialization in the agricultural sector. Friedman and McMichael (1989) explicitly challenge the Johnston-Mellor framework, and mention this in the first paragraph of their seminal food regime paper.<sup>31</sup> Therefore, some reasons that optimists have for looking favourably on China's role in Africa's rural sector are irreconcilable with how pessimists see the relationship. Optimists see the extensions of

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<sup>26</sup> Shinn and Eisenman, (2014) pg.13

<sup>27</sup> Li et al. (2012), 228-229

<sup>28</sup> This assertion, that China offers different avenues of development is perhaps one of the most common arguments among optimists. See Brautigam (2011), Buckley (2013b) for a few examples.

<sup>29</sup> Li et al. (2012) devote the entirety of their book titled, *Agricultural Development in China and Africa*, to this subject.

<sup>30</sup> Huang et al. (2008) use Johnston and Mellor's (1961) framework to analyze the successes and failures China's agricultural development since 1978. Xu and Li (2013) also invoke Johnston and Mellor's framework when discussing lessons from China's agricultural development that could be useful for African countries.

<sup>31</sup> Friedman and McMichael (1989) actually mention a book written by Johnston and Kilby (1975) that draws on Johnston's earlier work with Mellor.

agricultural technologies that spurred economic development within China to Africa as innately good, while pessimists see this very same development as intrinsically bad.

In Adem's (2013) *China's Diplomacy in Eastern and Southern Africa*, the author highlights that pessimists see the 'logic of capital' as consistent, regardless of the state that it extends from. Optimists celebrate China's involvement in Africa based on their assumption that the opposite is true – optimists see that the logic of capital changes with respect to who is sitting in the driver's seat.<sup>32</sup> We can see an echoing of this opinion throughout much of the optimistic narrative. Brautigam (2011) argues that China is well known for building infrastructure in Africa, which allows African industries to access resources. Brautigam (2011) suggests that this is a practice that is in the best interests of African countries as it allows them to develop their resource industries according to their own terms. Optimists see China's agricultural investments as accomplishing a similar goal: providing agricultural equipment and seed technology will allow countries with underdeveloped agricultural sectors to increase their yields. In this light, the optimistic lens sees Chinese capital as liberating for African industries and offers much-needed development assistance, as opposed to being purely commercial.

The optimists see Chinese capital being mobilized at the behest of China's own political aspirations, which they see as unique. A consequence of this is that Chinese capital will have drastically different implications for African development because, as optimists see it, China's ambitions in Africa are quite different from the West. Optimists do indeed believe that China is interested in increasing its global influence, but argue that China does not see existing international institutions as the avenue along which it would like to exert this influence.<sup>33</sup> Instead, China chooses to generate its own avenues of cooperation.<sup>34</sup> Li et al (2012) argue that China's post-socialist reform and economic development provides a workable model for other countries to follow in attempting their

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<sup>32</sup> Adem (2013), pg. 236.

<sup>33</sup> Shambaugh (2013) discusses this idea more as it relates to the liberal school of IR (pg. 312).

<sup>34</sup> For example, Sino-African optimists may see institutions such as FOCAC as beneficial to the international system. See Anshan and April (2013).

own economic transformations.<sup>35</sup> In light of this, China is trying to isolate elements of its post-revolutionary transformation that it can use to influence other countries, and optimists see China's agricultural experience as a key factor of its development model.<sup>36</sup>

### **The History of Sino-African Affairs**

There have been a number of chapters to Sino-African interaction throughout history, and commentators will invoke different episodes of the interactions to serve distinct purposes. When giving speeches to African delegations, members of The Party will often reach as far back as the 15<sup>th</sup> century, during the Ming Dynasty, when Zheng He made seven expeditions across the Indian Ocean – the 5<sup>th</sup> and 6<sup>th</sup> of which landed on the Somali, Kenyan, and Mozambican coasts.<sup>37</sup> The Ming dynasty eventually withdrew its expeditions to East Africa due to a power struggle in the Ming court between the official class and the eunuchs who had grown powerful during China's maritime expansion; Zheng He himself was a eunuch.<sup>38</sup> Ming trade with East Africa eventually ceased, and though it was brief, this episode of Chinese and African interaction in the 15<sup>th</sup> century remains marked by the Party to suggest that China has historically been friendly to Africans, and that it has never had colonial ambitions.<sup>39</sup> Following Zheng He's exploration of the Indian Ocean, Chinese and African interactions were relatively unremarkable until the 1950's.

In examining the history of Sino-African affairs it becomes evident that China's policy towards Africa cannot be separated from China's broader foreign policy, or the political and economic conditions within China and the globe at a given time. The relationship is ever evolving, and constantly re-shaping itself; however, each time Sino-African affairs is re-articulated, it carries the sentiments of its historic linkages. And it is

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<sup>35</sup> Li et al. (2012), pg. 231.

<sup>36</sup> Brautigam (2009) notes this in *The Dragons Gift*, pg. 247.

<sup>37</sup> There is a litany of examples of this invocation that are used when Chinese officials present to groups of people all across the African continent – not just on the Eastern coast where Zheng He landed. For example, the Chinese ambassador to Namibia, Xin Shungkang, discussed Zheng He's voyages at the 65<sup>th</sup> Anniversary of the founding of the People's Republic of China in Namibia. See Xin (2014).

<sup>38</sup> Shinn and Eisenmann (2012), pg. 20.

<sup>39</sup> The Chinese ambassador to South Africa, Tian Xuejun, mentioned this explicitly in an address to the South African Institute of International Affairs, just weeks before the 2012 FOCAC conference in Johannesburg. See Tian (2012).

for this reason that contemporary Sino-African affairs need be situated both historically and geopolitically to be fully appreciated. Moreover, an understanding of the history of Sino-African engagement can help us understand the origin of contemporary narratives, as well as how omitting certain components of the history can skew analysis.

### ***The Foundations of the CPC's Foreign Policy***

Mao Zedong first began to articulate how the Communist Party would define itself to the outside world in 1949. At this point Mao's party had taken control of the mainland following a sporadic 28-year civil war with the Kuomintang (KMT). In a speech commemorating the 28<sup>th</sup> anniversary of the CPC called '*On The People's Democratic Dictatorship*' Mao began to lay clear the foundation of how the CPC would orient itself in the global political landscape. Mao wrote, "Internationally, we belong to the anti-imperialist front, headed by the Soviet Union", and that "all Chinese without exception must lean towards the side of imperialism or that of socialism."<sup>40</sup> It goes without saying that the CPC encouraged 'the people' to side with socialism; however, this posed a major hiccup for the international legitimacy of the CPC, as the nationalist KMT had won the support of the United States both during, and after, the Second World War.<sup>41</sup> The newly formed People's Republic of China had established a Cold War alliance with the Soviet-Union called the *Sino-Soviet Friendship Treaty*.<sup>42</sup> This agreement led the CPC to be reliant on the Soviets for material support and diplomatic backing to defend itself from threats posed by the United States. And so it was that the CPC gained control over the mainland – isolated from the West due to its association with the Soviets – yet bound to the Soviet Union for support based on the Sino-Soviet treaty.<sup>43</sup>

The CPC needed a response to this predicament. In Mao's same pronouncement of *Democratic Dictatorship* he drew heavily on Sun Yat-Sen – the revolutionary 'Father

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<sup>40</sup> Mao (1949).

<sup>41</sup> The first two chapters of Chang's (1990) book, *Friends and Enemies: The United States, China, and The Soviet Union, 1948-1972*, goes into this era of Sino-American affairs in detail.

<sup>42</sup> Sutter (2011) mentions this under the entry SINO-SOVIET ALLIANCE and SINO-SOVIET FRIENDSHIP TREATY, 1950, pg. 220-221.

<sup>43</sup> Ibid.

of the Nation' who had led a revolution against the Qing dynasty, and founded post-dynastic China in 1911. In the speech, Mao said:

Externally, [we will] unite in a common struggle with those nations of the world which treat us as equals and unite with the peoples of all countries. That is, ally ourselves with the Soviet Union, with the People's Democracies and with the proletariat and the broad masses of the people in all other countries, and form an international united front.<sup>44</sup>

The adoption of Sun Yat-Sen's teaching into a foreign policy was articulated at a ripe point in history – though not by intention – as many African colonies were poised to emerge as independent and anti-imperialist themselves. The first five years of the CPC's rule in China were a time of self-determination, and while the CPC searched for its identity, it did not structure any strong policy towards Africa – or anywhere for that matter – until China and India began to discuss trade in the Tibet region of the China-India border in 1954. In April 1954, the Government of the Republic of India and the CPC signed the *Agreement on Trade and Intercourse with Tibet Region*. The purpose of the agreement was ultimately to establish a set of provisions about trade and the free movement of pilgrims in the Himalayan border areas.<sup>45</sup> The provisions were given as 5 principles:

1. Mutual respect for each other's territorial integrity and sovereignty
2. Mutual non-aggression
3. Mutual non-interference in each other's internal affairs
4. Equality and mutual benefit
5. Peaceful co-existence<sup>46</sup>

This agreement sent a very clear message to Asian countries: China would tolerate signing agreements with democracies; it was willing to entertain the idea of trade; and it

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<sup>44</sup> Ibid.

<sup>45</sup> GOI (1954).

<sup>46</sup> Ibid.



was willing to accommodate the religious liberties of individuals who moved between the borders of China and India. By extension, this signalled that it was willing to tolerate other beliefs and forms of governance. Ultimately, the agreement had the effect of quelling anxieties that China sought to propagate communism, but showed that China was content to peacefully harbour its own communist leanings insofar as its ability to do so was not challenged. This was, in fact, the design of the agreement. Shortly after it was signed in 1954, China's premier, Zhou Enlai, sent a telegraph to Mao and the Central Committee, and said that the purpose of signing an agreement with India was a preparation to sign further agreements with Asian countries and "strike a blow at the United States conspiracy to form a Southeast Asian invasive bloc."<sup>47</sup>

Signing a trade agreement with India was undoubtedly a watershed moment for China's foreign engagement, and it paved the way for the CPC to participate in the Asian-African Conference in Bandung, Indonesia, in 1955, where Zhou was able to sign other agreements with African and Asian countries. There were twenty-nine states in all that participated, six of which were newly independent (or self governing) African states: Egypt, Ethiopia, Ghana (known as the Gold Coast at the time), Liberia, Libya, and Sudan. And while Zhou's communication with Mao may have indicated that China was originally interested in building partnerships with Asian countries, the conference marked the first meaningful contact between the CPC and African states.<sup>48</sup> The most significant contact that the Chinese delegation made was with Gamal Abdel Nasser, who was the de facto leading figure of Egypt at the time.<sup>49</sup> Nasser was the only major African figure to attend the conference, and he had met Zhou Enlai socially in Rangoon, Burma, prior to the conference.<sup>50</sup> The Chinese and Egyptian delegations met frequently throughout the conference, and established relations. By 1956 Egypt had officially recognized the CPC as the legitimate ruling party of China, which was due in no small part to the relations

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<sup>47</sup> Zhou (1954).

<sup>48</sup> Hutchinson (1975) suggests that Zhou had not attended Bandung with the intention of opening contact with Africa, and that it happened by chance given that Gamal Abdul Nasser was one of only a few statesman of equal stature to Zhou to attend the conference. See Hutchinson (1975), pg. 14.

<sup>49</sup> Most authors that discuss China's involvement in the Bandung Conference note the significance of Zhou's contact with Nasser. See Kachiga, (2013), pg. 31; Larkin (1971), pg.17; or Ogunsanwo (1974), pg. 8 for a few examples.

<sup>50</sup> Larkin (1971), pg. 17.

they established in Bandung. A year later, Egypt would play host to China's first embassy on the African continent – established in 1956 – which China used as a launching pad to Africa.<sup>51</sup>

Zhou's success at Bandung brought confidence to the party, as well as a new sense of enlightenment about Africa and the coming wave of decolonization. Zhou delivered the keynote speech at the second session of the First National Party Convention in China in July, 1955, shortly after Bandung, and focussed on the importance of continued support and cooperation with African countries. Indeed, a few months later in early 1956 Zhou delivered a political report to the National Committee of the CPC in which he very clearly anticipated the importance of Africa for building partnerships. Zhou said:

There will certainly be more oppressed nations and countries who free themselves from colonial rule along paths of their own choosing... We wish to make contacts with the leaders and peoples of all these countries in pursuance of the spirit of Bandung.<sup>52</sup>

### *Non-Alignment*

At the same time that China was seeking recognition on the international stage, newly independent African countries were facing a number of challenges of their own. While China sought to understand how it should articulate with the globe, African countries considered how they ought articulate with each other. Indeed, connecting the dots of foreign policy among newly emerging African states, and more specifically, how those dots can be connected in relation to China is an enormous undertaking, and beyond the scope of this abridged history. There are, however, a number of key points regarding African countries' meditation on their global engagement that can be considered alongside the CPC's exploration of its own foreign policy, and why it was that African countries contemplated ties with China during the 1950's and 1960's. Paramount among

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<sup>51</sup> Ogunsanwo (1974), pg. 9.

<sup>52</sup> Zhou (1956): as cited by Shao (1996), pg. 224.

them was a movement of Afro-Asian solidarity – a solidarity that stemmed from a shared aversion to, and resentment of, imperialism.

Bandung was an opportunity for China to articulate with a number of countries that lay outside its immediate vicinity, and it did so with some authority; however, the same cannot be said for the African states that attended the conference. The four independent African states – Egypt, Ethiopia, Liberia, and Libya – along with the two self-governing African territories (The Gold Coast and Sudan) were not included in the subcommittee on colonialism, and were peripheral throughout the conference.<sup>53</sup> On the whole, the African countries' participation at Bandung was small, and it was this modest role that prompted Kwame Nkrumah, Ghana's Prime Minister, to call the Conference of Independent African States in 1958, in Accra.<sup>54</sup>

The importance of courting Africa became increasingly clear to China following the conference. The African states outlined a number of principles that they together would follow; the first of which was, "Unswerving loyalty to and support of the Charter of the United Nations and respect for decisions of the United Nations."<sup>55</sup> While Chinese delegates ignored this statement publicly,<sup>56</sup> and continued to preach their five principles, the message was clear: recognition by the UN was paramount to the CPC's international legitimacy.

Following the conference in Ghana, African countries would choose not to align to one power bloc or another in a movement that would come to be referred to as 'the non-aligned movement'. Non-alignment was a rejection of adherence to a power bloc, and its heyday was the post Bandung era. Moreover, it was one of the first exercises in newly independent African countries' self-determinism. By rejecting adherence, African countries were not bound to accept the ways that major powers judged international

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<sup>53</sup> Aforika Nweke (1980), pg. 31.

<sup>54</sup> Ibid

<sup>55</sup> el-Sebai (1958): as quoted by Larkin (1971), pg. 35.

<sup>56</sup> Larkin (1971), pg. 35.

issues.<sup>57</sup> Non-alignment allowed African countries to play the power blocs off one another. It was far more advantageous to pit one bloc against another, and receive aid from both, than it was to adhere to just one.<sup>58</sup> Sino-African engagement, and Afro-Asian solidarity more generally, became closely tied to the non-aligned movement. Afro-Asian solidarity was a way for former colonies to partner with each other, and participate in international relations at a distance from former colonizers, and participation Afro-Asian solidarity became a way for African countries to express their independence.<sup>59</sup>

### ***The Sino-Soviet Split, the Cultural Revolution, and Admission to the United Nations***

Following Zhou's pronouncement of *The Five Principles of Peaceful Coexistence* at Bandung, China's revolutionary leaning became more pronounced, and China's support for resistance became more hard-lined. When there was an opportunity for China to support a revolutionary movement in an African country, it did. China intervened directly in the internal affairs of a number of countries. For example, Mao offered roughly a quarter of a million 'volunteers' to aid Egypt in the Suez crisis.<sup>60</sup> In addition, China's involvement in newly independent states tended to favour a hybrid *Sun Yat-Sen-Marxist-Leninist* support for the working class, and in particular, the revolutionary leanings of working class political parties. This was abundantly clear in China's support for the revolutionary movements in Algeria, Ghana, and Tanzania.<sup>61</sup> In some instances, the CPC supported multiple revolutionary movements in the same country, and did so simultaneously. For example, during the Angolan War for Independence, Beijing supported The Popular Movement for the Liberation Front of Angola, the National Liberation Front of Angola, and the National Union for the Total Independence of

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<sup>57</sup> Kimche (1973), pg. 25..

<sup>58</sup> Ibid.

<sup>59</sup> Legum (1958) as cited by Kimche (1972) pg. 21.

<sup>60</sup> Exactly how many 'volunteers' offered their services, and exactly what these services would have been are unclear. Khalili (1968) suggests that there were about 280,000 (pg.681), while Garver (2015) suggests there were 250,000 (pg. 123). Garver (2015) notes that transportation issues to get the 'volunteers' to Egypt made the offering largely symbolic. I have also put 'volunteers' in quotations, as this seems to be a standard among commentators who discuss China's offering of assistance during the Suez Crisis. It is unlikely that the quarter-of-a-million 'workers, women, and students' (Khalili, 1968; pg. 682), who registered to go to Egypt did so under their own free will.

<sup>61</sup> These three cases form the focal points of Chau's (2014) book, *Exploiting Africa* – the author argues that China's diplomacy in these countries from the 1950's through 1970's were ideologically opportunistic, exploitative, and ultimately resonant of what one would expect of an aspiring world power.

Angola – all of which were opposing groups.<sup>62</sup> Moreover, Beijing and the leader of the National Union for the Total Independence of Angola used their connection with the National Party in South Africa to funnel arms into Angola; all while Beijing supported the Pan Africanist Congress – the party that aimed to topple the apartheid system, which was imposed by the National Party.<sup>63</sup>

The Sino-Soviet rift widened during the early and mid 1960's. The CPC interpreted that there was room within the principle of 'peaceful-coexistence' for armed struggles to be a part of national liberation movements. Furthermore, the CPC was oriented more closely with the non-aligned movement (it may have been a part of the communist bloc, but it was not a major power itself). China would often play the 'race' card, suggesting that China shared a commonality with Africa given that Chinese and Africans were coloured, and allowed the Chinese to isolate imperialism and hegemony as a product of 'whiteness' that they themselves did not embody.<sup>64</sup> During this time, Afro-Asian solidarity and the African-Asian People's Solidarity Organization (AAPSO) was made a 'mockery', as it was reduced to a forum for China and the Soviet Union to voice resentment for one another in an attempt to gain closer ties with African and Asian countries.<sup>65</sup>

Some analysts – such as Taylor (2006) – begin their assessment of Sino-African history in the late 1960's just prior to the beginning of the Cultural Revolution because it was during this period that the CPC's inconsistent (if non-existent) policy of non-interference became more apparent to newly independent African countries. One purpose of the Cultural Revolution (beginning in 1966) was an attempt to move the world's attention towards Beijing as the epicentre of socialist revolution,<sup>66</sup> as well as remove perceived threats from within the Party. However, its violent consequences and retrograde implications for science and culture had damaging effects for China's presence in Africa. During the Cultural Revolution, the CPC departed almost entirely from the

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<sup>62</sup> Eisenman (2008), pg. 231.

<sup>63</sup> Ibid.

<sup>64</sup> Kimchi (1973), pg. 176.

<sup>65</sup> Kimchi (1973), pg. 252.

<sup>66</sup> Shinn and Eisenman (2012) pg. 65.

*Five Principles*, and was fervent to hear African leaders adopt the dogmatic rhetoric of the revolution. While some did so keenly,<sup>67</sup> the CPC also lost the recognition it once had in many countries that did not identify with Beijing's revolutionary rhetoric. By 1967, China had recalled all its ambassadors from Africa with the exception of an ambassador in Cairo who was left to coordinate all African and Middle Eastern foreign policy.<sup>68</sup>

From the perspective of African countries, it was not always clear how to interpret China's intentions, or the Sino-Soviet rift, during this time. Writing in 1965, a year before the Cultural Revolution, Senegal's Foreign Minister (Doudou Thiam) wrote that within African foreign policy circles, the question was often asked whether the Chinese and Soviets were working in harmony, or in competition.<sup>69</sup> The differences in interpretation of how the principle of 'peaceful coexistence' should respond to armed conflict appeared to be lost on many African countries, who simply saw China as a member of the communist bloc, and self-proclaimed leader of the third world.<sup>70</sup> Thiam (1965) saw China's role in cold war politics as a problem, and argued that its tendency to support armed resistance and extremist groups complicated the harmonization of African foreign policies. Specifically, Thiam (1965) said:

The martyr's crown which Communist China wears as a result of American opposition to its admission to the United Nations has the effect of making Africans – even those who are well known for their anti-communism – forget the real underlying problems raised by the existence of this colossus in a world torn between two rival ideologies.<sup>71</sup>

The Sino-Soviet split culminated in a border conflict in February of 1969, and roused the leaders of the CPC from their contemplative deep freeze.<sup>72</sup> China would emerge from the Cultural Revolution in 1969 and instate a new pragmatic approach to

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<sup>67</sup> Hutchison (1975) notes Guinea, Congo-Brazzaville, and Mauritania as examples, pg. 142.

<sup>68</sup> Ogunsanwo, (1974), pg. 191.

<sup>69</sup> Thiam (1965), pg. 112.

<sup>70</sup> Thiam (1965), pg. 115.

<sup>71</sup> Ibid.

<sup>72</sup> Hutchison (1975), pg. 162.

diplomacy. The Cultural Revolution had ultimately served one of its intended purposes of shaking up counter revolutionaries from within The Party. However, it had also distanced the CPC from its goal of international recognition and respect, as its projection of a hyper-revolutionary persona had detached it not only from African countries, but also from the globe. As Hutchison put it, “The price of respectability was the abandonment of subversion and the ‘united front from below’, and their replacement by a correct, ‘normal’ relationship.”<sup>73</sup> No longer would the CPC demand a dogmatic rhetoric of revolution from its African counterparts, and it did not preach revolution of its own. China was truly prepared for ‘peaceful co-existence’. The CPC’s willingness to realize its pre-Cultural Revolution policy towards Africa ultimately led to its recognition by the UN in 1971. The CPC was admitted to the UN general assembly by a vote of 76-35 (26 of which were from African countries in favour) and replaced Taiwan as a permanent member of the UN Security Council.<sup>74</sup> The CPC’s admission to the UN solidified its need to commit to a new normalcy in its external affairs. At the time, China’s relations with the Soviets remained frosty, though relations with the United States were beginning to thaw.<sup>75</sup> It was during this period that China’s foreign policy began to shift away from ideological association, and towards associations based on economics.

Sun (2014) notes that China’s foreign policy in Africa throughout the 1970’s saw massive amounts of Chinese aid flow across the continent, and suggests that this made very little economic sense. The Cultural Revolution left China economically marginalized, and providing aid to Africa was likely an attempt to address African reproachfulness for the Cultural Revolution. Large amounts of aid at a time when China was recovering from the largest famine in recorded history and economic stagnation would not have amounted to particularly rational policy.

Throughout the late 1960’s and 1970’s, the non-aligned movement in Africa began to falter. The legacy of colonialism caught up with the ambitions of peace and independence among a number of African countries. The economic architecture of

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<sup>73</sup> Hutchison (1975) pg. 166.

<sup>74</sup> Liu (2011).

<sup>75</sup> Henry Kissinger himself gives the best account of this in chapters 8 and 9 of his book, *On China* (2011).

colonialism, whereby African countries consume what they do not produce, and produce what they do not consume led to stagnating growth, and persistent poverty across the continent.<sup>76</sup> Moreover, the arbitrary borders that had been imposed by colonial powers brought different ethnic groups into closer proximity, and ultimately led to a number of armed conflict – most notably those in Angola, Mozambique, Chad, Somalia, Ethiopia, and Zaire (Democratic Republic of the Congo).<sup>77</sup> The conflicts within Africa tore at the Organization for African Unity (OAU) – the primary institution to embodied pan-Africanism.<sup>78</sup> Moreover, it was not in the interest of major powers that the non-aligned movement offer a third pole of global alliance, and both the Soviet Union and the United States were largely passive in letting the internal factors pull at the sinews of pan-Africanism. By the late 1970's, China itself had formed closer ties with the United States, its new normalcy had led it to lose the 'martyr's crown' it had once worn by being excluded by the United States from recognition at the United Nations, and its domestic insecurities associated with how the CPC would maintain a monopoly on power led to a general lack of coherence in domestic policy, not to mention a mere total abstinence from engagement with Africa.

### ***Economic Reforms and New Institutions***

The reformist government led by Deng in the 1980's made its first pronouncement of China's new foreign policy at the 12<sup>th</sup> National Congress of the Chinese Communist Party,<sup>79</sup> and it was during this time that China's foreign policy became increasingly oriented towards economics. The pronouncement, delivered by the new premier, Zhao Zhiyang, referred to many of the same principles outlined by Zhou Enlai, such as the five principles of peaceful coexistence Shortly after this speech in late 1982 Zhao toured 11 African countries in a clear nod to Zhou's 1964 tour, and an invocation of China and Africa's historic links.<sup>80</sup> The tour was in no way ground

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<sup>76</sup> Onimode (1992), pg. 8.

<sup>77</sup> Sesay (1998), pg. 151.

<sup>78</sup> Ibid.

<sup>79</sup> Yu (1988), pg. 856.

<sup>80</sup> Alden et al. (2008), pg. 5, and Taylor (2006), pg. 56.



breaking, and Zhao only visited countries with which China already had strong relations.<sup>81</sup>

During the 1980's, China reiterated much of its existing policy to Africa. There was little innovation other than that China maintained association by means of economic development, not ideology. The most significant change was in 1983 at the end of Zhao's tour in Tanzania where he suggested *the four principles of Sino-African economic and technical co-operation*, which he listed as follows:

1. Mutual benefits
2. Practical results
3. Diversity in form
4. Common development<sup>82</sup>

From this point on, China's African policy would focus on cooperative projects that were built as joint Chinese and African ventures, and aimed to contribution African countries' to self-reliance.<sup>83</sup> Liu (2011) argues that the early 1980's were a time of Chinese explanation to Africa. Zhao's tour, Liu (2011) asserts, was used to suggest to African countries that China itself was reforming, and its ability to uphold its promises of aid and co-development would be put on hiatus until China had the economic ability to provide such assistance. Indeed, China's early reform era was characterized by general uncertainty about exactly how all the facets of a more open economy would operate within China itself. By shifting the rhetoric from 'aid' to 'cooperation' and 'mutual benefit' China was able to set the CPC free of any sort of obligation of assistance. China was keen to continue using aid to Africa to maintain its diplomatic presence, but did not want to find itself engaged in a commitment of unidirectional economic flows when its own economic development was so uncertain. Much to the CPC's relief, domestic reform

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<sup>81</sup> Kachiga (2013), pg. 37.

<sup>82</sup> Yu (1988), pg. 857

<sup>83</sup> Ibid.

was very successful and did allow for Chinese aid to continue flowing across the African continent during the 1980's.<sup>84</sup>

In the early 1980's much of the CPC's aid to Africa focused on rehabilitating existing projects.<sup>85</sup> Brautigam (2009) notes that during Zhao's tour, he publicly re-interpreted the principle of 'non-interference'. The CPC had originally understood non-interference in aid projects to mean that Chinese staff could not operate them. Infrastructure projects that China aided could be constructed by China, but managing them was seen as a form of interference. During Zhao's 1983 tour he announced that offering managerial assistance to Chinese aided projects would actually not be interfering, but helping to build self-reliance.<sup>86</sup> Following this announcement, Chinese projects would continue to refurbish existing projects, but the CPC also began to explore new projects such as the Magbass Sugar Plantation in Sierra Leone – completed in 1982, and run entirely by Chinese staff.<sup>87</sup> The mutual benefit of Chinese aided projects also became clearer in the late 1980's. Indeed, China would fund the reconstruction of factories, buildings, and infrastructure, but do so exclusively with Chinese materials. In 1987, China announced that 69 percent of all Chinese aid funds were spent on Chinese equipment.<sup>88</sup> Aid essentially became an avenue for the CPC to put money back into Chinese companies, and Chinese aid to Africa at the time was no small undertaking. For example, the same year that the CPC finished the Magbass project in Sierra Leone, it also commit to refurbish and renovate more that 60 Chinese projects in Tanzania alone.<sup>89</sup>

While Chinese relations with African countries became more economically focused in the 1980's, there were still times when the CPC needed to rely on Africa for political support. In 1989, the Chinese leadership was not prepared for how strong the international outcry about the repressions of the Tiananmen Square protests would be,

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<sup>84</sup> Brautigam (2013) gives a brief outline of China's history of aid to Africa in her chapter in Rotberg's (2013) book, *China into Africa*. In this section, Brautigam notes that China's early 1980's aid policy was to 'spend less and do more', pg. 203.

<sup>85</sup> Brautigam (2009), pg. 57.

<sup>86</sup> Ibid.

<sup>87</sup> Brautigam (2009), pg. 57.

<sup>88</sup> Brautigam (2008), pg. 204.

<sup>89</sup> Brautigam (2008), pg 205.

and in an attempt to fight isolation China needed to depend on Africa once again for legitimacy.<sup>90</sup> African governments were accustomed to the international community accusing them of violating human rights, and many were keen to continue building stronger relations with China – the post-Tiananmen era provided this opportunity.<sup>91</sup> Indeed, the vigour of the relationship opened again at a convenient time as a decade of market reform was beginning to bear fruit, and China was becoming increasingly interested in accessing African resources. In addition, the poor outcomes of Western-backed Structural Adjustment Programs that had been implemented by the International Monetary Fund and the World Bank had created resentment for the West in Africa by the late 1980's, providing additional impetus for African countries to support non-Western international partners.

The economic realities of Deng's reform began to take form in the 1990's, and China's economy began to boom. During this time, discussion among party leaders about a strategy for Chinese firms to 'go global' began, but it was not until the late 1990's and early 2000's that the effort became more concerted.<sup>92</sup> During the late 1990's the CPC began to encourage Chinese businesses to go overseas with incentives such as tax breaks and subsidized loans.<sup>93</sup> Not only were Chinese firms encouraged to go to Africa, but also Chinese trade with Africa began to grow. In 1988, Chinese trade with Africa was valued at \$1.02 billion American, and grew by an average of 25% annually; by 2000, total trade volume between China and African countries was estimated to be over \$10 billion, and reached \$73.5 billion by 2007.<sup>94</sup>

China's increased trade with Africa was not isolated. It was, rather, a result of economic growth among Chinese and African economies, and it was along this timeline that the Forum on China Africa Cooperation (FOCAC) was formed. The development of

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<sup>90</sup> Taylor (2006) goes into the period in detail, and discusses specifics of how both how the West and different African countries reacted to Tiananmen, pg. 62-65.

<sup>91</sup> Kachiga (2013) notes that African countries extended sympathies for the Western blockage that followed the Tiananmen protests (pg. 39), while Liu (2011) discusses some specifics about what Egypt's role in restoring the CPC's image following the Tiananmen incident (pg. 83).

<sup>92</sup> Shambaugh (2013), pg. 5.

<sup>93</sup> Liu (2011), pg. 85.

<sup>94</sup> Ibid.

the Chinese-initiated FOCAC came into being at a time when African countries themselves were re-organizing pan-African institutions. The New Partnership for African Development (NEPAD) is perhaps the most notable example of this, and one of its overarching goals is to articulate an authentic African owned development agenda, and strengthen the continent's bargaining capacity.<sup>95</sup> One of the key tests of NEPAD's bargaining capacity and ability to guide African growth will be how it manages the new economic interests that China has in Africa, and that will be the focus of the next chapter.

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<sup>95</sup> Cheru and Cailas (2010) pg. 221.

## Chapter 3: Rwanda and Uganda's Agricultural plans and development initiatives

### **Introduction**

This chapter will focus on the agricultural development plans in Rwanda and Uganda. As we will see, Rwanda and Uganda share a number of similar ambitions for development within their agricultural sectors. It is important to explore these development goals, as they have a bearing on why Rwanda and Uganda sought to build agricultural partnerships with China, and vice versa.

First, both countries encourage private development, though they do so in different capacities. This makes FOCAC demonstration centres attractive because they are generally operated by Chinese firms with the ultimate goal of becoming private joint ventures with local companies.<sup>1</sup> Both Rwanda and Uganda have designed their agricultural policies in accordance with the Comprehensive Africa Agricultural Development Plan (CAADP), which is a NEPAD initiative. Rwanda's agricultural development seeks to underpin private sector growth by fostering market-oriented agriculture, and subsidizing inputs for farmers. The Government of Rwanda (GoR) aims to create a policy environment that is inviting for private investors with the ultimate goal that the private sector will begin providing services such as seed multiplication, value addition, and supply chain management. Alternatively, in Uganda, the government has mandated that nearly all developments within the agricultural sector should be born from the private sector. The Government of Uganda (GoU) and the Ministry of Agriculture, Animal Industries, and Fisheries (MAAIF) are primarily concerned with creating a policy framework that removes barriers for the private sector, and offers sectorial overviews, data, and technical advice to farmers.

Both Rwanda and Uganda coordinate much of their agricultural development through the research and extension arms of their respective agricultural ministries. The

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<sup>1</sup> The specifics of this are discussed further in Chapter 4.

research arm of the Ministry of Agriculture in Rwanda (MINAGRI) is the Rwanda Agriculture Board (RAB), which is responsible for implementing agricultural initiatives. The research arm of MAAIF – the National Agricultural Research Organization (NARO) – is the apex research institution in Uganda charged with conducting and disseminating agricultural research, as well as training farmers in adopting new technologies. It is RAB and NARO that ultimately coordinate the FOCAC agricultural demonstration centres that were agreed upon at the 2006 summit.

This chapter will outline the developmental ambitions of MINAGRI and MAAIF, and sketch the development objectives that RAB and NARO are saddled with. It will also establish the background on why Rwanda and Uganda were interested in partnering with China in agricultural development, and how they became the recipients of the FOCAC demonstration centres – a topic that will be explored further in Chapter 4. This chapter will explore the food security issues in Rwanda and Uganda, and show how boosting production through technology transfers are areas that both the Rwandan and Ugandan governments have identified as being key to their development. In light of the information provided in this chapter, it will become clear that there are many reasons for African countries to court Chinese agricultural demonstration centres. Analysis on Sino-African agricultural demonstrations in the past has tended to focus on China's intentions in Africa, and asked why China may be keen to partner with African countries in agricultural development.<sup>2</sup> The agricultural policy environment of African countries that host the demonstration centres is seldom considered as the impetus for building Sino-African agricultural demonstrations, and in the chapter I will lay the groundwork to make that consideration.

### **Food Security in Rwanda and Uganda**

Food (in) security and malnutrition are pressing issues in Rwanda. The most recent food security and vulnerability survey taken by the GoR (2012) found that 43% of children between six-months and five-years old are chronically malnourished (stunting),

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<sup>2</sup> See Buckley (2012a), Brautigam and Zhang (2013), Xu et al. (2016).

while 3.6% showed signs of wasting, and 12% were underweight.<sup>3</sup> Moreover, the same survey found that 51% of all households faced difficulty accessing food at least one point during the 12 month period prior to the survey.<sup>4</sup> Roughly one-fifth (17%) of all households in Rwanda face acute, or seasonal food shortages, while 14% face food shortages chronically.<sup>5</sup> The reasons for household food insecurity are numerous and varied, ranging from a household's location relative to roads and markets, to household demographics, wealth, diversity of livestock, and the size of land cultivated in the first planting season of the year.<sup>6</sup>

While these statistics indicate that there are high levels of food-insecure households in Rwanda, there has been some improvement in the recent past. In 2009 the GoR conducted a food security and vulnerability analysis, and found that of the population between the ages of six-months to five-years old, 52% were stunted, while 4.6% showed signs of wasting, and 15.8% were underweight.<sup>7</sup> In 2006, the agricultural sector in Rwanda employed 80% of the total population. By 2012 that number had fallen to 71.6% of the population.<sup>8</sup> Agriculture currently accounts for 32.7% of the gross domestic product, and 28% of total growth in Rwanda – the agricultural sector itself has sustained an average level of growth of 5.4% since 2008.<sup>9</sup> Labour mobility out of the agricultural sector is not in and of itself a positive improvement; however, at the same time that Rwandan farmers have been moving into other sectors, there has been a modest reduction in malnutrition as food production per household has increased. Therefore, an increase in per-capita agricultural productivity and rural labour outflow has correlated with improvements in Rwandan food security. However, there is not enough information available to indicate that increased per-capita productivity causes an increase in food security.

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<sup>3</sup> Franchis (2012), pg. 38.

<sup>4</sup> Franchis (2012), pg. 29.

<sup>5</sup> Ibid.

<sup>6</sup> Franchis (2012), pg. 40.

<sup>7</sup> Vinck et al, (2009), pg. 13.

<sup>8</sup> GoR (2013), pg. 8.

<sup>9</sup> GoR (2013), pg. 4.

Malnutrition in some regions of Uganda appears to be equally severe to that in Rwanda, though the data is not quite as current. In 2010, 37% of rural children were stunted, while 14% of urban children showed signs of stunting.<sup>10</sup> At the same time, 5% of the population under five-years old showed signs of wasting, and 15% were underweight.<sup>11</sup> Indeed, the base rate of malnutrition in Uganda is lower than Rwanda; however, Uganda is not experiencing the same levels of reduction in malnutrition. The percentage of the population under five years old in 2006 that was stunted was 39%; 15% was underweight, and 6% were wasting.<sup>12</sup> The most recent statistics indicate that nearly half the population in Uganda is still food-energy deficient (48%).<sup>13</sup> While the reasons for food insecurity in Uganda are equally varied to Rwanda (access to market, income, access to land), a key-contributing factor to food insecurity in Uganda is an unbalanced diet that consists largely of staples, and little substitution for meat, or high-protein pulses.<sup>14</sup>

While access to food in Uganda is a contributing factor to food insecurity, Uganda does produce enough food domestically to feed its population. Uganda produces a surplus of beans and maize, and a sufficient amount of matooke (cooking bananas) and cassava – all of which are preferred staples within Uganda.<sup>15</sup> In addition, Uganda exports coffee, tea, fish, and tobacco, much of which is for regional markets in Kenya and Tanzania.<sup>16</sup>

The staple crops in Rwanda are matooke, rice, wheat, maize, Irish potato, cassava, soya beans, and beans. It is challenging to find accurate statistics about the import and export markets of Rwanda's staple crops, as much of the trade is done informally with neighbouring countries – namely Uganda, Burundi, Tanzania, and the Democratic Republic of Congo (DRC).<sup>17</sup> This is due in part to local food preferences, as well as the

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<sup>10</sup> WFP and UBOS (2013), pg. 1

<sup>11</sup> Ibid.

<sup>12</sup> GoU (2010), pg. 7.

<sup>13</sup> WFP and UBOS (2013), pg. 14.

<sup>14</sup> WFP and UBOS (2013), pg. 40.

<sup>15</sup> WFP and UBOS (2013), pg. 6.

<sup>16</sup> Ibid.

<sup>17</sup> See USAID (2013) for a complete report of Rwanda's local agricultural exports.



perishability of some preferred crops (i.e. cassava).<sup>18</sup> Rwanda does, however, export large quantities of coffee and tea for international markets, and is developing a nascent horticultural sector that targets avocados, nuts, passion fruits, pineapples, and apples.<sup>19</sup>

### **Agricultural policy and Rwanda**

To manage these nutritional and food supply related issues, Rwanda has had an agricultural development plan in place since 2004 called the Strategic Plan for the Transformation of Agriculture (SPAT), which it updates every five years. This plan was designed according to Rwanda's domestic needs and institutional structure, and done so in accordance with broader CAADP programs to boost agricultural production in Africa. Now in its third phase, the SPAT has highlighted poverty reduction in Rwanda's rural sector as key part of its mandate, and it is part and parcel of the Government of Rwanda's (GoR) ambitious goal of becoming a middle-income country by 2020. Between 1997 and 2000, the GoR undertook a consultative process involving government, civil society, members of the business community, and academics, to formulate a plan that could guide technical ministries in writing developmental strategies for their own subsectors.<sup>20</sup> Development in the agricultural sector at the time was particularly important, as 90% of Rwanda's population was based in subsistence agriculture.<sup>21</sup> Vision 2020 outlined that technical training in the sector would be key to its development, and suggested that the Rwandan agricultural sector should orient itself towards exporting high-value goods to local markets, and inviting investment to help the sector transition from one of subsistence to a "fully monetized, commercial agricultural sector."<sup>22</sup> As the GoR moves towards accomplishing this goal it tends to work closely with international donors. The GoR typically courts investors and establishes development initiatives, which it then encourages the private sector to manage.<sup>23</sup> Indeed, this is how the China-Rwanda

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<sup>18</sup> USAID (2013).

<sup>19</sup> MINAGRI (2013), pg. 33-34.

<sup>20</sup> GOR (2001), pg. 2.

<sup>21</sup> GOR (2001), pg. 6.

<sup>22</sup> GOR (2001), pg. 17.

<sup>23</sup> The Minister of State in Charge of Agriculture in Rwanda discussed that courting investments and managing them as a government institution that could then be sustainably transferred to the private sector was the most important development to make in Rwanda's agricultural sector. Personal communication, March 27<sup>th</sup>, 2015.

Agriculture Technology Demonstration Centre (RATDC) was designed, which will be explored more in Chapter 4.

The first phase of SPAT focused on the general principles for agricultural development that were outlined in Vision 2020, as well as in Rwanda's first *Economic Development and Poverty Reduction Strategy* (EDPRS I).<sup>24</sup> It called for broad reaching developments such as diversification of crops and income sources for farmers; intensification of crop production; and prioritizing developments that would contribute to assisting vulnerable groups such as women and youth, and landless people.<sup>25</sup> The plan also indicated that growth in the agricultural sector ought to come from two sources: export crops (coffee and tea), and growth in production of crops that would benefit internal markets such as rice, wheat, maize, and vegetables.<sup>26</sup> Moreover, the first phase of SPAT aimed to identify specific international partners who had technological expertise in agriculture that could assist Rwanda develop these priority areas.<sup>27</sup>

The challenge of agricultural transformation in Rwanda is unique given its geography. Intensifying production along hillsides could increase yields in the short run, but it runs the risk of exacerbating runoff and hillside erosion in the long run. Roughly 90% of Rwanda's land is on a slope between 5% and 55%, and MINAGRI has initiated what is called the *Soil Conservation and Land Husbandry* program to combat this challenge.<sup>28</sup> This has been a key program of SPAT I, II, and III, and it aims to support in programs and training in converting land into terraces to conserve water and soil.<sup>29</sup>

However, terracing initiatives are very expensive, and the key policy implemented by MINAGRI to increase yields has been land tenure reforms to raise productivity in Rwanda's few flat areas of viable agricultural land. MINAGRI has used a combination of two programs to increase yields through shifting land tenures, the first of which is called

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<sup>24</sup> See GOR (2001) *Vision 2020*, and MINECOFIN (2007, 2013) for *EDPRS I*, and *II* respectively.

<sup>25</sup> MINAGRI (2004), pg. 7.

<sup>26</sup> Ibid.

<sup>27</sup> MINAGRI (2004), pg. 64.

<sup>28</sup> MINAGRI (2013), pg. 13.

<sup>29</sup> Ibid.

the *Land use Consolidation Program*, which is a policy that encourages farmers to consolidate the planting patterns of their collective small plots.<sup>30</sup> The average household landholding among farmers is 0.76 ha, which is most commonly split into 4-5 smaller plots.<sup>31</sup> Farmers prefer to divide their landholdings in this way as to avoid risks, and separating plots makes it easier to diversify planting. For example, if a hamlet of farmers held plots of land along a hillside and in the marsh below, the typical subsistence practice would be to grow paddy rice within the marsh, and a combination of cassava, yams, sweet corn, potatoes, beans, and vegetables in mixed plots along hillsides. This form of landholding inhibited the market orientation of the agricultural sector in that it is largely uncoordinated, and acts as a barrier in organizing the production and supply of market bound crops.

Policies that can rearrange the agriculture sector to be more market oriented are key to the success of Vision 2020.<sup>32</sup> The purpose of the *Land Use Consolidation Program* is to address this problem. Under this program, the Government of Rwanda along with municipal governments identify areas where priority crops (maize, wheat, Irish potato, cassava, beans, and soybean) can be grown. The local governments then encourage farmers in that area to consolidate portions of their landholdings under the Organic Land Law,<sup>33</sup> and the farmers of the consolidated landholdings synchronize their planting within their consolidated parcels. The impetus for farmers to consolidate their landholdings is what forms the second policy, *The Crop Intensification Program (CIP)*. Farmers in areas that consolidate their landholdings are given access to the CIP, the aim of which is to provide farmers with higher yielding seeds, and subsidized fertilizer. Local governments supply the seeds and fertilizers, and the goal is that this service will be taken over by private firms.<sup>34</sup> Early assessment of these two projects indicates some advancement within the sector that can be linked directly to these two programs.<sup>35</sup>

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<sup>30</sup> Kathiresan (2012), pg. 3.

<sup>31</sup> Kathiresan (2012), pg. 5.

<sup>32</sup> GOR (2001), pg. 4.

<sup>33</sup> GOR (2008a), Article 39, pg. 37.

<sup>34</sup> Katherisan (2012) pg. 4.

<sup>35</sup> For a detailed assessment of the *land consolidation program* and the CIP see Katherisan (2011), and Katherisan (2012).

Under SPAT III, MINAGRI is looking to develop new seed varieties, and introduce new seeds to its germplasm to complement these two programs.<sup>36</sup> RAB is in the process of developing seeds that can be included as certified seeds for the CIP program, and one of the flagship initiatives for encouraging demand among farmers for improved seed varieties is through demonstration plots and training.<sup>37</sup> MINAGRI is also looking to increase mechanization within the agricultural sector, and explore emerging value chains such as those in fisheries and sericulture.<sup>38</sup>

### **Agricultural policy in Uganda**

In Uganda, agriculture is also treated as a priority area of development. During the time that Rwanda was gripped by a civil war that culminated in the Genocide Against the Tutsis, Uganda's newly formed government, the National Resistance Movement (NRM) (1986), was initiating countrywide reforms.<sup>39</sup> Following the ousting of Milton Obote's second regime by the NRM, the new government sought to reform the Ugandan economy.<sup>40</sup> This had the overarching impact in Uganda's agricultural sector of realizing 'liberalized' agricultural policies. Since 1997, Uganda has been implementing successive development strategies that stem from its broad reaching National Development Plan (NDP).<sup>41</sup> The mainstay for growth in Uganda as outlined in the NDP has been to encourage investment in the private sector, and the development plan was interpreted by technical ministries, such as MAAIF, to create policies that would generate growth within their respective sectors.<sup>42</sup>

Originally, MAAIF created two programs that stemmed from the development plans outlined in the NDP. The programs were called *Plan for the Modernisation of Agriculture*, and the *Rural Development Strategy*, which were initially articulated and

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<sup>36</sup> MINAGRI (2013), pg. 18.

<sup>37</sup> Ibid.

<sup>38</sup> MINAGRI (2013), pg. 11.

<sup>39</sup> FAO (2013), pg. 173-174.

<sup>40</sup> For more information of liberalization in Uganda's agricultural sector in the 1990's see Belshaw et al. (1999). Also, see Kannyo (2004) pg. 126-130 for more information on the NRM and its emergence in Uganda.

<sup>41</sup> MAAIF (2013), pg. 2.

<sup>42</sup> MAAIF (2013), pg. 5.

implemented in parallel, and later harmonized under the *Agricultural Sector Development Plan and Investment Strategy* (DSIP) in 2005.<sup>43</sup> The DSIP (much like the SPAT in Rwanda) is updated every 5 years, and the third phase is currently being updated based on the most recent version of the NDP, which was published in June 2015. The DSIP is also attuned to the broader development initiatives of the CAADP.

However, private investments in Uganda have been slow to take off, and growth within the sector has been more-or-less stagnant. In 2005, the agricultural sector in Uganda employed 73% of the population, and accounted for 23.7% percent of the Uganda's economic growth.<sup>44</sup> By 2012, these numbers had changed marginally, and 72% of the population was employed in the agricultural sector, and accounted for 25% of the country's growth.<sup>45</sup> However, this modest increase between 2005 and 2012 is not indicative of a long-term trend of growth within the sector; rather, growth within the sector as a percentage of total production tends to fluctuate plus-or-minus one to two percent points every year.<sup>46</sup> Moreover, the average growth rate within the agricultural sector is below the average population growth rate (3.2%), which would suggest that the average growth rate per capita within the agricultural sector has also been declining.<sup>47</sup> The target growth rate for the agricultural sector in Uganda is 6%, yet growth within the sector has fallen shy of this figure every year since 2000.<sup>48</sup>

During the same time growth within Uganda's agricultural sector has been lethargic, its policies have not changed significantly. Beginning with the *Plan to Modernize Agriculture*, MAAIF began to remove itself from any activity that could *potentially* be carried out by the private sector.<sup>49</sup> In the late 1990's MAAIF's focus shifted from direct financial support for farmers to formulating strategic planning;

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<sup>43</sup> Ibid.

<sup>44</sup> GOU (2010), pg. 77.

<sup>45</sup> GOU (2015), pg. 52. Statistics for the 2012/2013 year are the most recent that are provided by the GoU for development in the agricultural sector. It is possible that more current statistics will be published in the third DSIP – set to be published this year.

<sup>46</sup> MAAIF (2010), pg. 78, table 5.1

<sup>47</sup> MAIFF (2010), pg. 5.

<sup>48</sup> Ibid.

<sup>49</sup> This is made most clear in the original *Plan for the Modernization of Agriculture Document* (pg. ix), MAAIF and MFPED (2000).

providing technical services; providing sectorial overviews and data; controlling disease and pests; and some capacity-building work in the production of seeds, stocking materials, processing, and education.<sup>50</sup> Concurrently, MAAIF would not produce or supply planting materials (i.e. fertilizer); multiply seeds; or subsidize farmers.<sup>51</sup> However, MAIFF is still able to enact some non-policy related responsibilities such as research and farmer training through The National Agricultural Research Organization (NARO).

MAAIF is currently implementing four programs under its regulatory directive. Firstly, MAAIF aims to enhance production and productivity. Within this program there are eight sub-programs such as improved agricultural research and technology development; the promotion of labour saving technologies; better delivery of advisory services and improved technology; among others. MAAIF's second program – to improve market access – aims to provide access to high-quality inputs including stocking material; expand rural market infrastructure; and strengthen farmer's activities and entrepreneurship. The third program is to improve the enabling environment for the agricultural sector, and this initiative is largely focused on removing constraints that inhibit growth in the private sector, as well as a variety of capacity buildings initiatives to improve farmer's knowledge of resource management. Lastly, MAAIF aims to address institutional challenges that exist within the agricultural sector, and this includes improving weak institutional linkages and regulatory mechanisms with the institutional structure of MAIIF itself.<sup>52</sup> The overarching goal of these four programs is to “remove constraints that prevent the private sector from investing in the value chain.”<sup>53</sup>

With respect to aquaculture, MAAIF's current mandate is to better regulate open water fisheries, and encourage the adoption of pond-based aquaculture and open-water caged fish farming. MAAIF itself is a strong proponent of developing quality assurance and better licensing programs, while the Department of Fisheries, which operates from within MAAIF, advocates more strongly for the development of aquacultural training

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<sup>50</sup> Ibid.

<sup>51</sup> MAIIF and MFPED (2000), pg. x.

<sup>52</sup> For a full discussion of MAIIF's current investment and development plan, as well as in-depth focus on the four programs, see MAIIF (2010).

<sup>53</sup> MAIIF and MFPED (2010), pg. xv.

parks.<sup>54</sup> Reversing the decline in fish stocks will no doubt depend on strengthening regulation within the fisheries sector; however, meeting MAAIF's objective of increasing fish production within Uganda by 750,000 tonnes by 2015 (from 2010 levels) will likely result from the adoption of improved aquacultural methods among farmers, rather than increased regulation in open water fisheries.<sup>55</sup>

Based on the Department of Fisheries annual report, the main avenue that Uganda is pursuing to increase aquacultural fish production is through the training of farmers at four demonstration parks throughout the country.<sup>56</sup> The goal of these centres is to train farmers in techniques to increase productivity, as well as produce fry for farmers to purchase.<sup>57</sup> Introducing demonstration and training centres to Uganda could, therefore, contribute to three development programs of the DSIP. Under the first program – *Enhancing Production Productivity* – aquacultural demonstration centres would introduce farmers to improved technologies and advise them on how to use it. The goal was to develop demonstration parks that also operated as fry hatcheries, and could provide farmers with high-quality stocking materials. The demonstration centres could also be the means to spur entrepreneurial behaviour among farmers under the second development of the DSIP – to *Improve Market Access*. In addition, demonstration parks could contribute to seeing through the development initiatives of the DSIP in the aquacultural sector by building capacity and knowledge among farmers through the demonstration process itself, and this would fall under the third development program – *Improve the Enabling Environment for the Agricultural Sector*. Indeed, demonstration parks such as the Uganda-China Friendship Agriculture Technology Demonstration Centre (UATDC)(explored more in Chapter 4) are part and parcel of the development initiatives for building on Uganda's aquacultural sector.

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<sup>54</sup> This discrepancy is evident when comparing MAAIF's (2012) final synthesis report of the DSIP, and its analysis of development needed in Uganda's fisheries sector (pg. 41-43) with the Department of Fisheries concluding remarks of its annual report (2012) pg. 38.

<sup>55</sup> ARDC Research Officer, personal communication, May 22, 2015.

<sup>56</sup> At the time that the report was written it suggested that the four centres would be in Bushyeni, Kajjansi, Gulu, and Mbale, and that they were between 80-90% complete (some parts of the report say 80% - pg. 13 - while others say they are 90% complete – pg. 27). It is unclear exactly what this percentage relates to, given that the Chinese centre in Kajjansi would have been operational when the report was written. See MAAIF (2012a).

<sup>57</sup> MAAIF (2012a), pg. 27.

## **Conclusion**

Rwanda and Uganda face similar challenges in their agricultural sectors. In both cases, the respective countries' improvements across a variety of sectors from health to industry rely on per-capita production improvements in, and labour mobility out of, the agricultural sectors. Childhood malnutrition and chronic food insecurity plague both countries. Levels of malnutrition in Uganda may be lower; however, Rwanda is making significantly larger reductions in its relative levels of malnutrition. Nutrition is just one of many issues within the agricultural sectors of both Rwanda and Uganda. Each country is also challenged with creating policies that are conducive to economic growth. Rwanda seeks to underpin agricultural development through public funding of agricultural services such as subsidizing fertilizer, disseminating improved seed varieties through its agricultural extension institution (RAB), and reforming land tenure systems in specific areas where staple crops can be intensified. Alternatively, Uganda is primarily concerned with fostering a policy environment that will enable private enterprises to provide development services within its agricultural sector. Uganda is also looking for improved seed varieties and technology to disseminate through the research and extensions arm of its agricultural ministry (NARO).

In both cases the developmental climate is ripe for partnership with donors. Rwanda and Uganda seek to partner with international institutions, such as non-governmental organizations, and bilateral or multilateral donors (as is evident given that much of the analysis above was sourced from documents that were written in partnership between local governments and international institutions). The desire for Rwanda and Uganda to partner with donors and institutions to access improved technologies is not an indication that these countries do not have the knowledge base to develop improved agricultural technologies; rather, accessing agricultural technologies from other countries is a fast-track to boosting production. China is one of the countries that has agricultural technologies that can assist in boosting production, diversifying agricultural subsectors, and encouraging entrepreneurship.



The initiatives, issues, and concerns, outlined in the chapter above are what the Government of Rwanda and the Government of Uganda brought with them to the FOCAC summit in 2006, which ultimately resulted in partnerships with Chinese institutions and agricultural demonstration centres. How those centres were agreed upon, what they aimed to do, and what it is that they accomplished will be the topic of the next chapter.

## Chapter 4: The FOCAC Demonstration Centres in Rwanda and Uganda

### **Introduction**

As was discussed in the previous chapter, Rwanda and Uganda face a number of challenges in their agricultural sectors, and in both cases, the respective governments are looking to ameliorate low levels of per capita productivity through higher quality inputs and training farmers in more advanced techniques. The purpose of this chapter is to explore the FOCAC demonstration centres in Rwanda and Uganda in detail, and examine the specific agricultural programs within Rwanda and Uganda to which they contribute. The chapter itself has three main focal points. First, this chapter will trace the chronology of the centres, in Rwanda and Uganda; how it was that these specific countries came to host the centres, as well as the timeline and details of the negotiations. Second, this chapter will look at the protocols of the demonstration centres. Lastly, this chapter will detail the programs that the centres contributed to: soil and water conservation, sericulture, rice, and mushrooms in Rwanda; and pond-based aquaculture, and open water caged fish farming in Uganda. I will also discuss the centres' current status.

In Chapter 5, I will unpack the benefits of the centres for Rwanda, Uganda, and China, but it is important to understand how the centres were agreed upon to provide the descriptive background for that analysis. Exploring how it is that the centres came to be also helps support the idea that the demonstration centres are every bit as much an initiative of the countries that host them as they are a component of China's diplomatic and commercial interests in Africa. In this chapter I explore how the technology transfers and demonstrations contribute to development plans that already exist in Rwanda and Uganda, and this information adds nuance to the existing picture of Sino-African affairs. Indeed, by treating Rwandan and Ugandan agricultural institutions as the primary agents of change in their domestic agricultural sectors, and uncovering that the FOCAC demonstration centres are equally a product of Rwandan and Ugandan diplomacy as they are a result of Chinese foreign policy, we can examine the relationship more fully.

Throughout this chapter, I will also explore in more detail how the Chinese agricultural technologies introduced at the demonstration centres are appropriate, and easy to adopt in rural African environments.

The FOCAC agricultural demonstration centers in Rwanda and Uganda discussed in this chapter have not been explored in previous literature. In fact, none of the 14 demonstration centers that were agreed on at the Summit in 2006, or the additional six that were discussed in 2009, have played much more than a bit part role in previous studies. Brautigam and Tang (2012) conducted a study on China's agricultural engagement in Tanzania for the International Food Policy Research Institute, and visited the FOCAC demonstration centre in Tanzania. However, the centre itself was not the focus of their study so much as it was seen as one China-backed investment among many in Tanzania's rural sector. French (2014) visited the FOCAC centre in Liberia for his book, *China's Second Continent*. French's analysis of the centre itself was, however, quite limited, and did not focus on the interpretation of the demonstration park by the Liberian technicians. Buckley (2012) conducted a study that focused on a Chinese demonstration centre in Senegal. The centre was not a FOCAC demonstration centre, but a former Taiwanese demonstration farm that China had taken over after Senegal re-established diplomatic ties with China in 2005. Buckley's field methods were similar to those that I used in this study; however, Buckley focused primarily on the Chinese interpretation of Senegalese agriculture. Therefore, the following analysis is the first of its kind to trace the development of Sino-African agricultural demonstration centres from the perspective of the African countries and institutions that host them.

## **Deliberating the demonstration centres**

### ***Rwanda***

In 2005, and under the direction of agricultural development that had been outlined in SPAT I, the Ministry of Agriculture in Rwanda began a dialogue with a professor from Fujian Agriculture and Forestry University (FAFU) named Lin Zhanxi. Dr. Lin had a patented method of growing mushrooms called JUNCAO, as well as the

patent on a number of upland rice varieties.<sup>1</sup> Upland rice differs from paddy rice in that it can be grown on rain-fed hillsides, and does not need to be grown in supersaturated soil, as is the case with most paddy varieties. It is not a variety that is specific to FAFU, as upland varieties are available from a number of sources; for example, the National Crop Resources Research Institute (NACRRI) in Uganda has a program in place to adopt Upland NERICA varieties in the Masaka region of Uganda.<sup>2</sup> However, Rwanda sought to partner with FAFU as the patent was relatively cheap (\$120,000 US); the program would include training from Chinese technicians; and they would introduce multiple new crops and techniques.<sup>3</sup> Moreover, Dr. Li had experience extending JUNCAO and upland rice to projects in Lesotho, South Africa, and New Guinea, and these projects had been successful.<sup>4</sup>

The original project description that was outlined in 2005 was ambitious. It predicted that FAFU could train 100 technicians in JUNCAO techniques, and teach 2000 farmers how to grow upland rice and mushrooms.<sup>5</sup> It also promised to have a gender focus, assuring that 70% of the beneficiaries of the project would be women.<sup>6</sup> According to the agreement, MINAGRI was responsible for the demonstration expenses, salaries of the Chinese technicians, transportation fees, seeds, mushrooms spawn and substrate expenses, and production materials.<sup>7</sup>

The arrangement between FAFU and MINAGRI was the precursor to the Chinese demonstration centre. However, the original agricultural technology transfer was not orchestrated through a demonstration *centre per se*. Rather, the original training of JUNCAO and upland rice was to be carried out by two technicians who were stationed at a house that was provided by the GoR in Kabuye (an area twenty minutes north of

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<sup>1</sup> MINAGRI (2005).

<sup>2</sup> Based on a pamphlet I collected from NACIRRI

<sup>3</sup> Ibid.

<sup>4</sup> FJDEA (2012)

<sup>5</sup> Lin (2005).

<sup>6</sup> Ibid.

<sup>7</sup> Lin (2005); MINAGRI (2005).

Kigali).<sup>8</sup> The agreement to expand the project into one of the FOCAC demonstration centres was then negotiated a year later at the 2006 Summit.<sup>9</sup> However, the original agreement with FAFU was not subsumed by the promise to develop a larger demonstration site. Rather, the original demonstration outlined by FAFU and MINAGRI continued as planned, while the Ministry of Foreign Affairs in Rwanda, and the trade and industry attaché of the Chinese embassy negotiated the specifics of developing the demonstration centre.<sup>10</sup>

In this respect, Rwanda's use of Chinese agricultural techniques was the product of Rwanda approaching China, and expanding a development that was already in place under the auspices of FOCAC. The successful partnership that came of the original FAFU demonstration likely indicated to China that Rwanda was well organized, and safe for investments. As was mentioned in the literature review, China has prioritized 'mutually beneficial' projects since the 1980's to avoid pumping money into projects that will collapse without the continued assistance of the Chinese government. The successful use of the patent between 2006 and 2008 likely made Rwanda a promising place to initiate an agricultural development project.

### *Uganda*

The decision to place an agricultural development centre in Uganda was largely the result of the Ugandan government seeking agricultural partnerships that would introduce new technologies to farmers. Uganda's National Development Plan aims to transform "Ugandan society from a peasant to a modern and prosperous country within 30 years."<sup>11</sup> According to Uganda's agricultural development strategy, a central aim is to partner with investors who can facilitate the access and availability of scientific and technologically advanced inputs for the agricultural sector, and assist farmers to move up

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<sup>8</sup> Lin (2005); RATDC staff member and JUNCAO entrepreneur, personal communication, March 12th, 2015; RATDC staff member and training assistant, personal communication, March 20<sup>th</sup>, 2015; RATDC staff member and mushroom extension officer, April 15<sup>th</sup>, 2015

<sup>9</sup> Director General of RAB, personal communication, April 14<sup>th</sup>, 2015

<sup>10</sup> MINAGRI (2008); Director General of RAB, personal communication, April 14<sup>th</sup>, 2015.

<sup>11</sup> GOU (2011), pg. 1.

the value chain.<sup>12</sup> Indeed, the Ugandan delegation that visited China brought this sentiment with them to the Forum.<sup>13</sup>

According to a senior staff member at NARO who was close to the negotiations, the idea of receiving a grant from China for agricultural development was at the request of the Ugandan government. When I asked if the inception of the centre involved Uganda approaching China, or China approaching Uganda, he said:

Of course it was at the request of African countries because we were the recipient... African countries requested, and China implemented them, these are grants, it's not a loan, it's a grant.<sup>14</sup>

When the Ugandan delegation went to the FOCAC summit in 2006, they did not, however, go with the intention to partner with China in aquaculture. Following the meetings in 2006, a Chinese delegation began to work with MAAIF, and explored a number of different institutions within NARO as potential partners to host the Chinese demonstrations centre.<sup>15</sup> Among them were livestock (NaLIRRI), crops (NaCRRI), and fisheries (NaFIRRI). When discussing why it was that the Chinese delegation chose to partner with NaFIRRI, the former Commissioner of Fisheries told me that it was purely based on data. The Chinese delegation had found that NaFIRRI and the ARDC were well organized, and had a proven track record of managing loans and grants – they had successfully done so with the United States Agency for International Development (USAID), the Department for International Development (UK-DFID), the Canadian International Development Agency (CIDA), and the World Bank.<sup>16</sup>

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<sup>12</sup> In the GOU (2010) report, the importance of attracting investment to assist farmers in moving up the value chain is noted throughout the document.

<sup>13</sup> NaFIRRI senior personnel, personal communication, June 4<sup>th</sup>, 2015.

<sup>14</sup> NARO senior personnel, personal communication, June 11<sup>th</sup>, 2015.

<sup>15</sup> ARDC Research Officer, personal Communication May 28<sup>th</sup>, 2015; MAAIF senior personnel, personal communication, May 30<sup>th</sup>, 2015; NaFIRRI senior personnel, personal communication, June 4<sup>th</sup>, 2015; Principal Fisheries Officer at MAAIF, personal communication, June 8<sup>th</sup>, 2015; NARO senior personnel, June 11<sup>th</sup>, 2015.

<sup>16</sup> Principal Fisheries Officer at MAAIF, personal communication, June 8<sup>th</sup>, 2015.

Following the decision to partner with NaFIRRI, a second delegation came in 2007 to negotiate a protocol with the commissioner of fisheries and the director of research at ARDC, as well as other high-ranking members within NaFIRRI, NARO, and MAIFF, and the decision to partner with NaFIRRI was supported by many of the researchers who worked at the centre at the time.<sup>17</sup> Most of the negotiations took place in Uganda, and were then finalized in China.

### **Protocols of Engagement**

The protocols for the centres in Rwanda and Uganda were signed in May and June 2008 respectively, and outlined similar plans for the construction and operation of the centres. Both protocols preface the agreement by acknowledging that the centre was decided on at the Summit in 2006, and both centres were funded by an Agreement on Economic and Technical Cooperation established in 2007.<sup>18</sup> The full cost of building both the centres, as well as all costs for machinery used at the centres, would be borne by the Chinese government. In addition, both the protocols outline that the centres have three clearly defined phases: a construction phase where the centre would be built; an operational phase when the demonstrations and training would be conducted; and a ‘joint venture’ phase, where the centre would sustain itself through a private partnership between the Chinese firm that operated the centre, and a local firm or institution that was appointed by the government.

In Rwanda, the China-Rwanda Agriculture Technology Demonstration Centre (RATDC) was to be built on 22.6 hectares of land at RAB’s Rubona station.<sup>19</sup> The centre would be built by a Chinese company (the company is not specified in the protocols), and would include an administrative building, trainings rooms, production workshops, dwelling rooms, farm-land for crop experiments, production and demonstration, irrigation facilities, infield roads, and equipment for the demonstrations.<sup>20</sup> The protocols also

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<sup>17</sup> ARDC Research Officer, personal communication, May 22<sup>nd</sup>, 2015; ARDC Research Officer, personal communication, May 26<sup>th</sup>, 2015; ARDC Research Officer, personal communication, June 2<sup>nd</sup>, 2015.

<sup>18</sup> GOR (2008); GOU (2008)

<sup>19</sup> GOR (2008).

<sup>20</sup> Ibid.

stipulate mulberry planting and silkworm raising, JUNCAO mushroom cultivation, soil and water conservation, and both paddy and upland rice would be demonstrated. Following the construction phase, the government of China was to finance the operation of the centre, and dispatch experts for seed breeding, production, processing, and demonstrations.<sup>21</sup>

Alternatively, the Uganda-China Friendship Agricultural Technology Demonstration Centre would be built in Kajjansi at the ARDC on a 20.82 hectare plot.<sup>22</sup> The main aspect of the project involved the construction of office buildings; residences for Chinese technicians; a hatchery; a feed factory; and rehabilitating existing fish ponds – all of which were to be used for trainings of Ugandan fish farmers, as well as to provide income to the centre for its operation and maintenance.<sup>23</sup> Following the operational phase the centre would enter a ‘sustainability phase’ where the centre would supply its own funds, and if the income did not meet the expenditures, the government of China agreed to cover the costs.<sup>24</sup> During this period, “The government of Uganda has the right to supervise the revenue and expenditure of this project, and the Chinese executive enterprise is duly bound to provide the financial report of the project to the government of Uganda and regular intervals.”<sup>25</sup> However, these financial reports were not forthcoming.

According to previous studies, officials at the Chinese Ministry of Agriculture were concerned that demonstration centres that had been implemented in other countries had issues of sustainability, which is to say they struggled to support themselves after the Chinese technicians left.<sup>26</sup> In light of this, it was decided that the demonstration centres should be run by Chinese’ businesses under a profit-oriented model.<sup>27</sup> In the Rwandan protocols, the final phase of the centre is referred to as a joint-venture phase that

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<sup>21</sup> Ibid.

<sup>22</sup> GOU (2008).

<sup>23</sup> Ibid.

<sup>24</sup> Ibid.

<sup>25</sup> Ibid.

<sup>26</sup> Brautigam (2009), pg. 249; Li et al. (2012), pg. 233.

<sup>27</sup> Ibid.



commences after the initial three years of funding from China. The joint-venture phase is supposed to last for ten years, and outlines that the Government of Rwanda must:

[F]acilitate [the joint venture] to purchase or lease lands required, and provide to it preferential accepted policies on land, investment, tariff, tax, trade, foreign exchange control and other aspects.<sup>28</sup>

Within the protocols, there is no discussion of if, or when the Chinese company would be expected to leave. The conditions in Uganda are very similar. The second last article of the agreements says that the Ugandan Government will:

[S]upport the Chinese enterprise to develop the market-oriented operation for the sustainable development of the centre, the Uganda government shall provide another land free of charge for production (or lease/sale the land in favourable conditions), and provide facilities and preferential policies of the investment in their market-oriented activities.<sup>29</sup>

## **Demonstrations at the China-Rwanda Agriculture Technology Demonstration Centre (RATDC)**

### ***Sericulture***

The centre aimed to build on the goals of SPAT, which meant MINAGRI was interested in developing a centre that would not only contribute to boosting production, but could also introduce new agricultural subsectors. In particular, MINAGRI was interested in subsectors that had the potential for value addition. Rwanda had already purchased a patent for rice and JUNCAO mushrooms from a Chinese university – Fujian Agricultural and Forestry University (FAFU) – which was eventually selected by China to operate the demonstration.<sup>30</sup> Deciding what programs the centre would offer was not only a question of what subsectors MINAGRI was keen to foster, but also what

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<sup>28</sup> GOR (2008), pg. 6.

<sup>29</sup> GOU (2008), pg. 6.

<sup>30</sup> Director General of RAB, personal communication, April 14<sup>th</sup>, 2015.

subsectors FAFU could assist with. Sericulture was an attractive option because it had the potential to introduce a new agricultural practice; silk can be produced relatively cheaply; it could attract private investments; value could be added within Rwanda; and it is non-perishable. However, the effort to start a sericulture program was largely ineffective – an admission that was made by both RAB and the FAFU technicians.<sup>31</sup>

The largest barrier was the fact that Rwanda does not have a facility close to the demonstration centre to process silk from silkworm cocoons (or any operating silk factory in the country for that matter), and to produce silk that can be woven into a fabric silkworm cocoons need to be boiled and unravelled before being spun into silk thread. In modern processing facilities the unravelled cocoons will be spun into silk thread with machines, though traditionally silk can be spun on a large wheel by hand. The protocols of the centre did not call for the development of silk production facilities, or demonstrations on silk spinning. Rather, FAFU was supposed to bring some Chinese mulberry varieties, and demonstrate how to harvest cocoons, and create silk products from unwoven silk. This meant the products that could be created in Rwanda were limited to hard pillows that can be made from silkworm dropping, or using the raw and unprocessed silk from the cocoons as insulation in blankets – similar to goose down.<sup>32</sup>

In all, only one demonstration in silk production was ever carried out.<sup>33</sup> The only participant who was able to discuss the sericulture program in any more detail than to say it existed was the Director General of RAB, who expressed disappointment by the lack of effort on behalf of FAFU to make the sericulture component of the demonstration centre achieve its goals.<sup>34</sup> Still, RAB and MINAGRI intend on developing sericulture as a viable industry in Rwanda, and SPAT III outlines that the government will continue to prioritize sericulture as a viable subsector within Rwanda. The expectation is that the RATDC will

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<sup>31</sup> Ibid.

<sup>32</sup> In the humid equatorial hills of Rwanda, this was not a product that was in particularly high demand.

<sup>33</sup> RATDC staff and Mushroom Technology Officer at RAB, personal communication, March 30<sup>th</sup>, 2015.

<sup>34</sup> Director General of RAB, personal communication, April 14, 2015.

contribute to achieving this goal,<sup>35</sup> and MINAGRI is currently looking to purchase low-capacity silk reeling machine to convert silk into export quality silk thread.<sup>36</sup>

### ***Water and Soil Conservation***

Water and soil conservation demonstrations formed a second program at the RATDC. This part of the project focused on terracing, and demonstrated intercropping techniques with corn, beans, Chinese varieties of mulberry, and elephant grass. The terraced demonstration was set up on a one-hectare plot on a hillside in front of the demonstration centre itself, and sought to contribute to the SPAT initiative of *Water Conservation and Land Husbandry*.

There were also three smaller terraced areas – roughly half a hectare in all – that were separated by short concrete walls. These three smaller terraces were used to demonstrate how much water and soil can be saved when hillsides are arranged in terraces. One of the three areas was planted exclusively with elephant grass; one was terraced and planted with beans; while the third was planted with beans on an un-terraced slope. The concrete walls that separated the three areas contained the water and soil within their respective plots, and each of the three areas had a well at the bottom that eroded soil would funnel into. The two terraced plots with beans and elephant grass had little to no soil in the well; the plot with ‘traditional’ cropped beans was nearly half full. The overall effect of looking at the three areas side by side was quite obvious: terracing hillsides and planting crops like elephant grass reduces soil erosion.

The Rwandan and Chinese technicians who worked at the RATDC also carried out one terracing extension program. The RATDC sponsored a hamlet nearby to take part in a terracing demonstration that involved turning a one-hectare plot of land where six families farmed into an area with five large terraces. The purpose was to use one hamlet’s

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<sup>35</sup> Ibid

<sup>36</sup> MINAGRI (2013), pg. 35.

hillside landholding as a terrace demonstration in the hopes that other farmers in the area would recognize the benefits of terracing, and then choose to terrace their own plots.<sup>37</sup>

### ***Rice***

One of the most important initiatives that the RATDC aimed to contribute to was the introduction of new rice seeds. This program at the RATDC would aim to identify new seed varieties that could potentially be used to distribute to farmers under the CIP. When the demonstrations began in 2011 the team from FAFU brought 21 different paddy varieties to research, and selected the variety that performed best in Rwanda.<sup>38</sup> Selecting rice seeds to grow in Rwanda is difficult because a rice variety that performs well in one area may not perform nearly as well in an area even twenty to thirty kilometres away.<sup>39</sup> The Chinese team found that a variety called Jinshan 28, was the best performing paddy variety they had for the Southern region of Rwanda where the RATDC was stationed. A rice specialist from RAB who had participated in a training session at the RATDC said Jinshan 28's average harvest was seven tonnes per hectare, which is above the Rwandan average of just over five-and-a-half tonnes per hectare.<sup>40</sup> The most favourable trait for farmers of the Jinshan 28 variety is that it can be harvested twice. Instead of cutting the whole rice stock from the stem, Jinshan 28 can be cut from the tiller, and if it is left in the ground the rice seed will re-grow. The average yield of the second harvest is roughly five tonnes per hectare.<sup>41</sup>

The Chinese technicians, along with the help of a RAB staff, had demonstrated Chinese methods of growing rice in a few paddies close to the centre. One RAB staff member who had worked closely with the FAFU technicians during training explained to me the different techniques in rice growing that he saw to be distinctly Chinese. The main technique that FAFU demonstrated was a method of digging trenches a few inches deep throughout the paddy in a grid formation, and the rice seed would then be planted

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<sup>37</sup> Farmer in Rubona, Rwanda, personal communication, April 2<sup>nd</sup>, 2015.

<sup>38</sup> RAB research technician, personal communication, March 3<sup>rd</sup>, 2015

<sup>39</sup> Ibid

<sup>40</sup> Kathiresan (2013), pg. 15. This statistic was also noted by a rice specialist from RAB's southern research station. Also, RAB research technician, personal communication, March 3<sup>rd</sup>, 2015.

<sup>41</sup> RAB research technician, personal communication, March 3<sup>rd</sup>, 2015

adjacent to grid. This meant that paddies did not need to be fully flooded to supersaturate the soil. Rather, water was let into the paddy so as to fill the dugout grid, which would then infiltrate the soil where the rice was planted. It had the effect of supersaturating the soil, but did not require the full paddy to be flooded, and proved to be an effective method for saving large amounts of water.<sup>42</sup>

No one at the RATDC was able to tell me where the farmers who had been trained at the centre lived or farmed, and there had been no follow up programs on behalf of the Chinese technicians, or RAB, on how effective the demonstration of the techniques had been, or if the methods were still be used. Moreover, there was no data available at the centre that outlined how many demonstrations had been carried out, or how many people had been trained in growing rice.

The FAFU technicians also demonstrated Jinshan 28 at RAB's seed producing station in Mututu, a village about one-hour North-East of the RATDC. Here, the Chinese technicians had done a few trainings with a local rice cooperative, but again, there was no information on how much training had been conducted, or exactly who had been trained. The station in Mututu is also where the FAFU technicians had experimented with upland rice varieties (Jinshan 1). However, there was no one at the Mututu station who could speak directly to those trainings. From the information I gathered at the Mututu station, it appears as though the Chinese technicians had run trials on the Jinshan 1 two years in a row, but the second year there had not been enough rain, and the crop failed.<sup>43</sup> Both Jinshan 28 and Jinshan 1 are currently being tested by RAB to be certified seeds for the CIP.<sup>44</sup>

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<sup>42</sup> RATDC staff and training assistant, personal communication, March 20<sup>th</sup>, 2015.

<sup>43</sup> RAB staff, personal communication, March 19<sup>th</sup>, 2015; RAB staff, personal communication, April 8<sup>th</sup>, 2015

<sup>44</sup> Director General of RAB, personal communications, April 14<sup>th</sup>, 2015.

## ***Mushroom***

FAFU's patented JUNCAO method of growing mushrooms formed the largest part of the RATDC's demonstration efforts, and there was significantly more data available about their JUNCAO demonstrations. In fact, the head technician from FAFU, as well as the RAB technicians that were stationed permanently at the RATDC all knew more or less how many people had been trained in JUNCAO off the top of their head (about 1200). Any variety of mushrooms can be grown using the JUNCAO method, though only a few different varieties of oyster mushroom can be easily grown in the ambient Rwandan climate. By far the most popular variety was grey oyster, though the FAFU technicians were also growing shitakes, yellow oyster, king oyster, and cloud ear fungus (black fungus) in their demonstration plot. Developing a mushroom sector contributes to SPAT in that it introduces a new agricultural subsector of a relatively high valued crop. Unfortunately, mushrooms are difficult to export; however, there was a nascent mushroom market in Rwanda, and a number of private mushroom and mushroom tuber producing companies had sprung up following MINAGRI's purchase of FAFU's patent. In addition, dried mushrooms have a similar protein content to dried beans, and are reasonably easy for small-scale farmers to grow. In a number of instances, mushroom tubes were purchased by local and international NGO's to run village-level nutritional programs.<sup>45</sup>

The centre also had a few humidity-controlled rooms that demonstrated how to grow a mushroom variety called ganoderma, or 'the king of medicinal fungi'. It is a hard, antler-like, fungus that grows about a foot high in narrow and uncapped stocks. It is incredibly bitter and usually prepared by being dried, cut into disks, and boiled into a tea. Most of the ganoderma was prepared for demonstration purposes, though there was a

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<sup>45</sup> I met with some representatives from Concern Worldwide who had purchased 20,000 tubes from the RATDC for nutritional program in Rwanda's Southern Province. During an interview with one tube producer who had worked closely with the RATDC (and started his own tube producing enterprise), the participant received a call from a local NGO that purchased all 10,000 tubes he had produced that month. Personal communication, April 1<sup>st</sup>, 2015.

small market for ganoderma – mainly among technicians who had been trained at the centre.

The mushroom demonstrations would usually take place at the RATDC itself.<sup>46</sup> Trainings lasted three to five days, and involved both classroom components and practical demonstrations. During the classroom portion of the training, participants were instructed on how to make substrate mixtures. Mushroom substrate was normally made from cotton hulls mixed with rice bran and mashed corncobs, though some other ingredients could be substituted such as wheat bran, or dried elephant grass. The practical component of the demonstration educated participants in the whole process of substrate processing, as well as the process of growing and harvesting mushrooms.

### **Demonstrations at the China-Uganda Friendship Agricultural Technology Demonstration Centre (UATDC)**

#### ***Aquaculture***

The RATDC is something of a research centre unto itself. It is removed from RAB's southern research zone, and based on its own discreet compound. Conversely, the demonstration centre in Uganda is much more an expansion *of* an existing centre than an addition *to* an existing research centre as is the case in Rwanda. The UATDC was an addition to the Aquaculture Research and Development Centre (ARDC), which was a functional research and development centre before the Chinese intervention, though it was in very poor shape.<sup>47</sup> Fenghuang Hauqio Fisheries Co. Ltd. (Fenghuang Fisheries) – an aquacultural firm from Sichuan, China – was selected by China to operate the demonstration, and prior to the refurbishments done by Fenghuang Fisheries, the centre had twenty outdoor tanks and roughly seventy outdoor ponds.<sup>48</sup> It had an office building, and a structure that contained a few laboratories and a library. To this, the Chinese intervention had added a large building with classrooms, laboratories, and offices, as well

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<sup>46</sup> RATDC staff Mushroom Technology Officer at RAB, personal communication, March 30<sup>th</sup>, 2015.

<sup>47</sup> ARDC Principle Research Officer, personal communication, May 21<sup>st</sup>, 2015; ARDC Senior Research Officer, May 26<sup>th</sup>, 2015.

<sup>48</sup> ARDC Research Officer, May 22<sup>nd</sup>, 2015.

as another building with dorm rooms for the Chinese technicians; they had landscaped the areas around the buildings at the centre, and added a roundabout that made it easier for cars and trucks to come and go. The Chinese also refurbished the twenty tanks that NaFIRRI used for research, and added another twenty outdoor tanks.<sup>49</sup> They amalgamated and dredged the existing seventy ponds into twenty-six larger ponds, and built a hatchery and feed mill that produced a sinking feed – which differed from the floating feed most Ugandan fish farmers were accustomed to.<sup>50</sup> The hatchery is equipped to facilitate the spawning of carp, and part of the demonstration was supposed to be the introduction of a few Chinese varieties of carp; namely grass carp, silver carp, and bighead carp (collectively known as Asian carp in North America).

The carp program had been largely ineffective. People in Uganda are not particularly keen on how bony carp is,<sup>51</sup> and fish farmers found that there is no market for the fish.<sup>52</sup> One fish farmer told me that the Chinese had given him carp fry, and after rearing the carp to table size he was unable to sell them, so he gave them away for free at having lost money on the cost of raising and feeding the fish.<sup>53</sup>

While the introduction of carp was not effective, the facilities at the UATDC were developed to breed both river running fish, and lake dwelling fish. Equipment to facilitate the production of river running fish was a part of the hatchery, and some technicians were familiar with how to use those facilities. Many river running fish – carp included – breed in rivers, but spend their life in lakes. Fenghuang Fisheries had built circular tanks that could pump water in such a way that it created a vortex. River running fish respond to this water movement by swimming against the current (mimicking an up-river torrent), and this water movement triggers their instinct to breed. This technique was not necessary for Nile Tilapia, Nile Perch, or Catfish, which are the most commonly farmed fish in Uganda; rather, it was introduced specifically for carp. Though the carp program

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<sup>49</sup> ARDC Research Officer, personal communication, May 21<sup>st</sup>, 2015.

<sup>50</sup> ARDC Research Officer, personal communication, May 22<sup>nd</sup>, 2015.

<sup>51</sup> MAAIF senior personnel, personal communication, May 30<sup>th</sup>, 2015.

<sup>52</sup> Cage and aquacultural fish farmer, Uganda, personal communication, June 16<sup>th</sup>, 2015.

<sup>53</sup> Ibid.



had ultimately failed, one researcher at ARDC suggested that the facilities could be used to work with some fish species that are endemic to the Nile-Victoria region of Uganda.<sup>54</sup>

The most significant aquacultural technique that Fenghuang Huaqiou introduced was a method of *grading* Nile tilapia during the larval, fry, and fingerling stages. Typically, ARDC had placed a brood stock in an incubating pond, and harvested the post-larval fish (fry) to sell to fish-farmers, or they would move the whole fry stock into another pond and allow them to grow to table size together. Alternatively, Fenghuang Fisheries would begin sorting, or *grading*, the brood stock using nets as sieves to sort fish by size into different ponds at a very young age. The result is that the young fish will compete with similar sized fish during the early stages of their lifespan, and by encouraging ‘size specific’ competition small fish that may otherwise die of starvation also reach table size.<sup>55</sup> The only other way to achieve such uniformity in the size of a brood stock is with the use of hormones that reverses the sex of male fish at the larval stage.<sup>56</sup> This method, however, is expensive, complex, and not conducive to nascent farmers.<sup>57</sup> Alternatively, the use of the net-based grading techniques had drastically increased the efficiency of the fish, fry, and fingerling production at ARDC.

The UATDC also sold fry and fingerling to farmers, and acted as a destination where fish farmers could get basic information, and troubleshoot problems that they were experiencing on their farms. The UATDC functioned much as the DSIP had outlined aquacultural demonstrations should, and contributed to three DSIP programs: enhance production and introduce farmers to improved technologies; improve market access by spurring entrepreneurial behaviour; and improve the enabling environment for the agricultural sector through capacity building with farmers.

Using the new and refurbished facilities at the demonstration centre, NaFIRRI research technicians and Fenghuang Fisheries staff conducted trainings with fish farmers

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<sup>54</sup> ARDC Senior Research Officer, personal communication, May 26<sup>th</sup>, 2015.

<sup>55</sup> ARDC Research Officer, personal communication, May 22<sup>nd</sup>, 2015; ARDC Senior Research Officer, personal communication, May 26<sup>th</sup>, 2015.

<sup>56</sup> ARDC Senior Research Officer, personal communication, May 26<sup>th</sup>, 2015.

<sup>57</sup> Ibid

over the course of the demonstration centres operational phase (2011-2014). There were no hard numbers available on exactly how many trainings had been conducted, though one of researcher at ADRC who worked most closely with Fenghuang Fisheries, estimated that somewhere between five-thousand and twenty-thousand farmers had benefited directly or indirectly from the demonstrations.<sup>58</sup> I could not determine the accuracy of this estimation based on any information or discussion that I had to during my time at the UATDC.

### ***Open Water Caged Farming***

In 2011, Fenghuang Fisheries proposed that they add caged fish farming to their demonstration protocols. This was not a part of the original protocol, though NaFIRRI was interested in expanding caged fish farming production, and there had been some success among foreign owned cage fish farms in the Nile-Victoria region of Uganda in the past.<sup>59</sup> After negotiating a new agreement with NaFIRRI, Fenghuang Fisheries established a number of demonstration cages in an area where Lake Victoria meets the mouth of the Nile River, in Jinja. The Fenghuang Fisheries caged demonstration area quickly attracted many other fishers, and it became one of the largest caged farming operations in Uganda.

Caged tilapia farmers in Uganda typically use simple rigs made of bamboo, and nets. Traditional cages are two to three metres in length and width, just over one metre deep, and need to be stocked and managed from a boat.<sup>60</sup> The cages that Fenghuang Fisheries introduced were made of metal, and were designed with platforms along the side of the cages so that fishers could get out of their boat, and walk alongside the cages to feed and manage the stock. The cages introduced by Fenghuang Fisheries were organized into square pods that each held four independent cages – this helped with managing tilapia at different stages of production, as well as eased the process of grading

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<sup>58</sup> ARDC Research Officer, personal communication, May 22<sup>nd</sup>, 2015.

<sup>59</sup> ARDC Principle Research Officer, personal communication, May 21<sup>st</sup>, 2015.

<sup>60</sup> Jinja Fishers Associated member, personal communication, June 22<sup>nd</sup>, 2015.

the stocks.<sup>61</sup> Each cage within the pod was three-metres by three-metres, and the nets were three metres deep. All told, each pod was roughly six metres by six metres, and held 4 individual cages. Each individual cage could stock ten thousand fish, which is just over twice what traditional nets could stock. Therefore, each pod held forty thousand fish at a time, and could be operated in a cycle that allowed fishers to stock and harvest simultaneously.<sup>62</sup> Fenghuang Fisheries had initially introduced the caged demonstration and stocked its own two-pods for demonstrations. The company continued to manage the cages commercially to provide revenue for the demonstration centre in Kajjansi. At the time I visited, the two demonstration pods were still being used by Fenghuang Fisheries. Again, this initiative contributed to many of the same overarching initiatives outlined in the DSIP as the UATDC.

### **Current Status of the Centres**

At the time that this study was conducted there was uncertainty about the next stage for the RATDC and UATDC. In Rwanda, RAB was negotiating with the Chinese embassy about how to move forward. According to the protocols, the demonstration phase that was funded by China concluded at the end of 2014. However, the demonstration centre had not formally entered its ‘joint venture phase.’<sup>63</sup> RAB was in the process of conferring with the Chinese embassy about the possibility of a one-year extension of Chinese funded demonstrations.<sup>64</sup> At the time of my visit, the centre itself was not receiving support from either the Chinese or Rwandan governments’, and it was self-sustained – though not through a formal joint-venture partnership. The agricultural board and RAB staff were not benefiting directly from the sales of any products at the centre. Rather, the centre was being run by three Chinese technicians who continued to sell mushroom spawn, and turned over roughly ten thousand tubes every month.<sup>65</sup>

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<sup>61</sup> Ibid

<sup>62</sup> Ibid

<sup>63</sup> RATDC staff and mushroom industry entrepreneur, personal communication, March 12<sup>th</sup>, 2015; Director General of RAB, personal communication, April 14<sup>th</sup>, 2015.

<sup>64</sup> Director General of RAB, personal communication, April 14<sup>th</sup>, 2015.

<sup>65</sup> RATDC Staff and mushroom industry entrepreneur, personal communication, March 12<sup>th</sup>, 2015

During my visit, one JUNCAO demonstration was conducted with a group of community leaders from the Nyamagabe region of Southern Rwanda, which provided some revenue for the centre, though the participants covered the cost of the demonstration. During the Chinese funded phase the Chinese government funded the trainings. According to RAB and MINAGRI officials close to the negotiations with the Chinese embassy, there was still a need to flesh out how to streamline the management of the centre so that the joint venture would be profitable.<sup>66</sup>

In Uganda, the negotiations about the next step the centre would take towards becoming a joint venture were unclear, and at times quite tense. Many – if not all – of the researchers at ARDC, as well as a number of more senior administrative officials within NARO and NaFIRRI explained to me that they were uncomfortable with that fact that Fenghuang Fisheries was still operating at the ARDC. According to senior officials within NaFIRRI and MAAIF, the Chinese company running the demonstration was refusing to leave the ARDC until they were given land from the government for free.<sup>67</sup> The discussion about land, and the process of how the Chinese firm would acquire land, was vague as it was written in the protocol; however, the Commissioner of Fisheries argued that the guarantee that the Chinese would get access to ‘free land’, as Fenghuang Fisheries was requesting, was not written into the protocols. Rather, this was written in the minutes of a meeting that had taken place between technical personnel from NARO and Fenghuang Fisheries in China prior to signing the agreement.<sup>68</sup> As it stood during my visits to the centre, it did not seem as though the Chinese company was planning on leaving. There was a general lack of clarity about what the exit strategy for Fenghuang Fisheries would be, and there had been many discussions among senior NARO staff with the technicians and researchers at ARDC about precisely when they would leave. There was some discussion among senior officials about the possibility for one-year extensions

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<sup>66</sup> MINAGRI Minister of State in Charge of Agriculture, personal communication, March 27<sup>th</sup>, 2015

<sup>67</sup> MAAIF Senior Personnel personal communication, May 30<sup>th</sup>, 2015; NARO Senior Personnel, June 4<sup>th</sup>, 2015; Principal Fisheries officer at MAAIF, June 8<sup>th</sup>, 2015.

<sup>68</sup> MAAIF Senior Personnel personal communication, May 30<sup>th</sup>, 2015. I also came across the minutes from this meetings; however, it did not make any mention that the land would be given ‘free’. I said the company would be ‘provided’ with land following the demonstration process.

following the formal demonstration period.<sup>69</sup> And while it was generally assumed among senior personnel that those conversations were taking place, it was uncertain what stage they were at. Some officials suggested that they had come to a standstill over the issue of land,<sup>70</sup> while others suggested that the Fenghuang Fisheries would never get land in Uganda given how unsteady the interpersonal relationship between technicians at ARDC and Fenghuang Fisheries had become.<sup>71</sup>

## **Conclusion**

The experiences that Rwanda and Uganda have had with the Chinese demonstration centres share a few commonalities, and a number of differences. Firstly, the centres themselves contribute to programs that are in-line with the host countries agricultural initiatives. It would seem as though the Chinese delegations were keen to partner in areas where they knew their development efforts would be relatively safe. For example, in Uganda the Chinese delegates who coordinated the demonstration centre gravitated towards fisheries because NAFIRRI had the most complete data about their related sector. In Rwanda, MINAGRI had already purchased a patent from FAFU that allowed them to use JUNCAO and upland rice varieties. Moreover, MINAGRI had experience running a successful demonstration with FAFU, which may have led Chinese officials at the FOCAC summit in 2006 to recognize that placing a demonstration centre in Rwanda would be ‘mutually beneficial.’

The precise inception of the demonstration centre in Uganda is not entirely clear; however, it is clear that the Ugandan delegation was eager to get access to Chinese agricultural technology in any form it could. It is also clear that China chose to partner with NaFIRRI and the ADRC because of NaFIRRI’s data and previous success managing grants. The protocols of the agreements themselves establish what it is that centres would

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<sup>69</sup> ARDC Research Officer, personal communication, May 22<sup>nd</sup>, 2015.

<sup>70</sup> During my fieldwork, it was never made clear to me who would have been involved in these discussions. The Commissioner of Fisheries suggested I try an official at the MAAIF who coordinated all Chinese investments. After contacting the official at MAAIF, I was redirected to the Ministry of Foreign Affairs, who then redirected me to Finance – who then recommended I contact the MAAIF official who coordinated all Chinese investments in agriculture.

<sup>71</sup> Principal Fisheries Officer at MAAIF, personal communication, June 8<sup>th</sup>, 2015.

aim to accomplish, and the different programs that they aimed to contribute to. The timeline along which they would continue to function and the specifics of how the centres would be handed over to the local governments was much less clear.

The last 'joint-venture' phase of the demonstration centres have not yet been achieved. In Rwanda, this was due to RAB requesting an extended period of funding from China before the centre became a joint venture. In Uganda, the centre had not been handed over due to a dispute over land. In addition, the way that Fenghuang Fisheries would begin the private phase of the operation was unclear. While most technicians agreed that the demonstrations themselves were largely effective, specifics about how many people had been trained were not always available, and some of the technology transfers were ineffective (for example, sericulture).

The interaction between the Chinese government and African institutions is still a work in progress, and there was a general desire among participants to make the process smoother, as well as to continue working together with the Chinese. The central thing to note, however, as I have outlined in this chapter is that the demonstrations and technology transfers introduced at the RATDC and the UATDC contribute to agricultural development initiatives that existed prior to the centres inception. For example, through the RATDC a new seed variety of rice was introduced (Jinshan 28, and Jinshan 1), and this fed directly into the SPAT initiative that seeks to collect new seeds for Rwanda's germplasm that can be introduced through the CIP. Again, the terrace demonstrations and extension program fits into the SPAT land husbandry initiative, while aquacultural demonstrations centres in Uganda are part and parcel of MAAIF's initiative to boost aquacultural production, and spur entrepreneurship in Uganda's nascent aquacultural sector. Indeed, many of the techniques themselves are also stylized in such a way that they are easy to adopt. In Uganda, for example, Fenghuang Fisheries introduced new methods of grading to encourage size specific competition among fry and fingerlings, and this technique helped farmers improve their yields.

In the next chapter, I will further explore how it is that Rwanda and Uganda gained from the demonstration centres, and discuss how China itself may be gaining. In addition, I will offer more discussion on interviews with participants, and their own experiences working at the demonstration centres, as well as some of the centres' broader reaching impacts.

## Chapter 5: The mutual benefit of Sino-African agricultural demonstration centres.

### **Introduction**

Throughout my exploration of the RATDC and the UATDC I have arrived at three key findings that are relevant for the field, and these findings will be addressed individually throughout this chapter. In chapters 3 and 4, I explored how it is that Chinese demonstration centres can contribute to the agricultural development programs in Rwanda and Uganda. But why would Rwanda and Uganda be keen to articulate with China specifically? Many countries engage in international aid, and focus on agriculture. There are numerous NGO's and granting institutions that assist in developing technologically advanced agricultural methods that could better the livelihoods of small-holding agriculturalists; for example, the Alliance for a Green Revolution in Africa (AGRA), CIDA, or USAID.<sup>1</sup> What then does China offer?

First, I argue that African countries choose to partner with China because it offers agricultural solutions that are easily adoptable by small-scale farmers. In answering this question I explore the experiences that Rwandans and Ugandans had working with the Chinese, and I will situate these conversations with the broader dialogue between optimists, pessimists, and their relevance to the global food order.

However, this leaves a component of Sino-African agricultural cooperation unanswered. If the partnerships were forged at the Forum on China-Africa *Cooperation*, it would insinuate that there must a 'cooperative' component. That is to say, China must benefit as well. Indeed, China's foreign policy is structured around *mutual benefits*. What then does China stand to gain from the relationship? This questions leads to my second argument: China stands to gain access and knowledge of agricultural markets for which it

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<sup>1</sup> AGRA was very active at RAB's Rubona station, while USAID had previously hosted a project at the ADRC in Uganda. USAID also have a very visible presence in both Rwanda and Uganda. Many participants would also note that they had worked with CIDA in the past, but I was never pointed to any CIDA projects in particular. It is possible some participants were confusing CIDA with the Canadian Cooperative Associated, which has a visibly presence in Rwanda and Uganda.



could be competitive in the future. Through the protocols of the agreements, Chinese companies get access to local markets, and are exempt from a number of barriers to development such as value added taxes (VAT), and assume preferential access to lease land. Moreover, there is no strong clause written into their protocols that would *ensure* that the Chinese company partner with local enterprises, nor is there a concrete timeline to suggest if and when the Chinese firm would be expected to leave. Indeed, this conclusion also has implications for optimists, pessimists, and the changing global food order.

Lastly, I will argue that the demonstration process is imperfect, and its impacts are fairly limited. The introduction of Chinese technologies have contributed to the development of some niche agricultural sectors in Rwanda and Uganda, but once the technologies have been adopted by the private sector the gains to be made by the Chinese companies become limited. I echo a finding made by many Sino-African specialists: China's footprint in Africa is highly visible, yet often modest in its consequence, and should not be overstated, as dangers of overestimating China could be just as harmful as inflating them.

### **The ease of adopting Chinese agricultural technologies**

Why is it that African countries choose to develop agricultural demonstration centres with China? This is a question I asked at the beginning of this thesis, and it is the first question that I will address in this chapter. In various ways, the question itself was posed directly to participants. Sometimes I would ask: what contribution *is* China making to agricultural development; or, what contribution would you like to see China make in the *future*. The response from participants was uniform across both Rwanda and Uganda, and between farmers, research technicians, and ministerial workers: China's agricultural technology is affordable, and easy to adopt.

There was an overwhelming consensus among participants that China was an agriculturally advanced country, making it a natural source of agricultural knowledge.

Moreover, the knowledge and solutions that China has to offer are generally understood as being cheap and accessible for rural African farmers. One fish farmer in Uganda told me that, “when you go to the Chinese villages some of the peasants there are almost like Africans.”<sup>2</sup> This is a sentiment that was echoed consistently across both countries, and between all participants: people see China’s rural sector as more productive than that of many African countries, but still largely undeveloped. Farmers, technicians, and government workers were unified in their responses that Chinese agricultural techniques were choice, given how easy they were to adopt. The Director General of RAB, who oversees the RATDC and liaises with FAFU university, expressed this sentiment most succinctly. When explaining why African countries in general were keen to approach China at the 2006 Summit to request agricultural centres, the Director General said:

It was realized at that time [2006] that China has a comparative advantage in terms of cheap and affordable [agricultural] technology...So, this area has been identified as a key partnership area where China can invest and support the African continent in terms of boosting and supporting agricultural development.<sup>3</sup>

Within the Director General’s response is a key finding that warrants more attention. The DG said that China has a ‘comparative advantage’ in cheap and affordable agricultural technology. One needs to ask, compared to what?

By and large, the reference is made to Western agricultural techniques. One senior official at RAB’s southern research zone suggested that the harvesting machines used by FAFU were appropriate for Rwanda’s land tenure system.<sup>4</sup> For example, China’s use of small harvesters for rice was cheap, and could be manufactured within Rwanda. However, when looking to buy rice-harvesting machines from the West, the senior official at RAB said joking that if it was to be bought from Europe or the U.S., it would typically need hundreds of liters of fuel and be equipped with gimmicks that are

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<sup>2</sup> Fish farmer, Uganda, personal communication, June 15<sup>th</sup>, 2015.

<sup>3</sup> Director General of RAB, personal communication, April 14<sup>th</sup>, 2015.

<sup>4</sup> RAB Senior Research Coordinator, personal communication, March 18<sup>th</sup>, 2015.

unnecessary for Rwandan farmers.<sup>5</sup> Another participant who worked with a private mushrooms producing firm told me, “Whatever your budget, you can get what you need from China.”<sup>6</sup>

The reason why African delegations were keen to build agricultural partnerships with China in 2006 was echoed by the Principal Fisheries Officer at MAAIF. He said that when the Ugandan delegation went to the FOCAC Summit in 2006 their goal was to “access their [China’s] technology because of its easiness to adopt... That was our goal as the Ministry, to get Chinese technology in Uganda.”<sup>7</sup> The Principal Fisheries officer negotiated the agreement alongside the Director of Research at ARDC at the time. The Principal Fisheries Officer suggested that he and the Director of Research at ARDC saw Chinese techniques easier for African countries to adopt because fish farming in China was a tradition, even a lifestyle, whereas in the West it was more technically focussed.<sup>8</sup>

The technicality and problems of adopting Western techniques was also an issue among researches at ADRC in Uganda. Many technicians at the centre explained to me that Chinese techniques in fish farming were just a few steps away from what was what already being practiced among Ugandan fish farmers.<sup>9</sup> For example, using earthen ponds instead of tanks, and not using any form of automation (i.e. oxygen sensors, or denitrifiers). One technician in Uganda who worked closely with the Chinese at the centre told me:

[W]hen it comes to the Chinese interventions, they’re kind of bridging the gap between those very highly advanced technologies, which I would say are

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<sup>5</sup> The specific reference was to ‘bulldozing’ abilities of Western style harvesters.

<sup>6</sup> Manager of Outreach and Training, Kigali Farms, personal communication, March 17<sup>th</sup>, 2015. This particular participant made this comment in reference to harvesting machines from China.

<sup>7</sup> Principal Fisheries Officer at MAAIF, personal communication, June 8<sup>th</sup>, 2015.

<sup>8</sup> NARO senior personnel, personal communication, June 11<sup>th</sup>, 2015.

<sup>9</sup> NARO senior personnel, personal communication, June 11<sup>th</sup>, 2015; Fish farmer, Uganda, Personal Communication, June 15<sup>th</sup>, 2015; Fish farmer, Uganda, personal communication, June 16<sup>th</sup>, 2015; Fish Farmers, Uganda, personal communication, June 17<sup>th</sup>, 2015.

technologies from the Western world, and the very local technologies, or Asian technologies, or what we have here.<sup>10</sup>

Another researcher at ADRC said:

We were always thinking, ‘But how are we going to produce the number of fingerlings required for that expansion? [DSIP]’. But with them [Fenghuang Fisheries] we see it is possible with the simple facilities to actually produce in very, very, large numbers, and these systems are the ones we are now training the farmers to adopt also.<sup>11</sup>

This does not go to say that the general principles of fish farming that Fenghuang Fisheries was demonstrating were unheard of, and some of the techniques that were used by Fenghuang Fisheries had been demonstrated before. For example, the process of grading (as was discussed in chapter 4) is not unique to China, and is practiced by fish farmers all over the world. USAID had been running a project at ADRC while the research station was being refurbished by China, and I met with one farmers who had been a participant in USAID’s project. This particular farmer noted that he was trained by the USAID project in the concept on grading, but the USAID project had used large graders apparatuses with adjustable metal slats, which he did not have access to following the project.<sup>12</sup> He had not formally been a part of any of the Chinese demonstration, but was at the centre when the Chinese demonstrations began. After observing the Chinese he had adopted the Chinese method of using mesh-baskets to grade his brood stock. This farmer was also using a hormone treatment that he had learned from the USAID project. However, hormone treatment was an option as he was one of the larger fish farmers in Uganda.<sup>13</sup>

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<sup>10</sup> ARDC Research Officer, personal communication, May 22<sup>nd</sup>, 2015.

<sup>11</sup> ARDC Senior Research Officer, personal communication, May 26<sup>th</sup>, 2015.

<sup>12</sup> Fish farmer, Uganda, personal communication, June 16<sup>th</sup>, 2015.

<sup>13</sup> Ibid.

In addition to the contribution that Fenghuang Fisheries made at ARDC, many technicians and researchers from NaFIRRI expressed that the caged fish farming was the most successful component of the demonstration. The station head at ARDC told me that he would give the demonstration in caged fish farming an ‘A+’, not simply because the methods that Fenghuang Fisheries demonstrated had been easy for farmers to adopt. Rather, there had been a sharp increase in caged fish farmers from the Jinja region coming to ARDC to purchase feed and fingerlings for their caged farms – something that he attributed directly to the Chinese demonstrations, and this participant suggested it indicated that the industry itself was growing as a result of the demonstrations.<sup>14</sup> Another researcher working at ARDC told me that prior to Fenghuang Fisheries’ demonstration of caged fish farming, many people had thought that the caged fish farming involved “supersonic” science, and that now that they saw how possible caged farming was they had started to speak about the possibility of exporting fish.<sup>15</sup>

Indeed, not only did the physical demonstration of the caged fish farming assist local farmers, the mere presence of Fenghuang Fisheries was functioning as a point of access for caged fish farming materials that could be purchased directly from China, and this ability to purchase materials from China was seen by many participants as the most useful aspect of the demonstrations.<sup>16</sup>

The agricultural technologies demonstrated at the RATDC were particularly valuable in the mushroom subsector. In Rwanda, the introduction of the JUNCAO method of growing mushrooms had been part-and-parcel of spurring the development of a number of private mushroom producers. For example, the CEO of one of Rwanda’s largest mushroom and mushroom tube producing companies noted that it would have been difficult to have started producing mushrooms in Rwanda had it not been for the demonstrations by FAFU, and MINAGRI’s decision to purchase the rights to use

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<sup>14</sup> ARDC Research Officer, personal communication, May 22<sup>nd</sup>, 2015.

<sup>15</sup> ARDC Research Officer and fish disease specialist, personal communication, May 29<sup>th</sup>, 2015.

<sup>16</sup> Fish farmer, Uganda, personal communication, June 15<sup>th</sup>, 2015; Fish farmer, Uganda, June 16<sup>th</sup>, 2015; Jinja Fisheries Officer, Uganda, June 18<sup>th</sup>, 2015.

JUNCAO in Rwanda.<sup>17</sup> Additionally, one member of an all women’s mushroom cooperative who had been trained at the RATDC suggested that mushrooms would not have existed in Rwanda had it not been for the Chinese.<sup>18</sup> Another entrepreneur who produced mushroom tubes suggested that had MINAGRI not purchased the rights to use JUNCAO, and had the Chinese not demonstrated the full system of mushroom production, there would be no mushroom sector in Rwanda.<sup>19</sup> This does not go to say that JUNCAO is the only method of producing mushrooms, and some participants noted this.<sup>20</sup> Indeed, some mushrooms producers in Rwanda suggested that they had adjusted their methods of tube production in such a way that it would no longer constitute the JUNCAO method. However, it was unanimous among participants that the demonstration centre had in some way helped them, or continued to help them, in their mushroom growing enterprises. Some fish farmers in Uganda had similar experiences, suggesting that caged fish farming may exist in Uganda had not it been for the intervention and demonstrations by Fenghuang Fisheries, but it would not have been operating at its current scale.<sup>21</sup>

MAIIF’s interest in Chinese agricultural technologies continues to be writ large in its interactions with China, and the ministry is still actively looking for new opportunities to gain access to Chinese agricultural technology. In May, 2015, NARO hosted an agricultural exhibition for a delegation of Chinese investors. The exhibition showcased agricultural cooperatives, associations, agro-processors, and farmers groups to a delegation of Chinese investors from Sichuan. The aim was to show the delegation where knowledge gaps existed in Ugandan agricultural subsectors, and court investment. At the end of the exhibition, the Minister of Agriculture spoke publicly to the delegation from Sichuan. After discussing knowledge gaps in everything from value addition among coffee producers, to the need to industrialize animal feed production, he said, “I was first

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<sup>17</sup> Chief Executive Officer of mushroom and tube producing company, Rwanda, personal communication, April 16<sup>th</sup>, 2015.

<sup>18</sup> Mushroom cooperative member, Rwanda, personal communication, April 24<sup>th</sup>, 2015.

<sup>19</sup> Mushroom tube producer, Kigali, personal communication, April 30<sup>th</sup>, 2015

<sup>20</sup> Chief Executive Officer of mushroom and tube producing company, Rwanda, personal communication, April 16<sup>th</sup>, 2015; Mushroom tube producer, personal communication, Kigali, April 30<sup>th</sup>, 2016.

<sup>21</sup> Jinja Fisheries Officer, personal communication, June 18<sup>th</sup>, 2015; Jinja Fishers Association member, personal communication, June 22<sup>nd</sup>, 2015.

in China in 1972, and I was privileged to be back in China last year. I am in a position to confirm to you that China progressed tremendously in the past 40 years – I have witnessed this myself.”<sup>22</sup> He went on to say that in his experience he had seen that China had the technology, developmental experience, and finance to bridge knowledge gaps in Uganda’s agricultural industries (Personal recording). He concluded with a promise to sign a Memorandum of Understanding (MOU) with the Chinese delegation that very day that would provide land and facilities to the Chinese delegation. The specifics of that MOU, however, were not discussed at the public meeting.

Within this discussion are a number of key findings for scholars of food studies – those who tend to be more pessimistic about Sino-African agricultural cooperation. Firstly, both Rwanda and Uganda outline that they aim to develop their agricultural sectors to become more productive, but also more industrialized. Partnering with China is ultimately one of many means to achieving this end. Rwanda and Uganda are ultimately able to achieve these ends through their own initiatives, and they are very much a part of building partnerships with China – at times, Rwanda and Uganda are in fact the ones to instigate the partnerships. They are not the bystanders that are ill-equipped to make decisions in their own best interest. However, it would appear that both Rwanda and Uganda are keen to follow a Johnston and Mellor (1961) approach to development. That is to say, both countries see capital intensity and mechanization in their agricultural sectors as crucial for encouraging mobility out of the rural sector, a development that both countries are looking to encourage. Rwanda and Uganda are eager to increase individual farmer productivity, and capture economies of scale – China is one of many partners that can help them achieve this goal. Food regime theorists may see this method of development as an affront on rural livelihoods. For example, Akram Lodhi (2012) suggests that global agrarian question of the third food regime is, “whether capitalism is transforming farming and agriculture, and if so, how.”<sup>23</sup> Akram Lodhi argues that foreign land grabbing is most emblematic of how global capitalism is transforming rural livelihoods, and while I do not disagree with this conclusion, I would add that based on

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<sup>22</sup> Bucyanayandi, T, Masaka Agricultural Show, Uganda, personal recording, May 28<sup>th</sup>, 2015.

<sup>23</sup> Akram-Lodi (2012) pg. 126.

the findings in this study, one of the main driving forces of extending capital intensive agricultural transformation is a product of the African countries domestic development policies. The Sino-African demonstration centres in Rwanda and Uganda do not necessarily grab land directly; they are still nodes of extending industrially oriented modes of agricultural production. Pessimists may be relieved to find that China's role in Africa is not one of grabbing land, and therefore unlikely to be a driving force in redefining international agricultural divisions of labour that resonate with the first or second food regimes, but they may be equally critical of the Rwandan and Ugandan governments' decisions to pursue industrial and capital intensive models of agricultural development. Based on this finding, critical discussions on the global food politics may be uncomfortable with China's efforts to encourage this transformation.

It is undoubtedly for the greater good of African countries that they are able to express autonomy, and determine their own paths of development – even the staunchest pessimists would not be able to deny this. However, pessimism about China's role in African agriculture will persist because the path that Rwanda and Uganda are pursuing is one of increasing capital intensity, and China seeks to enable this process. In light of these findings, I would argue that contemporary studies in the global food economy is missing trends that are occurring outside of its traditional theoretical framework. Food regime theory, for example, does not address the nuances of China's role in global food politics, nor does it take into account African agency, and this issue is worthy of more attention.

### **Preferential access for Chinese firms**

If Rwanda and Uganda stand to access technology from Chinese companies through the RATDC and UATDC, what do the Chinese companies and institutions that deliver the demonstrations stand to gain? Granted that the demonstrations are agreed upon at the Forum on China Africa *Cooperation*, and the CPC has been keen to pursue *mutual benefits* in its foreign ventures, there must be something that China itself stands to gain. As I will explore more in the section, the joint-venture phase of the protocols



function as windows of opportunity for Chinese firms to enter African agricultural sectors, and gain experience in those markets.

Most notably, Chinese firms and institutions benefit given that there is no timeline for when they need to leave, nor is there any strong incentive from private Chinese companies that facilitate the demonstrations to develop meaningful and cooperative businesses with a local company. The lack of incentive and willingness to build strong partnerships with local institutions was made most clear by what many participants referred to as an ‘element of secrecy’ among the Chinese technicians that staffed the centres.<sup>24</sup> For example, in Rwanda, FAFU technicians were hesitant to teach RAB staff or people who participated in trainings at the centre how to make mushroom spawn, which is used to multiply tubes,<sup>25</sup> and the overwhelming majority of tube producers in Rwanda purchase their spawn from the RATDC.<sup>26</sup> Holding a monopoly on spawn is lucrative, and at the time of my research spawn sales were one of the key sources of revenue for the RATDC. RAB’s own mushroom technology officer who had a permanent placement at the RATDC had not been trained by FAFU in spawn production.<sup>27</sup> There were a handful of people in Rwanda who knew how to produce spawn; however, the lion’s share of these people had been trained by a professor at the University of Burundi, who himself was working on oyster mushroom production, and improving methods of mushroom production for small holders.<sup>28</sup> One RAB technician who had worked closely with the FAFU technicians told me that broad growth within the mushroom sector hinged on training more people in spawn production.<sup>29</sup>

The UATDC faced a similar problem with fish feed production. Many technicians from ARDC had a rough idea of how Fenghuang Fisheries had been mixing their feed, but the specifics of how all the components were combined in the feed had not been made

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<sup>24</sup> Nearly half of all participants interviewed mentioned that ‘secrecy’ was an issue at the demonstration centres. See Appendix B.

<sup>25</sup> RATDC Staff and Mushroom Technology Officer at RAB, personal communication, March 30<sup>th</sup>, 2015.

<sup>26</sup> Mushroom producer and entrepreneur, personal communication, April 30<sup>th</sup>, 2015.

<sup>27</sup> RATDC staff and Mushroom Technology Officer at RAB, personal communication March 30<sup>th</sup>, 2015.

<sup>28</sup> Chief Executive Officer of BN Mushroom Producers, personal communication April 9<sup>th</sup>, 2015; Manager of production at mushroom producing company, Rwanda, personal communication, April 29<sup>th</sup>, 2015.

<sup>29</sup> RATDC Mushroom Extension Officer and RAB staff, personal communication, April 15<sup>th</sup>, 2015.

clear to the technicians – though this was partly due to the fact that all the ingredients came from China, and were written in Chinese characters.<sup>30</sup> At the UATDC, not only was Fenghuang Fisheries not forthcoming about the specifics of their feed production, they would not share information about their costs of production with technicians at the ADRC. This made it very difficult for ADRC technicians to gain an understanding of the economics behind running a larger aquacultural operation, and consequently, ADRC staff could not share this information with people who had come to the centre for training. And this was, in fact, a breach of the protocols of engagement, which clearly stated that, “the Chinese executive enterprise is duly bound to provide the financial report of the project to the government of Uganda and regular intervals.”<sup>31</sup>

Not only did FAFU and Fenghuang Fisheries maintain a competitive business edge in the way they operated the demonstration centres, both FAFU and Fenghuang Fisheries were given preferential access to local markets through provisions outlined in the centre’s protocols. In Uganda, the protocols said:

To support the Chinese enterprise to develop the market-oriented operation for the sustainable development of the centre, the Uganda government shall provide another land free of charge for production (or lease/sale the land in favourable conditions), and provide facilities and preferential policies of the investment in their market-oriented activities.<sup>32</sup>

The protocols for Rwanda have a very similar clause, though it speaks more to the preferential treatment policies that should be given to the China-Rwanda *joint-venture* following the FAFU operated stage. The Rwandan protocols state:

The Rwandan Government shall support the joint-venture to carry out the commercial operation in Rwanda, and facilitate it to purchase or lease lands

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<sup>30</sup> ARDC Senior Research Officer, personal communication, May 26<sup>th</sup>, 2015; ARDC Research Officer, June 2<sup>nd</sup>, 2015.

<sup>31</sup> GoU (2008).

<sup>32</sup> Ibid.

required, and provide it preferential accepted policies on land, investment, tariff, tax, trade, foreign exchange control and other aspects.<sup>33</sup>

The possibility that the sustainability phase of the FOCAC demonstration centres could create tension following the China-funded period does not, however, go completely unforeseen in the existing literature. Li et al. (2012), note that without the oversight of a regulatory mechanism there is no guarantee that the independent Chinese companies would have any reason to cooperate directly with local institutions during the joint venture phase of the centres.<sup>34</sup> Li et al. (2012) also forecast that this could be a major source of criticism of the centres.<sup>35</sup> Indeed, the vague condition of how the centres would conclude was the most common complaint grievance among Ugandan researchers at ADRC.

China's approach to assisting agricultural development in African countries through cooperative and mutually beneficial developmental initiatives is a novel idea; however, the lack of a distinct regulatory framework or independent body to regulate China's demonstration centres other than the economic attaché of its embassies does create problems. Following the Chinese government support at the demonstration centres there is no reason for Chinese companies to act any differently than any other private enterprise, and if the interpersonal relationships between the Chinese and African technicians falls apart the Chinese firms will have no incentive to maintain a strong working relationship with their African counterparts.<sup>36</sup> Moreover, the Chinese firms and institutions that operate the demonstration centres have no reason to hand over the infrastructure of the demonstration centre if it is profitable for the Chinese firm that is operating it, and the vague protocols surrounding how the centre is supposed to transition towards a joint venture enable this.

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<sup>33</sup> GoR (2008b).

<sup>34</sup> Li et al. (2012) pg. 233

<sup>35</sup> Ibid.

<sup>36</sup> Principal Fisheries Officer at MAAIF., personal communication, June 8<sup>th</sup>, 2015. This participant noted that the demonstration and joint-venture phases in Uganda would have been more effective had there been a stronger working relationship between the NaFIRRI technicians and the ADRC.

As was discussed in Chapter 2, there is reason to agree with Adem's (2013) discussion of the optimistic assumption that the logic of capital will shift depending on who is in the driver's seat. Based on the experiences at the RATDC and UATDC it would seem as though this is only true at the state level. China *does* mobilize aid based on the CPC's own political aspirations, and this *will* leave a different footprint. However, once the cooperative phase of the demonstration centres ends, a Chinese *corporation* is then placed in the driver's seat, and Chinese corporations will behave similarly to any other private enterprise when it is no longer constrained by protocols outlined by the Chinese state. That is to say that independent Chinese companies will be driven by profit, not diplomacy.

One of the early causes for optimism among Sino-African observers was that China's engagement in rural Africa was ultimately a projection of the CPC's political aspirations, and these aspirations differed from the West. Therefore, Chinese aid in Africa would have different consequences for local development than Western aid.<sup>37</sup> Indeed, China's current method of agricultural demonstrations is quite different from aid-based interventions that originate from the West. One need look no further than the ARDC itself to see the different impacts between Western based aid, and Chinese assistance. As was mentioned in Chapter 4, ARDC had hosted a USAID project that concluded just as the Chinese project was being constructed. The USAID project left no infrastructure; it trained farmers to use hormone treatments to encourage size-specific competition among young fish; and used grading equipment that was inaccessible to most Ugandan fish farmers.<sup>38</sup> Alternatively, the Chinese contribution had brought a hatchery, a feed mill, laboratories, sleeping quarters, and refurbished the existing research site. The Chinese initiative was not traditional 'aid', and it was indeed a projection of the Communist Party's aspiration to foster goodwill and South-South development. Nonetheless, China did seek to create economic benefits for the companies that operate the demonstration centres, and it was a serious concern among technicians at the ARDC

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<sup>37</sup> Brautigam (1998), mentions this specifically on pg. 3, but devotes much of her book, *Chinese Aid and African Development*, to this theme.

<sup>38</sup> Fish farmer, Uganda, personal communication, June 16<sup>th</sup>, 2015.

that they had lost some ownership over their ponds and research site.<sup>39</sup> Even if their facilities had been refurbished, they were not much use if they could not be used. Chinese agricultural demonstrations leave a different footprint, but it is not always as positive and liberating as optimists suggest. One senior researcher at ARDC discussed his experience with both Chinese and Western donors, and said, “They are all devils, but one is a better devil. I am coming from a lot of experience.”<sup>40</sup>

### **Limiting factors, and a lack of coordination**

A number of factors limit the impact of demonstration centres. To name a few, there were significant language barriers, a lack of coordination between agencies within Rwanda and Uganda, and a lack of coordination between local institutions and Chinese representatives. These limiting factors are just a few of many that suggest Sino-African demonstration centres are components of the global food system, and indicate areas that warrant attention within the global food economy, but China’s role in rural Africa is not an avenue along which China is dictating a new food order. These arguments are fleshed out further below.

First and foremost, there is a lack of coordination within the institutional environment in Rwanda and Uganda that inhibits the widespread adoption of technologies that were demonstrated at the centres, and this lack of coordination diminishes the attractiveness of investing in rural Africa. For example, RAB was testing Jinshan 28 to be formally incorporated into its seed bank, but the seed itself was being adopted informally among farmers who had worked with the FAFU technicians. I spoke with one farmer in Rwanda from a cooperative who had been trained by the Chinese. He showed me his paddies where he was growing his rice in Mututu, and it was immediately clear that he had adopted the ‘grid’ method of supersaturating his rice fields (discussed in Chapter 4). Jinshan 28 is still being tested by RAB before it is officially introduced into RAB’s germplasm, but this farmer had taken about eight kilograms of seed following the

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<sup>39</sup> ARDC Research Officer, personal communication May 22<sup>nd</sup>, 2015; ARDC Senior Research Officer, personal communication, May 26<sup>th</sup>, 2015; ARDC Research Officer, personal communication, June 2<sup>nd</sup>, 2015.

<sup>40</sup> ARDC Research Officer, personal communication, May 26<sup>th</sup>, 2015.

harvest of the Chinese demonstration plots in Mututu.<sup>41</sup> He then brought these seeds to his rice cooperative, and along with three other farmers from the cooperative he was testing the variety to see if it was worth growing in the future.<sup>42</sup> He explained to me that there are official, and unofficial ways that seeds are introduced to Rwanda's seed bank – this would have been one of the 'unofficial' ways.

This farmer indicated that using unapproved seeds was a common practice, as it was a recent development that RAB had started to regulate seed distribution.<sup>43</sup> However, he had very little to tell me about how much Jinshan 28 yielded, or how it tasted, as he himself had not tried it. He suggested that the Chinese technicians usually took the rice from their demonstration plots for their own personal consumption at the centre. As was discussed in Chapter 4, there is an aversion to local short-grain rice in Rwanda, and this could be a limiting factor in the widespread adoption of Jinshan 28. This lack of coordination and inability of RAB to fully regulate what seeds are used in Rwanda could be an inhibiting factor for the implementation of higher yielding seeds (Chinese or otherwise), as it makes it difficult to track patented seeds. The original MOU signed between MINAGRI and FAFU university in 2005 – when RAB first bought the patent to FAFU's upland rice and JUNCAO – stipulated that the share of profits between MINAGRI and FAFU would be discussed later should FAFU's rice varieties become used on a large scale in Rwanda.<sup>44</sup> If RAB is unable to track the use of patented seeds through Rwanda, it could create challenges for RAB to purchase more patented seeds that are agreed upon under similar contracts.

In addition, farmers who had participated in the terracing extension program through the RATDC failed to see the benefits of terracing. The process of terracing the land took about one month, and cost the RATDC about two thousand American dollars.<sup>45</sup> Spending money on the demonstration was a point of contention for the Chinese technicians and the RAB technicians who had worked on the terracing extension

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<sup>41</sup> Rice farmer, Mututu, Rwanda, personal communication, May 7<sup>th</sup>, 2015

<sup>42</sup> Ibid.

<sup>43</sup> Ibid.

<sup>44</sup> MINAGRI (2005), pg. 3.

<sup>45</sup> Farmer, Rubona, Rwanda, personal communication, April 2<sup>nd</sup>, 2015.

program. One FAFU technician explained to me that in China, people terrace their plots without being paid because they understand how it will benefit them in the long run, and he was frustrated that this was not the case in Rwanda. However, when I asked the farmers why it was that they needed to be paid to terrace their land I was reminded that there are two harvests per year in Rwanda, and farmers have very little time between harvesting and sowing to make terraces.<sup>46</sup> The terracing extension program was so expensive because the terraces had to be made between harvesting and sowing, and the centre had to enlist the help of other farmers who lived close by to complete the terraces between seasons. Unsurprisingly, farmers were not keen to assist in the terracing extension program without being paid if they themselves were not benefiting directly from terraced plots. One farmer whose land had been part of the extension program said that if the government was going to spend money on assisting him, he would rather get access to subsidized fertilizer than have his plots terraced.<sup>47</sup> The farmers did not claim that they had seen any difference in yields since they had terraced their plots; however, both the RAB and FAFU technicians were quick to tell me that the benefits of terracing plots takes a few years to become apparent, and that farmers would eventually see that they did not need to till their fields as deep, or let plots fallow as often if they had been organized into terraces.<sup>48</sup>

One research technician at the RAB's southern zone who was a specialist in soil and water conservation, and had worked as an administrator at the RATDC, said that the Chinese terracing demonstration plots in the concrete containments was actually a fairly standard way to measure soil erosion.<sup>49</sup> While this demonstration was not necessarily showing a technique that was entirely new to Rwanda, it would not have existed had it not been for the Chinese intervention. Another RAB staff member who had worked with the FAFU during their demonstrations in Mututu told me that the terracing demonstrations were disappointing.<sup>50</sup> This technician had hoped that the FAFU technicians were going to demonstrate how to make terraces that can grow paddy rice,

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<sup>46</sup> Ibid

<sup>47</sup> Ibid

<sup>48</sup> Ibid

<sup>49</sup> RAB Research Officer, personal communication, April 17<sup>th</sup>, 2015.

<sup>50</sup> RAB staff, personal communication, April 8<sup>th</sup>, 2015.

instead of terraces that farmers were already familiar with.<sup>51</sup> If farmers and local technicians fail to see the benefit of some Chinese techniques, it could act as a barrier to their widespread adoption.

Language issues also limited the impact of the demonstrations, though the problem was more acute in Uganda. Many of the technicians who worked at the RATDC spoke English. In Uganda, none of the technicians spoke English, and all communication was done through a translator.<sup>52</sup> Complicating the matter was the fact that the translator who worked at the station had very little knowledge of fisheries and aquaculture. This meant that even with the assistance of a translator it was difficult to communicate because the translator was not familiar with technical and scientific words that are common among aquacultural researchers.<sup>53</sup> When it came to conducting demonstration, there would effectively be one person with little knowledge of the technical language translating complex presentations and demonstrations to a group of Ugandan farmers – many of whom themselves did not speak English, and required further translation from Chinese, to English, to their native language.<sup>54</sup> Consequently, the demonstration process tended to be more *show*, and less *tell* than had originally been envisioned. Some farmers and aquaculturalists who had been a part of the demonstration process said this did not affect the delivery of the demonstration, and indicated that the simplicity of Chinese techniques did not require thorough explanation.<sup>55</sup> However, many research technicians from ADRC indicated that the language barrier was an issue for them, as part of the demonstration was supposed to involve the transferring of more technically advanced skills to NaFIRRI researcher, and language was a significant barrier in that component of the demonstration.<sup>56</sup> Language barriers will continue to be an issue for the adopting Chinese agricultural technologies across Africa. Not simply because it makes it difficult to perform demonstrations, but because English is the international standard as the

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<sup>51</sup> Ibid

<sup>52</sup> ARDC Research Officer, personal communication, May 22<sup>nd</sup>, 2015.

<sup>53</sup> Ibid

<sup>54</sup> ARDC Research Officer, personal communication, May 22<sup>nd</sup>, 2015.

<sup>55</sup> Fish Farmer, Uganda, personal communication, June 15<sup>th</sup>, 2015.

<sup>56</sup> ARDC Research Officer, personal communication, May 22<sup>nd</sup>, 2015.



language of science.<sup>57</sup> Indeed, language issues have always been an issue at Chinese agricultural demonstrations. Brautigam made note of this as far back as 1983.<sup>58</sup>

While China may have agricultural technologies that are easy to adopt, it does not go to say that agricultural technologies can be cut and paste. A limiting factor in the adoption of Chinese technologies is due to what one research technician at ADRC called ‘technological domestication’.<sup>59</sup> In Rwanda, for example, some mushroom tube producers had learned the JUNCAO method of production, but had altered the process to better fit their needs and available inputs. FAFU may have introduced the concept of mushroom tube production, but the best inputs that are available for JUNCAO technology in China may not be available in the countries that are looking to adopt the method, and it was local entrepreneurs who were adapting the technique to best to suit the local environment. Many mushrooms enterprises in Rwanda had adapted the JUNCAO process, and cut the incubating period of the substrate down considerably. The process of domestication was also evident among farmers at the caged fish farming association that had based their cages on what they had learned from Fenghuang Fisheries. One fish farmer from a fishers association that had been trained by Fenghuang Fisheries told me that had it not been for China, he and his fellow fishers would still be using bamboo cages.<sup>60</sup> Since receiving training at the UATDC they had started to fabricate their own steel cages based on the Chinese model – the cages used by the fisher’s associated were better suited to their needs, and perhaps even more productive than the Chinese cages.<sup>61</sup>

China, and Chinese institutions may have a comparative advantage over the West when it comes to appropriate agricultural technologies for African countries, but it does not go to say that Chinese companies will have an advantage within the agricultural sector where they introduce their technologies once the techniques have been ‘domesticated’ by local farmers and entrepreneurs. While FOCAC demonstration centres may be an avenue along which Chinese institutions and firms can access African markets

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<sup>57</sup> NARO Senior Staff, personal communication, June 4<sup>th</sup>, 2015.

<sup>58</sup> Brautigam, (1983), pg. 58.

<sup>59</sup> ARDC Research Officer, personal communication, May 22<sup>nd</sup>, 2015.

<sup>60</sup> Jinja Fishers Association member, personal communication, June 22<sup>nd</sup>, 2015

<sup>61</sup> Ibid.

it does not go to say that this market access will enable them to ‘capture’ agricultural sectors overseas, and dictate their positions within African countries’ food systems. Rwanda and Uganda both have unique institutional environments, and pose different challenges to international investors. Local entrepreneurs ‘domestication’ of foreign technologies was found to consistently be the most effective method of agricultural growth within Rwanda and Uganda, and in this vein international investors will either be averse to the challenges posed by working in rural African countries, or limited in their ability to adapt their modes of production quickly enough to compete with domestic businesses. Given the challenges faced by FAFU and Fenghuang Fisheries to introduce their technologies through demonstrations in Rwanda and Uganda, and the success of Rwandan and Ugandan entrepreneurs in testing or adapting the technologies themselves, it is an indication that it will likely be African countries that determine their own agricultural trajectories in the future.

## **Conclusion**

Sino-African agricultural demonstrations carry with them a number of risks and benefits for both China, and the countries that host them. Throughout this chapter, I have explored many of these benefits and risks, and posed them as three arguments. First of all, African countries are keen to articulate with China because China has affordable agricultural technologies that are easy to adapt to rural African environments. In Rwanda and Uganda, both countries had the benefit of receiving agricultural technologies that assisted in the development of nascent agricultural subsectors: mushrooms in Rwanda, and caged fish farming in Uganda. Prior to the FOCAC summit in 2006, the agricultural ministries in Rwanda and Uganda were familiar with the comparative advantage of Chinese agricultural technologies, and they were keen to find ways to access those technologies, as they had the potential to contribute to agricultural initiatives that the respective ministries had already designed. However, these African agricultural initiatives that China’s contributes to fulfilling could spur a new form of pessimism about China’s role in Africa. There is a tension in critical food studies literature about how capitalism will affect smallholding farmers. The pessimistic convention is that China extends capital-intensive means of production into rural Africa due to China’s own food

insecurity. Pessimists tend to think that this is so China can transform African countries into its own agricultural outposts. However, here I have argued that it is in fact African countries that are keen to articulate with China, and it is a function of Rwandan and Ugandan agricultural policy that the links with China are made. China offers unique and affordable agricultural technologies, and that makes China an appealing partner to African countries. However, pessimism could continue given that China still seeks contribute to a Johnston and Mellor (1961) style of agricultural development.

Indeed, China has reasons of its own to articulate with Africa, and I have uncovered part of this story as well in this chapter. Namely, China uses agricultural technology demonstration centres in Africa as a point of entry for Chinese companies to get preferential access to local markets, and gain experience in unfamiliar agricultural environments. The demonstration centres are primarily run by the Chinese technicians, who in turn have control over the centre's commercial operations. This allows the Chinese managers of the centre to gain knowledge of the agricultural sectors in which they operate. The strategy of tying aid with commerce is a relic of Zhao Ziyang re-interpretation of 'non-interference' that he announced in Tanzania in the early 1980's. This offers an interesting reflection for optimistic assumptions about China's role in rural Africa. Optimists often argue that Chinese farms in Africa produce for local markets, and my experience in both Rwanda and Uganda would confirm this. However, FOAC demonstration centres enable Chinese firms to enter African markets, and pursue their own commercial interests. In this light, FOAC demonstration centres are not quite as inconsequential for China as optimists often suggest. While there is no indication that China aims to transform rural Africa into an outpost for its own food security, rural Africa is a place where Chinese firms could be looking to establish a larger commercial presence. The demonstration centres are not entirely benevolent on behalf of China.

For the African countries that host the centres, there is a risk that the Chinese institution or firm that operates the centre may want to stay beyond the timeframe that is established in the protocols. If there is no strong regulatory mechanism to ensure the Chinese firms leave, or cooperate with a local company to create a joint venture, it can be

a source of bitterness. The risk that Chinese institutions and firms take is that they are introducing their technologies into relatively informal agricultural environments. Cutting and pasting their technologies is not an option – they need to be ‘domesticated’ – and in all likelihood it will be locals that are best equipped to adapt the technologies to better suit their environment. The Chinese firms risk their technologies entering African markets along informal avenues – as was the case of the Jinshan 28 rice seed in Rwanda – and this could make it unappealing for introducing technologies with more rigid patents. Indeed, the risks that China takes through the demonstration centres are mainly commercial. The risks that African countries take in hosting demonstration centres combined with the risks Chinese firms take by operating them will limit the overarching impact of FOACAC demonstration centres.

## Chapter 6: Conclusion

China shares a unique history with the African continent. At Bandung, Zhou Enlai had a chance encounter with Gamal Abdel Nasser, the apex leader in Egypt at the time, and their meetings sparked the CPC's interest in building relationships with African countries. Through the non-aligned movement, China was able to follow through on their aspiration to build partnerships with African countries. Many of these relationships fell apart during the Cultural Revolution, but later came to fruition in 1972 when the United Nations held a vote to officially recognize the CPC. The vote went in the CPC's favour due in no small part to African countries support for the more moderate post-revolutionary government. As the CPC transitioned from the revolutionary party to the ruling party in the late 1970's, the CPC began to engage with African countries along economic avenues, rather than through political ideology. Indeed, it was during this period that China began to operate its first agricultural demonstration centres, build cooperative projects, and seek mutual benefits through aid. China and Africa remained diplomatic partners throughout the 1980's, and their economic relationships continued to develop throughout the 1990's. Africa and China remain deeply connected to this day.

In many ways, The Forum on China-Africa Cooperation encapsulates the full Sino-African historic gamut. It has diplomatic, economic, and cultural implications, and it continues to offer alternatives to Western engagement. How then can we understand the agricultural demonstration centres as a part of this history? What makes the demonstration centres so complicated to understand is that they embody a combination of diplomatic and economic interests. At times it feels as though the full experience of Sino-African history is encapsulated within the demonstration centres themselves. Through the centres, China and Africa can decorate their relationship. For example, the agreements to development agricultural centres are negotiated at high profile summits; Chinese embassies often encourage local news agencies to cover large ribbon cutting ceremonies at the demonstration centres, and display China's contribution to Africa; and the centres host high profile events with African delegates to show what has been achieved through

the technology transfers. However, the demonstration centres also meet commercial ends – they are points of entry for Chinese firms to engage in African markets, and they can help spur entrepreneurial growth in African rural sectors. Through the agricultural demonstration centres, China and African countries are able to marry development, cooperation, diplomacy, and commerce – in turn exemplifying their shared history.

And through this history Chinese delegates are able to activate memories among African people, and among Chinese people as well. For example, China does not seek to dictate a global order by subjugating Africa, and Chinese delegates will often draw on Sino-African history dating back to the 15<sup>th</sup> century to indicate this. It is also worth noting that China has, in fact, never sought to dictate any sort of global order. One the most potent debates among observers of China’s foreign policy is whether or not China even has a coherent foreign policy,<sup>1</sup> let alone an ability or desire to craft global systems in its own interest. China itself is somewhat passive in the institutions that shape global networks, instead aiming to articulate with existing avenues of trade and development, and avoid the risks associated with crafting global systems. In light of this, China articulates with Africa because their history of doing so has been successful, and there is far more to lose from disrupting this history than there would be to gain from redirecting it.

In Africa, China sees a number of countries with which it shares a history, and it sees nascent agricultural sectors that could be profitable in the near future. China does not seek to shift the course of African development by dictating a food and agricultural order. Rather, China seeks to contribute to African agricultural development, and create avenues of entry for its businesses. Chinese and African agricultural cooperation symbolize shifts in the global food order away from Western backed regimes, but that does not mean it is emblematic of a new regime. Rather, Sino-African agricultural cooperation is indicative of systems that are emerging outside critical food studies paradigms. What this study has shown us is that *African countries* are becoming increasingly competent in dictating their own developmental trajectories, and China is a cog in the international system that

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<sup>1</sup> See Shambaugh (2013), pg. 45-120 for a more complete discussion of this debate.

African governments and agricultural institutions can turn in order to access relevant expertise, and stylized agricultural technologies that are appropriate for their rural sectors. To Africa, China is an option – it always has been.

It is important to understand this history, and it is important to understand how it operates in contemporary Sino-African affairs. It is time to begin forming new theories about the nature of Sino-African affairs and their place in the global food order. Had I taken the primary data collected in this study and fit it to existing theory, rather than assessing the facts and interpreting how existing theories would respond to them – as I have done throughout this thesis – I would have arrived at one of two conclusions.

First of all, if this study had focused on the facts purely through a pessimistic lens on Sino-African affairs, I would have arrived at a similar conclusion to that of French (2014), who argues that China's initiatives across the African continent aim to develop powerful feedback loops that will enable China to access resources, and that Africa is serving as a second continent for China (as the title of French's book, *China's Second Continent*, implies). Reaching this conclusion based on the primary data would have been logical had the data been analyzed through a pessimistic lens. The Chinese technicians do not want to leave Uganda, which according to pessimistic conventions is evidence that Chinese people are migrating to China to stay. The protocols grant Chinese firms access to land – again according to pessimistic conventions this would confirm that China is trying to grab land in Africa. And while the word 'aid' may be used in the title of the protocols of engagement of the demonstration centres, the pessimistic view would argue that the agreements ultimately enable Chinese companies to set-up-shop, and access African economies and agricultural resources.

Alternatively, had I reached these pessimistic conclusions, and made them the tenets of my analysis, I would have had to ignore a number of more 'optimistic' analyses about the demonstration centres. For example, China and African countries mutually craft the programs that the demonstration centres contribute to, and Rwanda and Uganda approached China at the 2006 summit to host the demonstration centres – not the other

way around. Moreover, many farmers, agricultural technicians, and government officials are pleased with their newly acquired access to Chinese agricultural technologies, and many feel quite positive about the training they have received in improved agricultural techniques. However, had these ‘optimistic’ conclusions been the foundation of my analysis, I would have missed the in-roads to African economies that Chinese firms make through the agricultural demonstration centres, and not painted a complete picture of the risks and rewards for all parties involved. Throughout this thesis, I have accounted for both of these lenses of analysis, and how they may interpret the Sino-African demonstration centres in Rwanda and Uganda.

If these conclusions are mutually exclusive, then what are we left with? What do these centres tell us about the nature of Sino-African agricultural affairs, and its orientation in the global food order? Ultimately, whether or not one sees Sino-African agricultural demonstration centres as positive, or negative, will come down to one’s own worldview. Insofar as one believes that the extension of more capital intensive means of agricultural production are to the detriment of the global food system, then pessimistic views of Sino-African agricultural affairs will prevail. China and Africa may not be articulating according to pessimistic conventions exactly, but China does aim to contribute to African countries that want to introduce capital intensity and concentration in their agricultural sectors. Alternatively, if one sees a ‘Johnson and Mellor’ agricultural trajectory as best, then China is indeed a powerful force of good in shaping the agricultural trajectories of African countries, and the broader global food economy.

China is becoming an increasingly powerful node of support for agricultural development, and it is important to understand the nature of this emerging trend. In 2012 Hillary Clinton toured a handful of African countries following a FOCAC summit, and encouraged African countries to partner with “responsible powers”<sup>2</sup> It was a veiled criticism of China, and it was an enormously inaccurate assessment of what it was that FOCAC agreements do. As this study has shown the FOCAC agricultural demonstration centres in Rwanda and Uganda aim to *encourage* liberalized economic agricultural

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<sup>2</sup> Associated Press (2012)



developments. China is, in-fact, *enabling* African countries to navigate the economic hangovers of structural adjustment, and other maligned policies that have been perpetuated by Western led international institutions. However, the Sino-African partnerships, such as those discussed in this study that can navigate these policies, are still in their nascent stages.

At this juncture it is worth returning to a point brought up in the introduction of this study about the broader implications of Sino-African affairs, and their significance beyond academia. China's role in Africa is a 'dragon in the room' of international relations. It is distracting from other topics, and it is every bit as dangerous to ignore as it is to try and shoo away. If the political and economic significance of Sino-African affairs are downplayed, strategies in the international policy domain could be caught flat foot, or off kilter, when addressing the changing nature of international relations. Alternatively, if China's impact in Africa (and vice versa) is inflated, both parties could feel threatened. The pragmatic approach that I have taken in this study can contribute to clarifying some aspects of Sino-African affairs. The conclusions reached in this study suggest how theories on Sino-African affairs should consider the relationship in the future. The RATDC and the UATDC should not be considered as forays, but as partnerships that are indicative of a changing global food order for which the impacts and implications are only just emerging.

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## Appendices

### **Appendix A: Interview Questions**

The following is a list of standard interview questions. This list is by not exhaustive – the semi-structured nature of the interviews meant that in most cases additional questions were added, impromptu. Additionally, not all of these questions were posed to each participant. The questions below are also not necessarily written exactly as they were asked.

1. What is your own research background in?
2. What does your current position at MINAGRI/MAAIF/RAB/NAFIRRI involve?
3. With your background experience in research, as well as your practical experience in your current job, what do you think is the most important development for Rwanda/Uganda?
4. In what capacity do external sources, be it NGO's, multilateral institutions, or bilateral donors/partnerships, contribute to accomplishing these goals?
5. In what capacity, has China, or the Chinese centres, contributed to accomplishing these goals?
6. Can you speak to the inception of the centre?
7. Are the techniques being taught at the centre integrating into farmers' toolkit easily?
8. Could you speak to the current status of the centre's funding?
9. In what capacity does China benefit from the project?
10. Does the centre serve a purpose in addition to the demonstration of agricultural technologies? Perhaps a diplomatic, or political purpose?
11. Has your experience at the centre made you look favourably on China as a country to partner with in your agricultural development?
12. Of the many partner's that contribute to Rwanda/Uganda's agricultural development, does the contribution that China is making stand out?
13. Are Chinese techniques and technologies easy to adopt?
14. Are Chinese technologies relatively cheap?
15. How would you respond to the criticisms of China's agricultural assistance in Africa?
16. What role would you like to see China play in Africa's agricultural development in the future?

### **Appendix B: Interview codes**

| Code      | Sub-Code | Number of sources | Number of references |
|-----------|----------|-------------------|----------------------|
| China the | Fish     | 1                 | 2                    |

|                             |   |    |    |
|-----------------------------|---|----|----|
| competitor                  | Mushrooms                                   | 4  | 5  |
| Cooperation                 | Benefit to China                            | 25 | 59 |
|                             | Benefit to host                             | 23 | 49 |
|                             | Comments on centre                          | 21 | 93 |
|                             | Current status                              | 14 | 24 |
|                             | How people became linked                    | 11 | 17 |
|                             | Language issues                             | 13 | 24 |
|                             | Negative                                    | 12 | 35 |
|                             | Origin of the centre                        | 12 | 36 |
|                             | Positive                                    | 25 | 56 |
|                             | Secrecy                                     | 20 | 31 |
| Fish                        | Fish species                                | 8  | 14 |
| Mushrooms                   | Export                                      | 2  | 6  |
|                             | Gov't perspective                           | 3  | 3  |
|                             | How participant was introduced to mushrooms | 6  | 17 |
|                             | Market/marketable/market size               | 6  | 26 |
|                             | Mushroom tube prices                        | 3  | 7  |
|                             | Private connections to centre               | 7  | 33 |
|                             | Private spawn production                    | 4  | 10 |
|                             | Producer capacity                           | 5  | 12 |
|                             | Production cycle                            | 5  | 13 |
|                             | Source of materials                         | 2  | 2  |
| Reflections on host country | Example of strong institution               | 14 | 34 |
|                             | Most important development                  | 16 | 31 |
|                             | Problematic institutions                    | 11 | 26 |
| Rice                        | Rice growing techniques                     | 8  | 20 |
|                             | Rice varieties and preferences              | 7  | 27 |
|                             | Upland                                      | 4  | 11 |
| Silkworm                    | Background                                  | 2  | 2  |
| Terrace                     | Need fertilizer                             | 1  | 2  |
| Training and Technology     | Effective                                   | 17 | 29 |
|                             | Helpful/useful                              | 14 | 34 |
|                             | In China                                    | 10 | 14 |
|                             | Method                                      | 10 | 14 |
| What role of China          | China does it cheaper                       | 19 | 38 |
|                             | Compared to other assistance                | 24 | 83 |
|                             | Unique                                      | 5  | 8  |
|                             | Easy to adopt                               | 15 | 37 |
|                             | In the future                               | 26 | 40 |
|                             | Introducing industry                        | 8  | 18 |

|  |                        |    |    |
|--|------------------------|----|----|
|  | Response to criticism  | 20 | 40 |
|  | Dealing with investors | 7  | 22 |