

# Chinese investments and Africa's small-scale producers: disruptions and opportunities

Empirical analysis of primary sectors in Tanzania,  
Zambia and Zimbabwe

Xiaoxue Weng, Lila Buckley, Emma Blackmore, Bill Vorley,  
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RESEARCH  
PROGRAM ON  
Forests, Trees and  
Agroforestry



COWI

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Published by IIED, June 2018

Weng, X, Buckley, L, Blackmore, E, Vorley, B, Schoneveld, G, Cerutti, P O, Gumbo, D, Moombe, K B, Kabwe, S, Muzenda, J, Mujeyi, K, Chacha, M, Njau, M and Jønsson, J (2018) Chinese investments and Africa's small-scale producers: disruptions and opportunities: Empirical analysis of primary sectors in Tanzania, Zambia and Zimbabwe. IIED Research Report. IIED, London.

<http://pubs.iied.org/13605IIED>

ISBN: 978-1-78431-607-5

Printed on recycled paper with vegetable-based inks.

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Cover photo: Lusaka, Zambia. Zambian workers picking chili crops at the Lao Hu Farm Limited. The women get paid 15 Kwacha (GBP 1.47) a day at the 50 acre farm growing Chinese vegetables and raising some pigs. Their customers are almost entirely the Chinese population in Zambia. In recent years as many as two million Chinese have made Africa their home and by some estimates 70,000 have moved to Zambia. Elsewhere, around Lusaka, other Chinese are growing vegetables. Some do so to supply the Chinese population who prefer to eat the same foods they are used to in China. Credit: Robin Hammond/Panos

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# Executive summary

As China increases its engagement with Africa through trade, investment and aid, development researchers and practitioners are increasingly concerned about its potentially unique impacts on the continent's development pathways, environment and marginalised populations. While the popular discourse is still largely polarised between win-win or neocolonialist narratives, especially linked to China's disruption of business-as-usual and its appetite for natural resources, scholars have increasingly sought to break away from the current dichotomy to offer more rigorous and nuanced analyses grounded in empirical research.

Our report, synthesising findings from three years of research in agriculture, forestry and mining, across three African countries, aims to contribute to this growing body of evidence. Using qualitative and quantitative data collected from over 700 surveys, 130 interviews and 100 focus groups, we have sought to understand whether **Chinese trade and investments in Africa's rural economy can be leveraged to bring about inclusive and sustainable development**. Specifically, we examined the following questions:

- Do Chinese businesses engage with Africa's rural economy differently from established businesses and, if so, how?
- How do African actors and their governance systems respond to and interact with the changing commercial landscapes linked to Chinese businesses, formally and informally?
- How are Africa's environment and its small-scale producers (of agricultural goods, timber and minerals) affected by such disruptions in the commercial landscape and governance systems?

Our explicit focus on the environment and small-scale rural producers arises from our interest in sustainable development. In particular, this research explores the realities of implementing the Sustainable Development Goals (SDGs) and their promise to "leave no one behind." Africa's rural population is a particularly important and vulnerable group in this regard. The continent is predicted to experience sustained high population growth in rural areas for two more decades, remaining the only region in the world where rural populations are expected to continue to outnumber urban populations.

Dependent on natural resources such as land, forests and minerals for subsistence and commercial activities, rural residents are the key decision makers on a daily basis, regarding the trade-offs between resource utilisation and conservation. Despite numerous

policy interventions to promote sustainable rural development over the years, market failures and structural constraints continue to hamper the potential for rural producers to create and participate in an inclusive and resilient rural economy. The entrance of Chinese and other new investors has disrupted many existing market norms, and has led to new opportunities, as well as challenges for achieving the SDGs.

Meanwhile, environmental sustainability remains a thorny issue in the broader China-Africa relationship. Although China's President Xi Jinping proclaimed that, "China-Africa cooperation will never be pursued at the expense of Africa's eco-system and long-term interests," (CRI 2015) it remains uncertain to what extent Chinese investors, traders and consumers will demand high sustainability safeguards, given the already weak environmental governance generally seen across African countries.

This report therefore puts these two issues – African small-scale producers and the environment – at the centre of the analysis in relation to the development impacts of Chinese trade and investments. We look at the cotton sector in Zimbabwe and Zambia, timber in Zambia, and copper and gold in Tanzania. Our findings reveal a significant level of diversity related to Chinese business strategies, interactions and impacts, within and across the sectors and geographies. Each of these sectors is examined separately in significant depth, in respective sector reports (Schoneveld et al. 2018; Cerutti et al. 2018; Kabwe et al. 2018). For the purposes of this synthesis report, we summarise these findings in Sections 4–6 with the aim of providing some generalisable insights into the evolving China-Africa relationship. Specifically:

- Across the three sectors, Chinese investors are employing a variety of business strategies that contrast with those employed by established players in the sector. In all cases, this has upset the prevailing governance regimes, though the disruptive impacts and replicability by other investors varies greatly across sectors. Indeed, two of the three sector case studies suggest that a 'newcomer-versus-established player' lens is more helpful for viewing the disruptive impacts than a 'Chinese-versus-other investor' focus. Nevertheless, a common thread testifies to the fact that change associated with newcomer business strategies is rapid and accompanied by significant impacts, requiring governance systems in each sector to evolve quickly to respond to the new realities.
- The immediate socio-economic impacts on small-scale rural producers (farmers, loggers and miners) are found to be generally positive. Direct benefits include cash incomes earned from participating in Chinese-linked trade and investments. The increased revenue flows enable a large share of our sampled producers – who suffer from multidimensional poverty in the form of food insecurity and lack of access to education for household members – to improve their livelihoods. The surveyed producers, however, perceived the long-term uncertainty of this income source differently across the case studies. Some were more preoccupied with immediate

benefits, and expressed limited concerns for the long-term sustainability, while others acknowledged their reliance on overall sector performance.

- Indirect benefits include the empowerment of rural producers, particularly in the way they exercise agency to adapt and take advantage of the new commercial landscape created by Chinese and other newcomer traders and investors. Their disruptive business strategies allow rural producers to bypass the formal economic structures perceived to be exclusionary and unfair – in terms of lack of resource rights, high regulatory barriers, and collusion between industry and government resulting in a small share of the end value for them – and integrate into the global commodity trade with better financial returns.
- Positive socio-economic gains were accompanied by high environmental risks across the sectors, including biodiversity losses (for example, risks of extinction for certain tree species), long-term soil depletion, and water and soil pollution by toxic metals.
- Regulatory responses by national governments – mostly designed around the logic of ‘classic’ business strategies used by established players in the formal economy – have proved inadequate. In the face of the disrupting business strategies employed by the Chinese and other newcomers, the governance systems have proved too slow in design and implementation, over-reliant on industry self-governance, and insufficiently innovative to address the social, economic and environmental trade-offs. Overall, the government’s responses have achieved limited success in all cases, at times not only doing little to allay environmental concerns but also harming the interests of small-scale producers.
- In some cases, regulatory responses not only disproportionately affected small-scale producers but fostered vicious cycles of poor governance, perpetuating producer-unfriendly market structures and increasing opportunities for rent-seeking behaviours. In certain cases, those with access to power and capital – elites, officials, investors and local brokers – were able to circumvent the official rules and continue their business. As a result, an informal set of rules and practices has emerged, condoned by most stakeholder groups, while the formal governance systems have remained a reality only on paper. Capturing the evolving China-Africa relationship therefore requires an understanding of the reality that lies in the (formal and informal) *interactions* between Chinese and African actors, and also what lies between written policies and regulations, and the actual practice on the ground.

Our research points to the role of all stakeholders, both Chinese and African, in co-creating the new commercial landscape with the socio-economic, environmental and political outcomes described above. We found that the unique business strategies employed by Chinese (and other newcomers in some cases) do indeed disrupt the existing governance systems. At the same time, local actors – willing producers,

helpful facilitators, predatory elites and supportive officials – demonstrate the 'African agency' to respond to these disruptions. In this way, the local and Chinese actors co-create an evolving commercial landscape that is often incompatible with the formal governance system. In this process of interaction, adaptation and evolution, environmental sustainability is often only given a cursory consideration.

Despite these broad-brush similarities between sectors, our report tells a cautionary tale about development research or interventions focused solely on Chinese actors. The complex interactions among all stakeholders, and their effects on outcomes and governance structures, demonstrate the need for a tailored approach that accounts for the heterogeneous nature of China-Africa commercial relationships and their respective leverage points. For example, advocacy aimed at the Chinese market will likely prove more effective for tropical timber trade than for cotton or small-scale mineral trade, for which the market pull does not directly shape behaviours at production sites.

In contrast, improving local governance – through increased capacity, aligned incentive structures and better horizontal and vertical coordination across government agencies – appears to be universally useful. This is especially useful in cases where investors from other emerging economies are also adopting similarly disruptive business strategies.

# Acknowledgements

This work was supported by the UK Economic and Social Research Council and the Department for International Development through the project “Natural Resources, Rural Poverty and China-Africa Trade: Equity and Sustainability in Informal Commodities Value Chains” [ES/M00659X/1], and Danida (Denmark), Irish Aid and Sida (Sweden). It is a part of the CGIAR Research Program on Forests, Trees and Agroforestry (FTA), with support from the CGIAR Fund Donors: [www.cgiar.org/our-funders](http://www.cgiar.org/our-funders).

The authors would like to thank all the interviewees for their invaluable inputs in this study. Special thanks also go to IIED, CIFOR, IAPRI, AEPRIC and COWI colleagues who contributed to the project in various ways, from conception to management and research. We would like to extend our gratitude to Xiaoyang Tang for reviewing this paper and for his invaluable comments.

# Acronyms

<b>AEPRIC</b>	Agricultural Economics, Policy Research and Information Centre	<b>IDE</b>	Institute of Developing Economies
<b>AMA</b>	Agricultural Marketing Authority	<b>IEA</b>	International Energy Agency
<b>ASM</b>	Artisanal and small-scale mining	<b>IFAD</b>	International Fund for Agricultural Development
<b>CAC</b>	China Africa Cotton	<b>IIED</b>	International Institute for Environment and Development
<b>CBP</b>	Common buying point	<b>IOSC</b>	Information Office of the State Council (People's Republic of China)
<b>CBZ</b>	Cotton Board of Zambia	<b>ITC</b>	International Trade Centre
<b>CGA</b>	Cotton Ginners Association (of Zimbabwe)	<b>KII</b>	Key informant interview
<b>CIT</b>	Cotton Indaba Taskforce	<b>MAMID</b>	Ministry of Agriculture, Mechanization and Irrigation Development (Republic of Zimbabwe)
<b>CITES</b>	Convention on International Trade in Endangered Species of Wild Fauna and Flora	<b>MEP</b>	Ministry of Environmental Protection (People's Republic of China)
<b>CMiA</b>	Cotton made in Africa	<b>ML</b>	Mining licence
<b>CMTC</b>	Cotton Marketing Technical Committee	<b>MOFCOM</b>	Ministry of Commerce (People's Republic of China)
<b>CNCRC</b>	China National Cotton Reserves Corporation	<b>NGO</b>	Nongovernmental organisation
<b>CRI</b>	China Radio International	<b>NWK</b>	NWK Agri-Services (Zambia)
<b>CSR</b>	Corporate social responsibility	<b>PML</b>	Primary mining licence
<b>CTC</b>	Competition and Tariff Commission	<b>PPE</b>	Personal protective equipment
<b>DAC</b>	Development Assistance Committee	<b>SDGs</b>	United Nation's 2016 Sustainable Development Goals
<b>DRC</b>	Democratic Republic of Congo	<b>SOE</b>	State-owned enterprises
<b>EIA</b>	Environmental Investigation Agency	<b>SSA</b>	Sub-Saharan Africa
<b>FAO</b>	Food and Agriculture Organization of the United Nations	<b>UN-</b>	United Nations
<b>FDI</b>	Foreign direct investment	<b>COMTRADE</b>	Trade Statistics Database
<b>FGD</b>	Focus group discussion	<b>UNDP</b>	United Nations Development Programme
<b>FOCAC</b>	Forum on China-Africa Cooperation	<b>UNEP</b>	United Nations Environment Programme
<b>GOV</b>	Government of China	<b>UNESCO</b>	United Nations Organization for Education, Science and Culture
<b>Ha</b>	Hectare	<b>US\$</b>	United States dollar
<b>IAPRI</b>	Indaba Agricultural Policy Research Institute	<b>ZEPARU</b>	Zimbabwe Economic Policy Analysis and Research Unit
<b>ICAC</b>	International Cotton Advisory Committee	<b>ZIA</b>	Zambia Investment Authority
<b>ICTSD</b>	International Centre for Trade and Sustainable Development		

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Photo: A Zambian farmer tends to her fields with her son who cannot attend school this year due to cash shortage of the family. The family is waiting for income from cotton farming this year to send the son back to school next year. Credit: Simon Lim.



# 1

## Introduction

Following decades of inward-focused development efforts, China has now emerged as a key player in international development policymaking and practice. As its economic and diplomatic engagement with the global South deepens, China increasingly wields influence over key development pathways there, such as infrastructure projects, renewable energy and climate negotiations. For example, China's Belt and Road Initiative, announced in 2013, pledges over £1 trillion for infrastructure in regions identified as China's strategic economic interests – the largest infrastructure financing initiative in recent history (Phillips 2017). Combining aid, investments and trade, China positions itself as both a competitor and a collaborator to the traditional development partners from the West. It explicitly disrupts traditional OECD-style development practices through new models of development policymaking and practice (Buckley 2013a). At the same time, however, it is also increasingly collaborating with multilateral bodies in initiatives such as international peacekeeping, climate change negotiations and co-financing of infrastructure projects.

China's growing role in international development has been particularly striking in Africa. Commercially, China is now Africa's largest trading partner and its foreign direct investments (FDI) are increasing rapidly (Dollar 2016). China buys a significant amount of Africa's commodities: it is one of the main consumers of African oil (IEA 2014)

and minerals (Dollar 2016),<sup>1</sup> and imports 40% of its tropical timber (FAO 2017). In terms of support for African development, Chinese and African leaders explore the parameters of their cooperation through the Forum on China-Africa Cooperation (FOCAC). Most recently, President Xi Jinping pledged US\$60 billion, covering aid and concessional loans, disbursed over many years.

Perhaps nowhere more than in Africa, China's development impacts are closely watched and scrutinised. Two contrasting narratives discuss this growing China-Africa relationship. The 'win-lose' narrative prevails in the mainstream media and NGO discourse outside of China and international academic circles. This narrative argues that China-Africa economic engagements are one-sided, benefiting China at the expense of African countries (Aguilar and Goldstein 2009; Li 2006). In the natural resources sector, in particular, there is a persistent sense of a hidden agenda, with Chinese leaders perceived to be promoting win-win cooperation, while in reality being interested only in exploiting the continent's resources. While Chinese and African leaders emphasise "industrial capacity cooperation" and "strategic complementarity" (Sun 2015) in developing Africa's natural resources, media reports and environmental groups argue that China – 'the world's factory' – is trying to secure access to resources in Africa that it lacks at home (Bosshard 2008). As reviewed further in Section 2, poor transparency, hostile labour relations and negative social and environmental impacts frequently mark descriptions of Chinese investments in Africa's natural resources sector.

In contrast, the Chinese and many African governments, as well as some scholars in China and elsewhere, frame China-Africa cooperation as mutually advantageous.<sup>2</sup> This 'win-win' discourse emphasises a relationship that is exploratory and points to China's own development success as fertile learning ground (Brautigam 2009; Jadesimi 2017; Wu and Cheng 2010). From the early roots of Sino-African relations as victims in solidarity against colonial powers, the official Chinese discourse has evolved to focus on the failure and inefficiencies of post-colonial aid, and inequalities of trade.<sup>3</sup> Chinese leaders have aimed to form an entirely "new type" of relationship with Africa in the 21st century – a "strategic partnership" featuring "political equality and mutual trust, economic win-win cooperation" (Fan, Nestorova, and Olofinbiyi 2010: 7–8). Such sentiment

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<sup>1</sup> Dollar (2016) indicates that the significant increase in the exports as a share of GDP among the resource-abundant, non-oil countries between 1995 and 2013 is largely attributed to China, and in particular its demand for minerals, such as copper, iron, zinc, gold and others.

<sup>2</sup> See, for example, Aguilar and Goldstein 2009, Carolina and Murphey 2009, Jing 2009, Wu and Cheng 2010; Yin and Vaschetto 2011, and Zhao 2008.

<sup>3</sup> In early forays into the international scene, Chinese officials – led by Mao and his anti-imperialist agenda – were quick to assert that China was distinct from colonial powers and that they came in friendship and solidarity (Mohan and Power 2008). Today, this has evolved into China's assertion of itself as "the largest developing country in the world" (GOV 2010: 2), providing assistance to African countries "despite its own economic hardship" (GOV 2010: 5). Emphasising their shared challenge of development, Chinese leaders thus assert a moral imperative to share their experience as they show "great concern for the livelihood for African people" (GOV 2010: 7).

is echoed by many African leaders, who make explicit links between China-Africa cooperation and anti-colonialism (Buckley 2013a; Taylor 2011).<sup>4</sup>

Going beyond these polarised narratives is a growing body of evidence – reviewed extensively in Section 2 – that examines the impacts of Chinese actors, contextualised within the experience of various African actors. Using empirical data, they focus on understanding how the general narrative about China's disrupting influence actually unfolds on the ground. As reviewed later, particular attention is paid to the agency of different actors, with a renewed emphasis on how African actors interact with and shape the impacts of Chinese actors.

This report builds on such an approach, as we aim to contribute to a better understanding of the implications of Chinese engagement on African countries' sustainable development pathways. If it is disrupting the existing commercial landscape and governance regime, then how does disruption happen, how is it different from actions of traditional players, who is involved, and what are the socioeconomic and environmental impacts? And what can a nuanced analysis tell us about how Chinese trade and investments can contribute to sustainable development on the African continent?

## China and Africa's small-scale producers

China's engagement comes at an opportune time for Africa's sustainable development. In the past decade, GDP growth has remained steady in most sub-Saharan African (SSA) countries despite the commodity market downturn (Coulibaly 2017), and cautious optimism for continued growth fills the mainstream media (*The Economist* 2016 and 2017). Yet climate change, food security, population pressures and political instability present challenges to the implementation of the Sustainable Development Goals (SDGs) (United Nations 2016) on the continent, in particular, their promise of "leaving no one behind", that is, 'inclusive' development catered to the needs of marginalised groups. Among those that can be categorised as marginalised, Africa's rural populations elicit particular concern. Due to the continued high birth rates and the relatively recent start of large-scale urbanisation compared to the other regions, Africa's rural population is still expected to grow significantly, adding nearly 380 million rural residents by 2050, a 63% increase from 2017 levels (Mercandalli and Losch 2017). For at least two more decades, Africa will be the only region where rural populations continue to outnumber urban ones, and it is projected to contain a third of the global rural population by 2050 (*ibid.*). Such a demographic change adds enormous pressures on land among rural residents, who already rely on farming as the dominant livelihood activity and have few job opportunities

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<sup>4</sup> For example, the former South African President Jacob Zuma argued during a visit to China that the country's growing influence in Africa would allow the continent to free itself from "colonial shackles". Likewise, the former Zimbabwean President Robert Mugabe argued, "The independence, the sovereignty we enjoy would not have come that easily were it not for China." He continued, "It's vital for our children to know as they grow up that once upon a time, when imperialism had stretched over our land, we outdid it, (and) threw it out of Africa using the assistance that came from China."

outside agriculture. Raising rural agricultural income and creating an off-farm economy is therefore one of the top policy agendas for African governments (IFAD 2016).

Yet Africa's rural development potential is stymied by declining public and aid spending on the agricultural sectors, persistent market failures, and lack of access to viable off-farm opportunities (Fan and Saukar 2006; Barrett 2008). While various interventions by traditional development actors have specifically targeted the rural populations,<sup>5</sup> especially to increase value capture by small-scale producers in agriculture and other rural-based productive activities, such as mining and forestry, inclusive rural development has remained a distant goal (IFAD 2016). Meanwhile, the Chinese development interventions in Africa have displayed limited explicit emphasis on small-scale producers, and instead have largely focused on efforts to increase the efficiency and productivity of the sector overall, through technology transfer and access to markets, with assumed ripple effects benefiting primary producers (Buckley et al. 2017).

A key regulatory failure generally neglected by both traditional and Chinese development interventions – which this report touches upon – is the informality pervasive in rural economies (Weng 2015).<sup>6</sup> Due to various factors, such as lack of legal rights, the high cost of market entry and standards compliance, and lack of access to capital, small-scale producers largely make their livings in the legally grey area governed by informal norms (ibid.). Governments often tacitly accept the informality, which is perpetuated by their lack of capacity, presence and legitimacy to govern in rural areas; as a result, the *de facto* authority to govern is transferred to or shared with non-state actors, such as traditional authorities or private traders (Lund 2007). Therefore, rural economic activities examined in this report, such as farming, logging and mining, are in effect governed by multiple authorities through formal and informal rules.

This understanding of the coexistence of formal and informal practices and rules is important to the China-Africa debate for several reasons. First, it allows for an understanding of the benefits experienced by rural African producers beyond financial return. Exclusion from the formal economic system has traditionally deprived a large portion of rural producers from opportunities to participate in global value chains or, where they did, often only on inequitable terms dictated by established industry players. The integration into global value chains via Chinese traders and investors imposing fewer regulatory demands on their suppliers, therefore, allows rural producers to exercise their entrepreneurial agency outside the entrenched power dynamics of established economic and political structures.<sup>7</sup>

<sup>5</sup>For example, one popular development intervention is certification. By imposing favourable labour and profit-sharing conditionality on products, Fairtrade and other premium-seeking labels aim to direct profit flows more toward small-scale producers in the global commodity trade. So far, such a certification approach has not been widely adopted by Chinese consumers or investors (Gomersall and Wang 2012). Chinese aid policymakers have begun experimenting with a "whole value chain approach" to technology transfer and, though results have been positive, so far this remains far from mainstream (Buckley et al. 2017).

<sup>6</sup>"Informality" is defined here as norms and practices that deviate from official legislation, regulations or codes of practices instituted by the government or industry (Weng 2015).

<sup>7</sup>Such opportunities for individual producers, however, need to be weighed against the potential social and environmental risks that arise from less stringent regulation.

Second, understanding informality allows us to move beyond the 'legal-versus-illegal' debate on Chinese practices. We will argue that such a binary narrative is overly fixated on the *de jure* framework that rarely exists in Africa's rural economies beyond written legislation. Conflating informality and illegality underscores the inadequacy of another scheme often used in the China-Africa literature: a state-centric approach to development interventions (Condon 2012). Chinese interventions at times lack a nuanced understanding of how the roles, legitimacy and capacity of African states in rural areas differ from those of the Chinese state (see Xu et al. 2017 for a case in the forestry sector). In the context of discussing rural development in Africa and how to leverage Chinese investments, our report aims to rectify this gap in the literature.

It is in such a context that we discuss the opportunities and risks presented by the Chinese trade, and investments for inclusive and sustainable rural development:

- Do Chinese businesses engage with Africa's rural economy differently from established businesses and, if so, how?
- How do African actors and their governance systems respond to and interact with the changing commercial landscapes linked to Chinese businesses, formally and informally?
- How are Africa's environment and its small-scale producers (of agricultural goods, timber and minerals) affected by such disruptions in the commercial landscape and governance systems?

This research aims to contribute to answering these questions. We chose three sectors that serve as the backbone of Africa's rural economy: agriculture, forestry and mining. An empirical analysis focusing on value chain dynamics, political economy, rural livelihoods and the environment was conducted in Tanzania, Zambia and Zimbabwe. Based on qualitative and quantitative data collected from approximately 700 household surveys, 100 focus groups and 130 key informant interviews, conducted over a three-year period, we examine the disruptive impacts of Chinese investments on the commercial landscape, African small-scale producers, and the environment, and discuss the implications for policymakers to harness the opportunities and reduce the risks arising from these new investment models.

In discussing improved policy options, we take inspiration from Enfield and Kokelman (2017) and Sheridan (2018) to focus on the agency amongst all parties, with a particular focus on how African state and small-scale producers interact with Chinese investments and thus shape their outcomes.

This paper proceeds as follows: Section 2 provides a literature review, followed by the methodology in Section 3. Sections 4 to 6 present the results and analysis from three focus sectors: agriculture, forestry and mining. Section 7 attempts a cross-sector comparative synthesis of the findings, and discusses the implications of our research for the broader China-Africa literature.



Photo: A Zambian village near the forests where villagers harvest mukula, the coveted high-value timber species destined for the Chinese market. Credit: Simon Lim



# 2

## Literature review

Against the aforementioned backdrop of win-win versus win-lose framings, a growing body of literature has begun taking a more critical approach, aimed at better understanding China-Africa relations. This literature points out the weaknesses in the Manichean framings and research methodologies that support them. These critiques include: much of the literature is done by scholars not familiar with China or the African countries they write about (Ado and Su 2016; De Haan 2010); claims about Chinese investments are often not backed by empirical observation, and are thus overstated or misunderstood (Brautigam 2009; Jing 2009; Mohan and Tan-Mullins 2009; Peh and Eyal 2010); where research is based on fieldwork, it has tended to favour case studies over comparative analysis with other actors (Ado and Su 2016); findings from these case studies are often extrapolated without empirical basis (Mohan and Tan-Mullins 2009; Yin 2009) or quantitative data (Aguilar and Goldstein 2009).

Through these critiques, we are beginning to see literature emerging that paints a **more nuanced picture of the extent and nature of Chinese investments and their impact in the natural resources sector and environmental sustainability, as well as the role of local agency**. This section provides a brief overview of this literature, which helps us begin to examine the disruptive impacts of Chinese engagements, particularly highlighting the importance of understanding the distributed agency of various actors.

## Scale and nature of Chinese trade and investment

Researchers have increasingly called for **understanding the extent and nature of Chinese engagements in the context of engagements from other sources**. They point out, for example, that the cumulative investments of Western companies in Africa still “far exceed” that of Chinese companies, and that Western companies too have been severely criticised for poor practice (Jackson 2013; Pairault 2013; Shinn 2012). Indeed, studies on large-scale Chinese projects generally find negative impacts, but when there are comparative studies, they do not tend to find impacts worse than other countries' investments (Irwin and Gallagher 2012; Soumaré, Gohou, and Kouadio 2016; Rounds and Huang 2017). On small-scale actors, Geise (2015) writes that, “the activities and practices of Chinese entrepreneurs in Africa do not differ from those of other local and foreign actors.” Instead, he argues, “they usually benefit local populations or at least certain groups and strata thereof, and ... relationships of cooperation and conviviality have developed despite widespread mutual distrust.” **Thus, while Chinese engagements may be disruptive, empirical research suggests that they are not necessarily more disruptive than comparable engagements by other actors.**

Likewise, research has grappled with the reasons behind the perception of Chinese actors as uniquely disruptive, suggesting that there is a tendency to focus on Chinese actors over other newcomer investors, such as those from India or Brazil, and even to inflate figures. While **Chinese engagement with African countries is certainly growing**, researchers argue that **its impacts should not be exaggerated**. For example, Dollar (2016) writes that while Chinese engagement is significant and has “no doubt led to faster growth and poverty reduction on the continent,” it would be “inaccurate” to say that the amount of finance is “overwhelming” or that China is “buying up the whole continent”. Chakrabarti and Ghosh (2014) similarly point out that India is taking an approach like China's, in engaging with African countries, and that, “even though China [currently] enjoys a much stronger financial and political presence in Africa, there is enough potential for India to surpass the dragon in the long run.”

Furthermore, while China is now Africa's largest trading partner, this trade is not evenly spread throughout the continent (Schiere and Walkenhorst 2010), and impacts may be exaggerated for some regions. Moreover, some evidence suggests that the trade dynamic is not a simple extractive relationship. For example, Huang et al. (2017) conducted a trade-balance analysis of selected African countries' trade with China, and concluded that African countries receive more from China than the reverse, "which appears to suggest a reversal of the typical trend in which industrialised economies exploit African countries and return small or no benefit to their economies." Similarly, He (2013) compared trade between Africa and China, France, and the US, and found that "Chinese impacts are significantly positive" due to the South-South nature of the exchange, where Chinese technologies may be better suited for African needs than those of Northern countries.

**In brief, emerging research urges us to contextualise the disruption caused by Chinese engagements, in relation to other disruptive actors and diverse African geographies.**

In addition to highlighting the relative extent of Chinese engagements in Africa, the emerging literature emphasises the **need to recognise "Chinese" investments in their many diverse forms**. Some researchers are critical of the fact that many accounts of poor environmental or labour practices are derived from analysis of large-scale, state-owned Chinese enterprises (Ado and Su 2016). Shinn (2016) reminds us that "the overwhelming majority" of Chinese investments come from private enterprises. This is an important distinction, because the behaviour of state-owned enterprises (SOEs) and private entities can sometimes be quite divergent, with private enterprises often more resistant to improving environmental practices (Compagnon and Alejandro 2013; Jansson et al. 2009; Pan and Forgach 2012; Weng and Buckley 2016). There are also increasing numbers of independent Chinese actors who "pursue their business activities independently" and may or may not hold formally registered companies (Giese 2014; see also Pigato and Tang 2015). **Thus, not all Chinese activities disrupt in equal ways, and research on Chinese actors in Africa needs to draw these distinctions.**

The literature looking at these **smaller- and medium-scale Chinese actors** and their interactions with Africans has contributed valuable insights into the various types of actors and institutions (Dittgen 2015; Giese 2015; Haugen 2013; Mohan and Tan-Mullins 2009), their labour relations (Giese and Thiel 2015b; Giese 2013; Tan-Mullins et al. 2010), and their daily interactions (Giese and Thiel 2015a and 2015b; Harrison et al. 2012; Lampert and Mohan 2014; Schmitz 2014). Arsene (2014) documents the ways in which Chinese store owners and their local employees in Uganda interact, cohabit and sometimes even find common ground, despite markedly different economic, social, cultural, racial and linguistic backgrounds. Khan Mohammad (2014) finds "intimate social relations" and "many forms" of creative business and interpersonal collaboration between the Chinese and the Burkinabe. Xiao (2015) highlights the often-hidden "vulnerable

condition" of transnational Chinese petty entrepreneurs in Nigeria, and explores their coping strategies, emphasising that informality is key to understanding both their vulnerabilities and their counterstrategies.

The literature also highlights the social impacts of these engagements (Giese 2014; Giese and Marfaing, eds 2016; Lam 2015; Pigato and Tang 2015; Xiao 2015) and finds meaningful opportunities for knowledge transfer (Ado 2015; Tang 2018). Men (2014) examines localisation strategies and behavioural patterns of Chinese managers and finds that "inherent cultural, behavioural and social norms of Chinese management" can create barriers to integration, and that operations are most successful when local employees adapt to Chinese norms rather than the other way around. **Thus, even smaller-scale Chinese actors' disruptive influences are negotiated within complex environments, with ultimately diverse impacts.**

Not only are Chinese overseas actors diverse, their **overseas engagements are also not static**. Two successive special issues of the *Journal of Current Chinese Affairs* (2014 and 2015) presented a collection of articles focusing specifically on the interactions between different actors in China-Africa engagements, and explored the notion of the Chinese presence in the continent as a "learning process" for actors at various scales (Aidoo and Hess 2015; Arsene 2014; Dittgen 2015; Giese 2015; Khan Mohammad 2014; Kirkegaard 2017; Lam 2015; Lampert and Mohan 2014; Men 2014; Schmitz 2014; Xiao 2015). In doing so, the researchers aimed to "counter ... the widespread perception that the Chinese populations [in Africa] are incapable of or unwilling to adapt to and integrate into their African host societies" (Giese 2015). Throughout, the articles aimed to "push their analysis beyond common perceptions of competition, tension and conflict" (Giese 2014). For example, Aidoo and Hess (2015) examine inconsistencies of Chinese policy implementation in different African contexts. They argue that they are a reflection of a continual learning process, and one that reflects a "growing sophistication" of Chinese foreign policymakers, who have demonstrated an ability to react to and address the increasingly diversified political and economic landscape of Africa in varied and contextualised ways. Together, these articles echo others (Buckley 2013b) in painting a more nuanced **picture of diverse Chinese actors interacting in complex ways with locals – disrupting norms but also adapting, as they negotiate the distributed agency of African actors.**

## Focus on Africa's natural resources sector

One of the central areas of debate around Chinese impact in Africa has focused on the Chinese role in the African natural resources sector. Nowhere have the Chinese been painted more strongly as disruptors.

The conventional starting point for the media and many researchers touting the win-lose narrative, is to point out that the majority of African exports to China are in natural resources, providing raw materials to fuel China's rapid industrialisation (Sun 2015; Sanfilippo 2010; Schiere 2010b). For example, Sanfilippo provides strong empirical evidence supporting the idea that Chinese foreign direct investments (FDI) in Africa are driven by natural resource endowment and market opportunities, based on an economic analysis of and investigation into the determinants of Chinese FDIs in and across 41 African countries between 1998 and 2007.

At the same time, Wang (2010) investigated the key determinants of China's investment strategy by analysing the country's outward FDI flow to Africa between 2002 and 2007, and identified oil supply as the primary determinant in shaping Chinese FDI, pointing out that out of 56 African countries, China has thus far invested in all 45 nations with large sources of oil, coal and gas. Likewise, David Shinn (2015) notes that Chinese FDI is concentrated in sectors of the economy that are especially **vulnerable to environmental concerns** such as energy, mining, fishing and forestry.

Some argue that **Chinese investor behaviour** can be uniquely environmentally destructive. For example, Shinn argues, "There is widespread agreement that Chinese companies, more than Western companies, need to improve their environmental practices as they invest in Africa" (ibid.). Shinn also points to examples of Chinese companies making flagrant violations of environmental regulations, prospecting for oil in areas of pristine rainforest, building dams that threaten national parks or cause massive deforestation, conducting illegal logging, or investing in mines located in ecologically fragile areas that generate greenhouse gases and hazardous waste. Chinese fishing vessels have also been accused of worsening food insecurity by catching for commercial use small species that are normally a key source of food and income for small-scale African fishermen.

Others have warned of **negative social impacts**. For example, Burnett (2016) discusses "the myriad problems that have come with Chinese demand for resources and subsequent investment in Africa, including heightened inequality, political instability, and the resource curse." Hudson (2014) notes that China invests heavily in some of the poorest countries, and a lack of transparency in these investments results in "failing to guarantee the best ethical outcomes." Indeed, Parks et al. (2016) recently explored development impacts of Chinese investors in Africa, and found that benefits were unequally distributed and often skewed away from the needs of the poorest: "Yes,

Chinese development projects improve local development outcomes in Africa, but not necessarily in the areas that need them most (since leaders' birth regions tend to be among the richest localities within African countries). This means Africa's politically privileged may benefit disproportionately from Chinese development projects, with fewer benefits going to politically marginalised regions."

Amidst the social concerns are regular accusations of **poor labour relations** between Chinese investors and their African employees. Researchers cite hostile attitudes of Chinese employers, poor working conditions, frequent workers' rights violations and many other questionable labour practices (Ado and Su 2016; Baah and Jauch 2009; Jauch 2011). Even when compared to other foreign companies, such as those from India and Brazil, the research argues that Chinese companies are "amongst the lowest-paying companies in Africa" (Ado and Su 2016). This literature thus suggests that FDI from China is contributing to the destruction of labour and environmental standards across Africa.

Finally, researchers also raise concerns of the **poor transparency of Chinese investments, and find incidences of collusion and corruption** in African countries. Burnett (2016) suggests that "China's demand ... can also lead to political instability, corruption, and economic exploitation" and Kapchanga (2013) argues that these patterns result in those investments "fuelling poor governance" in African countries. Even when researchers attempt to dispel some of these criticisms, they still acknowledge transparency as a weakness (Brautigam 2015a). For example, Jing (2009) observed that, "unlike many Western investors, corruption, crime and bureaucracy did not seem to disturb Chinese investors particularly" (ibid.). Michel (2008) notes that, "China seems to have difficulty manoeuvring in countries more democratic than itself."

Shifts in domestic priorities in China can also change the nature of China-Africa engagements. Dollar (2016) points out that with China's own move towards less resource-intensive growth, the patterns of engagement with Africa are shifting. He argues that, "it is useful to have a long-term vision that an economic relationship that started out very much centred on natural resources should shift over time to a greater focus on human resources." Indeed, he finds that, "even in resource-abundant countries, the majority of Chinese investment projects tend to be in service sectors" and notes that, "it is also encouraging that there are a significant number of Chinese investments in resource-poor countries" (ibid.).

## Improving the sustainability of Chinese investments

While China continues to invest in natural resources, emerging research increasingly emphasises efforts by Chinese leaders and investors **to improve their performance** while lessening their impacts. This has been partly driven by increasing efforts to improve environmental governance domestically in China, and partly by increasing internationalisation of China and concern by leaders about how its investors are perceived internationally. Many researchers point to the increasing effort by the Chinese government and investors to incorporate sustainability criteria into overseas investments (Leung 2013; Mol 2011; Power, Mohan, and Tan-Mullins 2012, 195–200; Shinn 2016; Weng and Buckley 2016; Yang et al. 2012, Blackmore, Li, and Casallas 2013). For example, in 2013, China's Ministry of Commerce and Ministry of Environmental Protection issued voluntary guidelines encouraging companies investing overseas to follow local environmental laws, assess the environmental risks of their projects, minimise the impact on local heritage, manage waste, comply with international standards, and draft plans for handling emergencies (MOFCOM and MEP 2013).

Other sector-specific guidelines have also been issued. While the guidelines remain voluntary and there is still room for improvement in China's environmental performance overseas, Mol (2011) argues that the “behaviour of Chinese governmental authorities and firms is conditioned and guided by environmental norms.” The issue, however, is that the negative stories receive more attention and “good practices are usually ignored by environmental groups and the media” (Shinn 2016). Thus, Mol (2011) argues that future research needs to make “conceptual space” for grappling with the “new environmental behaviour of ascending world powers.” In other words, **we cannot assume that Chinese-influenced disruption will look the same as that of previous powers engaging with the continent.**

Thus, rather than assume unidirectional win-lose colonial relationships, we need to look deeper to appreciate the complex dynamics guiding both exploitative behaviours and attempts to improve environmental performance. Shinn (2016) suggests that this is a process that **requires active participation of both Chinese and African partners.** While China's efforts towards environmental improvements overseas reflect its own increasing domestic environmental awareness and regulation (Compagnon and Alejandro 2013; Mol 2011), Shinn (2016) observes that concern for environmental issues is relatively low in many African countries and that they tend to have “understaffed environmental bureaucracies, and even worse records for countering corruption.” Since many African officials are willing to accept lower standards, there is little incentive for Chinese companies to invest in best environmental practices.

For the situation to change fundamentally, Shinn argues, “African leaders will have to insist on the highest environmental standards for those industries that relocate to Africa” (Shinn 2016). Many others have echoed this sentiment, calling for African leaders to develop a clear policy on China's engagement in the continent (Cheru and Obi 2011; Kaplinsky and Morris 2009) and pointing to gaps within African governance institutions that leave them vulnerable to exploitation (Bansal 2011; Schiere and Walkenhorst 2010). **In this way, the emerging literature urges African actors to not play a passive role in the face of disruption from Chinese actors.**

## Importance of African agency

This analysis highlights the importance of the agency of African actors, and the dynamic relationships inherent in China-Africa engagement. This is a subject that a growing number of researchers are beginning to explore directly, highlighting the diversity of actors and forms of engagements (Brown and Harman 2013; Corkin 2013; Sautman and Yan 2015), the continual evolution in these relationships (Giese 2014; Shinn and Eisenman 2012), and the uneven outcomes (Alden and Large 2018; Volberding and Warner 2017).

While African agency is important to acknowledge, Michael Sheridan (personal communication, 7 February 2018) argues that we must be careful not to simply shift the blame for poor environmental performance away from Chinese and towards African actors. “Chinese investment and its outcomes,” he argues, “are the **product of distributed agency** among many actors [interacting in] **mutually constitutive relationships** in an uneven global economy.” Emerging research supports this notion. For example, Odoom (2016) explores ways in which Ghanaian actors and institutions engage, shape, negotiate, accommodate and resist Chinese actors' involvement in Ghana, and finds strong agency among all actors. Far from “domination and imposition, the case studies show dynamic interactions, influence, resistance and different forces that shape the terms of Ghanaian and Chinese interactions.” Indeed, Odoom argues that the “Ghanaian state and non-state actors are often willing partners to Chinese actors and exhibit considerable autonomy and influence in their engagement with China.” Likewise, Hilson, Hilson and Adu-Darko (2014) analyse Chinese participation in Ghana's informal gold-mining economy and argue that poor investor performance reveals structural governance issues along the value chain. **There is a need for more research along these lines, exploring the agency of all actors within China-Africa engagements and identifying multiple points of leverage for improving environmental and social outcomes.**

This review has revealed that literature emerging over the past decade has begun taking a more critical approach, and is painting a more nuanced picture of the extent and nature of Chinese investments, their modus operandi, and their relationship with the wider governance context. Through this, we begin to understand 'Chinese' engagements in relation to those of other actors, to appreciate the diversity of Chinese actors, and to understand the dynamic relationships and distributed agency among Chinese, local and other actors. Largely missing from this literature, however, is the perspective of small-scale African producers, who are often overlooked by policymakers and macro-lens researchers, as a result of being considered illegitimate economic actors. Through our case studies of the agriculture, forestry and mining sectors, we aim to contribute empirical data through this lens, focusing specifically on the small-scale actors, and providing a sound evidence base to discuss the impacts of Chinese engagements on them, based on analysis of the nature and role of Chinese actors as compared to local actors and investors of other nationalities.



A stockpile of mukula logs in a factory in Zambia.  
Credit: Paolo Omar Cerutti, CIFOR.



# 3

## Methodology

Between 2015 and 2017, we conducted research on Chinese investments in three sectors in three African countries: agriculture (Zambia and Zimbabwe), forestry (Zambia) and mining (Tanzania). The geographies were chosen after an extensive scoping exercise that used several criteria: significant presence of Chinese businesses; allegations of disruption from Chinese investments and trade to the status quo; and feasibility of conducting research.

The **analytical framework** combined value chain, impact and political-economy analyses, as we sought to collect data on the multiple aspects of the commercial relationship. Specifically, value chain analysis sought to understand the role of Chinese actors as compared to local and established actors in trade and investment. Impact analyses examined the impacts of Chinese-linked trade and investment on the rural small-scale producers and the environment. Political-economy analysis was used to interrogate how and by whom the Chinese-linked trade and investment were governed, and how this governance paradigm evolved to respond to the changing commercial landscape.

In regard to **our analysis of livelihood impacts**, while various frameworks assess rural livelihoods differently,<sup>8</sup> this report highlights the critical role of cash in improving the lives of the sampled populations by fulfilling basic needs, such as food and education, particularly in the context of retreating public services in two of our studied countries.<sup>9</sup> This is particularly significant when taking into account the fact that the households generally reported multiple forms of deprivation, such as food insecurity and lack of access to education, as discussed later. Although productive investment is generally regarded as important for improving livelihood portfolios in the long term (Bebbington 1999), the high level of acute multi-dimensional poverty prevented our sampled populations from investing in productive activities that would create long-term financial returns. In our livelihood impact analysis, therefore, we primarily focus on the poverty-alleviation benefits of cash incomes.

The **research design** for each sector is summarised in Table 1. Across the sectors, we used household surveys, key informant interviews (KIIs) and focus group discussions (FGDs). For detailed descriptions of the methods used in each sector, such as randomised sampling, site selection or FGD sampling, readers are referred to the sector reports.

Table 1: Summary of research focus and fieldwork conducted

Sector	Commodity	Country	Field sites	Data collected	China-linked samples	Non-China-linked samples
Agriculture	Cotton	Zambia and Zimbabwe	4	400 surveys, 19 FGDs, 28 KIIs	5 companies	14 companies
Forestry	Timber	Zambia	4	141 surveys, 60 FGDs, 41 KIIs	60% of the surveys	40% of the surveys
Mining	Copper and gold	Tanzania	4	155 surveys, 19 FGDs, 63 KIIs	5 companies	7 companies

Please refer to the sector reports for detailed explanation of the methods in each sector.

<sup>8</sup> These range from the quantitative to the qualitative – from using a one-dimensional measure of income to taking a holistic and multi-dimensional view by incorporating non-financial indicators. See, for example, the sustainable rural livelihoods framework (Scoones 1998), multi-dimensional poverty framework (Alkire and Santos 2014) and a summary of multiple methods (UNDP 2016).

<sup>9</sup> Zambia and Zimbabwe are among the highest in the world in proportion of household contribution to total education expenditure, at two thirds or more (UNESCO 2015). Education for All 2000–2015: achievements and challenges. Paris, United Nations Educational, Scientific and Cultural Organization.

Several **limitations** of this research were identified. First, due to the presence of confounding variables, isolating the effects of the Chinese market and actors on value chain dynamics, rural poverty and the environment proved difficult. Where possible, we sought to identify comparable cases (investments or trading behaviours by other foreign investors in the same commodity) in the nearest geographical areas. While we recognise the limitations of generalisation, by systematically unpacking the role of different actors across the three sectors, this research represents one of the more systematic attempts to date to examine and compare the uniqueness of Chinese trade and investments in Africa's natural resources.

Second, funding constraints prevented us from conducting longitudinal livelihood surveys. To mitigate this lack of time series data, the surveys included questions about perception of change over time, though this relies on recall data. Third, for the environmental impact analysis, we largely relied on qualitative evidence, such as interviewees' perceptions of environmental degradation, records of regulatory compliance and proxy indicators, such as provision of fertiliser. These qualitative indicators were rigorously surveyed to compensate for the lack of observable quantitative data on environmental changes.

Finally, the research concerned several sensitive topics, such as business strategies, political connections and illegality. We relied on self-reported perceptions through FGDs, KIs and surveys for obtaining qualitative data, and these are prone to interviewee biases. To ameliorate the biases, triangulation was consistently attempted. Where triangulation was deemed insufficient, the anecdotal nature of a particular piece of evidence is noted throughout the findings.



Joyce Banda and Frederick Nyirenda check the cotton growing on their farm in Eastern Province, Zambia. Credit: Simon Lim, 2017.



# 4

## Agriculture

### Background

Agriculture has played a central role in China's own economic development. Sharing its own experience of modernising and liberalising its rural economy has been a consistent priority in China's engagements in Africa, with records of agricultural projects going back nearly 50 years (FOCAC 2015; Li et al. 2013). This has taken an anti-colonial turn, with China's leaders consistently emphasising that Chinese agriculture did not get where it is today through Development Assistance Committee (DAC)-guided aid, but rather through a mix of market reforms, trade and foreign direct investment (FDI), which is precisely what it is doing in Africa.

Today, China-Africa agriculture engagement continues to blur the lines between grant-based aid, investment and trade, and involves an increasingly complex array of actors. Agriculture is increasingly prioritised at the highest level of China-Africa cooperation, driven by China's desire to develop strong diplomatic and economic ties with African countries by playing a new and central role in their development, and by African leaders' focus on agriculture-sector development and a desire for alternatives to DAC-guided aid. It is also

influenced by changing consumption patterns in China and increasing resource pressures on an overtaxed domestic agriculture sector.

In the most recent Forum on China-Africa Cooperation (FOCAC) meeting in 2015, “agricultural modernization” was listed as one of three priority areas, along with industrialisation and infrastructure. In the Action Plan (covering the period 2016–2018) that resulted from this conference, agriculture is the first point listed in areas for “Economic Cooperation”, with commitments to “enhance agricultural transformation and upgrading, increase agricultural production, processing and income, and safeguard food security in Africa.”

Real-world figures verify these commitments, as Sino-African trade and Chinese FDI in African agriculture have scaled up rapidly in the past decade. From 2009 to 2012, China's direct investment in African agriculture grew from US\$30 million to US\$82.47 million, a 175% increase (IOSC 2013). In the same period, China's agricultural exports to Africa grew from US\$1.58 billion to US\$2.49 billion, an increase of 57.6%, while China's agricultural imports from Africa grew from US\$1.16 billion to US\$2.86 billion, a 146% increase (*ibid.*).

These investments are largely welcomed by African leaders, who cite the benefits of learning from Chinese experience in agricultural development. African grain productivity is currently the lowest in the world, and though many countries are making progress on improving their agriculture sectors, the continent remains in net food deficit. Brookings Institute researchers noted that for every US\$1 the continent earns in agricultural exports (mainly in coffee, cotton and cocoa), it spends almost US\$2 on agricultural imports, mainly of food (Sy 2015). From this perspective, many researchers and practitioners argue that increased investment in African agriculture is desperately needed – whether from Chinese or other sources.<sup>10</sup>

Indeed, many African governments are actively setting up policies to welcome Chinese investments in agriculture. For example, Zimbabwe's “Look East” policy resulted in increased Chinese FDI (Ojajorotu and Kamidza 2018; Kindzeka 2017), influencing its agrarian transformation in terms of structure, tenure and institutions, as well as in other sectors of the economy, such as mining, energy and manufacturing. By offering aid with no strings attached, China has presented an attractive and unique alternative

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<sup>10</sup> It is important to note that this enthusiasm for Chinese agriculture is often insensible to the negative environmental consequences of many modern-day Chinese agricultural practices, characterised by the overuse of agrochemicals and other intensive practices, which contribute to the severe depletion of soil and groundwater and destruction of populations of beneficial insects and birds in China (Cook and Buckley, eds 2015). Though organic and other sustainable agricultural approaches are being developed in China, there are many challenges, and these “innovative” practices are not generally the focus of Chinese agricultural engagements overseas. While agrochemical use is currently limited in African countries due to economic constraints, this could change in the future.

to conditional Western aid to Zimbabwe, though recent Sino-Zim relations appear to be cooling off.

Chinese investments in agriculture have been especially pronounced in non-food commodities, such as tobacco and cotton. Since 2010, Chinese investors have invested in the cotton sector, as private companies on their own or in partnerships with (African) government entities. However, Chinese agriculture investment has also been a source of much contention, with many large-scale agriculture investment proposals being cited as 'land grabs', with products intended for export back to China. In fact, there is very little evidence of Chinese large-scale agriculture investment in Africa (Brautigam 2015b).

## The case of cotton

Our research focused on the role of Chinese investors in the cotton sectors of Zambia and Zimbabwe. Cotton provides a useful case study of the impact of the Chinese on African smallholder producers, because it is a sector prioritised by African governments for export earnings and agricultural modernisation, due to its role as a smallholder cash crop linked to significant numbers of rural livelihoods. It is also prioritised by the Chinese within China-Africa cooperation agreements. The FOCAC action plan explicitly refers to cotton, with research cooperation "specifically focusing on increasing outputs of grain, cotton and other key crops in African countries" (FOCAC 2015).

Similarly, in China's most recent policy paper on Africa, it is explained that agricultural cooperation will "enhance the competitiveness of cotton and other specialty industries in the world, generate more income and improve the livelihood of farmers" (Huaxia, ed. 2015). In Benin, the Agriculture Technology Demonstration Centre focuses on cotton. Chinese reports assert that "Chinese technology is changing the original cultivation of slash-and-burn cultivation to rejuvenate a dilapidated cotton plantation" (ibid.). These technologies include drip irrigation, integrated fertiliser-watering, and hybridising Chinese cotton varieties with local varieties. They have so far developed two cross-breeds "suitable to local soil, climate and management approaches (ibid.).

In Southern Africa, China Africa Cotton (CAC) has recently been granted the contract for the Agriculture Technology Demonstration Centre in Malawi. If more investment goes to cotton production in the future, this could potentially have a large impact on the cotton sector of African countries, given the high cotton productivity in China, with lint yields of over 1,600kg per hectare (ha) (Tang, forthcoming), compared with 229kg/ha for Eastern and Southern Africa (ITC 2013). Improving cotton productivity in African countries is likely also of interest to the Chinese leaders, as Chinese cotton consumption continues to outstrip production. Though the Chinese government is taking steps to encourage more

domestic production,<sup>11</sup> it continues to be the leading cotton importer globally. India and Pakistan come next, together importing similar volumes as China (ICAC 2018). The push to increase productivity of cotton in Africa could thus help meet Chinese demands while having potential benefits to African economies.

As the leading cotton consumer market, China's cotton policies have wider ripple effects in African markets. Since China's WTO accession in 2001, its textile and apparel sectors grew rapidly, increasing China's cotton consumption accordingly. As a result, African countries largely lost their trade advantage, and many local textile factories shut down (Tang 2014: 4). At the same time, the price of cotton spiked due to the high demand from Asia. It was this context that spurred a large influx of new investors in African production, largely from Asia, as discussed later.<sup>12</sup> Though African exports do not represent significant percentages of overall Chinese cotton imports (with Zimbabwe occupying the largest share at only 1% of China's overall imports, according to UN-COMTRADE), they have been a significant market pull for many African countries until recent years. Between 2010 and 2012, the main market for Zambian cotton lint was China (USDA 2014); however, exports to China dropped sharply in subsequent years. Likewise, in Zimbabwe, China was also the main export destination for lint cotton until 2014, but Chinese cotton demand has slowed down in recent years. This is in part due to protectionist measures by the Chinese government<sup>13</sup> to increase domestic cotton production, and in part due to an increase in production costs slowing down domestic textile and apparel sectors. Data from Zimtrade (ZIA 2015) put China's share as a destination for cotton lint from Zimbabwe at 21% in 2016.

While it is no longer the top export market in some African countries, China continues to impact African cotton production through its influence on global prices, as strong Chinese government intervention in its own cotton sector in recent years has sent ripple effects globally. These interventions have taken three forms: subsidies for domestic production, restrictions on imports of cotton, and strategic holding and releasing of cotton stocks (Terazono and Meyer 2014; USDA 2015). Because African countries are generally price-takers on the global market, they are vulnerable to price fluctuations arising from such interventions (in contrast to, for example, Brazil, India and Uzbekistan, who export large enough quantities to have a potential impact on cotton prices) (ICTSD 2013). Indeed, our research suggests that the decreased price of cotton in Zambia and Zimbabwe is one of

<sup>11</sup> In 2014, the Chinese government cancelled the temporary purchase and storage policy, and implemented a new cotton policy to reduce imports and support domestic cotton production by subsidising farmers – 60% of the subsidy is paid to farmers based on their production area, 40% on the volumes that they sell (MacDonald, Gale, and Hansen 2015). In general, China faces higher production costs than its international competitors (such as higher labour and input costs).

<sup>12</sup> However, it should be noted that cotton prices do fluctuate normally, and that Asian investors do not appear in African markets exclusively during price peaks.

<sup>13</sup> These measures included absorbing additional carrying stocks by the China National Cotton Reserves Corporation (CNCRC) as part of its efforts to maintain domestic farm prices.

the main drivers of farmers' willingness to break contracts, leading to the sector decline discussed below.

## Chinese cotton investments in Zambia and Zimbabwe

Chinese ginning companies began entering the African cotton market in the mid-2000s. CAC – the first and largest of these companies – initially invested in Zambia and then expanded to Malawi, Mozambique, Zimbabwe and Mali (Tang, forthcoming). As of 2016, it had contracted over 100,000 farmers in the region, with activities focused on seed processing, ginning and oil extraction (ibid.). By the 2014/15 season, Zambia had eleven ginning companies – two local, one each from Malawi and South Africa, and the rest from outside Africa, with one US, two Chinese, and five from India (CBZ 2015). In Zimbabwe, the first Chinese investor, Sino-Zim, entered in 2009, followed by two Chinese/Zimbabwean joint ventures, Viridis and Jinmac in 2011, then Sinotex in 2012, and most recently CAC in 2013. Of the non-Chinese, one was American, one British, four Indian, one Singaporean, one Tanzanian, and two fully Zimbabwean.

Not all Chinese investors have been large established companies. Some short-term 'briefcase' traders from China and elsewhere have also at times taken advantage of price spikes to purchase cotton from farmers under contract with other ginners. By 'freeriding' on these ginners' investments in farm inputs, these traders attracted significant criticism. At the start of our research in 2013, Chinese investors were widely accused of destabilising the cotton sectors in both Zambia and Zimbabwe through these practices. Indian traders also played a large role in this practice but attracted less media attention. As prices have fallen, these traders have disappeared, leaving behind the larger companies that dominate today. These larger Chinese companies have also been guilty of side-trading, however, along with almost every company operating in the sector, buying cotton contracted to other companies and manipulating the count of farmers under contract with them (*The Standard* 2011).

Thus in Zambia and Zimbabwe, we see a microcosm of the larger debate about Chinese actors in Africa, underpinned by narratives of cooperation and opportunity, versus opportunism and destabilisation. To understand the role of these different Chinese actors, and their impact on livelihoods and ecosystems in the country, it is necessary to understand the wider context of the cotton sectors in these countries. Zambia and Zimbabwe have historically been two of the biggest exporters of cotton lint in Southern and Eastern Africa, and cotton has contributed to the livelihoods of thousands of resource-poor rural households (Kabwe et al. 2018). However, the cotton sectors in both countries (and to an extent beyond) have become especially challenging in the past five years, with falling international and subsequently domestic prices, reduced supply, increased competition, and chronic ginning over-capacity. The ensuing chaos and rush to buy has precipitated a decline in production quantity and quality (through a rolling back

of input provision by ginners), and an erosion of investor confidence and farmer loyalty to contracts.

This has led to chronic side-trading of cotton outside of contracts between farmers and processors. Side-trading poses significant challenges to contract farming, the traditional system for cotton production in the region, whereby an established ginning company provides inputs and support to farmers under contracted agreement that they will sell cotton produced at the end of the season. Before the increasing competition among ginners and low global cotton prices, this model worked well to link small-scale producers with processors (ginners), de-risking investment on both sides through guaranteeing access to market and inputs for farmers on one side, and supply of cotton lint for companies on the other.

However, with increased competition, rampant side-trading, and low global cotton prices, established companies that tend to adopt long-term business strategies (such as investments in extension services, sustainability programmes, and emphasis on provision of quality inputs of sufficient quantities) have struggled to recoup their investments and compete financially with ginners who provide no training, fewer inputs, or lower-quality inputs, and offer cash when buying. Indeed, both Zambia and Zimbabwe experienced significant reductions in output, productivity and quality in recent years. This decline in sector performance has also caused problems for sustainability programmes, such as Cotton Made in Africa (CMiA), which rely on ginners for the provision of technical assistance to their contracted farmers. It is in this context that our research examined the roles of Chinese investors as compared to local stakeholders, and the impacts of Chinese-linked investments and trade on the small-scale cotton producers in Zambia and Zimbabwe.

## Findings

In contrast to the media accusations targeting the Chinese investors, our research found that all companies – both Chinese and non-Chinese, and both established entities and recent entrants to the market – were found to have engaged in side-buying of cotton. Our correlation analyses between side-trading and company ownership supports the point that many companies – not just the Chinese – have been side-trading.

In Zimbabwe, there was no statistically significant correlation between ownership nationality and incidence of side-trading, based on 176 households surveyed in 2016. In contrast in Zambia, side-selling showed a positive and significant correlation with farmers contracted by all the Asian ginning companies and a South African Company, thus not uniquely by Chinese companies. However, our research revealed four other, subtler – but potentially significant in the long-term – key differences in business strategies employed by Chinese companies, as elaborated below.

# Roles of Chinese and local actors

## Chinese roles

Value chain analysis reveals that there are four ways in which Chinese investors contributed to this disruption of the established business model: 1) side-buying as 'briefcase traders' during periods of high world prices, and through field agents as an ongoing practice among established investors; 2) providing cash payments on purchase; 3) providing minimal and/or low-quality inputs and training for farmers; and 4) to a lesser extent, leveraging government connections in their business relations.

At the heart of media accusations that the Chinese had disrupted the entire cotton sector was their participation in illegal side-trading of cotton through so-called 'briefcase traders' (Kabwe et al. 2018). During the 2009–2011 seasons there was a steep rise in global cotton prices, driven largely by strong demand for lint in China, as a result of Chinese stock-holding policies. This resulted in a large number of companies (mostly from Asia) entering the markets of both Zambia and Zimbabwe. A number of them entered the market to purchase cotton directly from farmers, without investing in input provision and extension services, relying entirely on side-buying. Though fingers were mostly pointed at the Chinese for this practice (Chidavaenzi 2013; Zhanghazha 2010), in reality there were many Indian and other Asian actors simultaneously entering the market in this way.

The briefcase traders severely disrupted the sector by purchasing cotton from farmers with cash during the harvest times. They did this without establishing ginneries (as was required by law) or signing contracts with farmers and providing them with seed, fertilisers and other agrochemicals (also a legal requirement). During the 2011/2012 season, international lint prices declined sharply, following an upward shift in supply in response to price incentives in the previous season, and decreased demand for lint in China. The traders lost interest in the sector after this point, and the more opportunistic buyers (those who had not invested in ginning capacity – a relatively immobile investment) withdrew.

Though briefcase trading was itself short-lived, it was part of a wave of wider and more important disruption in both countries, caused by increased competition, shifts in business practices by new investors, and weak governance. The result was an entrenchment of side-trading practices by even established ginning companies. At the same time as the briefcase traders entered the market, other actors (mostly from India, China and other parts of Asia) invested in ginning capacity. Ginning companies in Zambia grew from six before 2011 to twelve by 2015, including investors from China, India, the US and elsewhere in Africa. In Zimbabwe, the number of ginneries from 2000 to 2013 went from three to sixteen, including investors from China, India, the US and Singapore. The resulting intense competition has caused a glut of ginning capacity, which has made side-trading a chronic ongoing issue.

Institutions in both countries struggled to curtail side-trading which in turn undermined the investment climate for companies previously contracting with farmers and investing in the production base. For example, one multinational company in Zambia registered a loss of US\$4 million in unrecovered input loans (Tschirley et al. 2004), causing the company to sell its operations the following year, and a near-collapse of the sector due to significantly reduced output. The exit of Cargill from the cotton sector in Zimbabwe in 2014, and from Zambia in 2017, is indicative of these growing challenges and their impact on the investment climate. Cargill, which had contracted around 20,000 farmers in Zimbabwe, stated that in recent years it has been affected by “over-capacity among ginnerers, shrinking margins, high levels of farmers’ credit defaults and side marketing.” These “have impacted the company’s ability to operate profitably and resulted in substantial losses. It has become clear that we cannot continue to operate with our current model” (Kadzere 2014).

This broader shift towards increased competition has been further influenced by Chinese actors through the provision of cash payments to farmers on purchase of cotton. According to our research, and consistent with other research (Tang, forthcoming), CAC was the first ginning company in Zambia to provide farmers with immediate cash payments for cotton purchased. Prior to the 2011/12 season, companies generally collected the cotton and only made payments two days to three weeks later, after having processed and graded it. Around this time, however, CAC began offering immediate cash payments. This was attractive to farmers, since farm households have urgent cash needs for various expenses – especially for food and school fees, as discussed later. Indeed, in a survey of 48 farmers contracted with CAC in Zambia, Tang (ibid.) found that 96% cited cash payments as a benefit of contracting with CAC.

In an effort to stay competitive, many other companies followed suit. At first, the larger established companies continued to delay payments. By the 2015/16 agricultural season, South African-owned company joined those companies in paying cash on delivery of seed cotton to the agents, and in the 2016/17 season, a well-established American company also followed suit in an effort to remain competitive by encouraging loyalty and deterring side-trading. In this way, cash payments, first introduced by CAC and then adopted by all ginnerers, have had a strong disrupting force on the cotton sector in Zambia. While immediate cash payments are important to farmers, cash payments have fuelled side-selling (84% of side-sellers in our study cited cash payments as a reason for side-selling) and undermined quality by preventing grading and thereby failing to reward quality.

A third disruptive business practice used by the Chinese ginnerers and other newcomers has been to provide contracts with low-cost, low-quantity inputs, often without providing extension services. All ginning companies – Chinese and non-Chinese alike – provide a number of inputs on credit to contracted farmers, as required by law in order to remain an investor in the sector. The main inputs are planting seed and agrochemicals (pesticides

and sometimes micro-fertilisers). Most ginning companies rely on field agents (essentially lead farmers) rather than on their employees to contract farmers and coordinate company activities on the ground.

Field agents are paid on commission based on the recovery of the harvest and payments of loans associated with the provision of inputs, which introduces another driver of side-trading. For example, CAC representatives told us that their agents in Zambia are paid 100 kwacha (k) (about US\$10) per month as stipend, and commissions as follows: 95k per ton when loan recovery rate is 100%, and 85k per ton when loan recovery rate is 90–95%, which is more common.

The cost of inputs is deducted when farmers are paid for their seed cotton. Some companies offer a range of services, but to remain competitive and reduce exposure to loan and harvest default, most have moved towards a more minimal approach, providing fewer inputs accompanied by little, if any, training. Our research found that Chinese ginnerers consistently provide among the cheapest input packages. In Zambia, for example, the total cost of inputs in the 2014/15 season for CAC was second-lowest, next to a company with Indian ownership (see Table 2). This is in contrast to established players from the US or South Africa, who continued to emphasise higher cost inputs.

Table 2: Costs of one-hectare input packs by foreign companies in Zambia, 2014/2015

Company ownership	1ha agrochemical pack (US\$)	1ha seed cost (US\$)	Total Cost (US\$)
Indian	11	6	16
Chinese	13	6	19
Indian	13	7	20
South African	15	6	21
Indian	16	6	23
USA	26	8	34

Source: Focus group discussions

Low cost of inputs does not necessarily mean lower quality, and some ginnerers may be inflating the value of their inputs. In our FGDs, farmers in Zambia felt that the high cost of some input packages had serious implications on their cotton profits, and were generally perceived to be unfair. Likewise, in his fieldwork in Zambia surveying 48 CAC-contracted farmers, Tang (forthcoming) found patterns of lower-cost inputs from CAC, similar to those reflected in our research. However, surveyed farmers largely found the low-cost Chinese inputs to be effective, with 69% citing cheaper inputs as a benefit of contracting with the company. Other benefits cited included: good-quality seeds (87%),

good chemicals (60%), and use of a digital scale (73%). The farmers in this survey were particularly positive about the quality of CAC seeds, with one buyer interviewed reporting a 100% germination rate in his village. With potentially higher germination rates compared with competitors (one regional manager told Tang that CAC's germination rate was 85–95% while Cargill's was 65%), CAC argues that it does not need to provide as many seeds per hectare of contracted land (Tang, forthcoming). According to CAC's general manager, these business practices are necessary to allow CAC to remain competitive with the larger established players by “improving cost control and management” (Tang 2014: 13).

In Zimbabwe, in addition to flat pricing internally arranged within the Cotton Ginners Association (CGA) (although this practice is widely condemned by the Competition and Tariffs Commission as anti-competitive), Chinese and non-Chinese ginning companies all provide equivalent inputs of seeds and agrochemicals as per their contracts. However, according to our focus group discussions (FGDs), some Chinese companies appear to be providing only seeds, and not following through on promised provisions of agrochemicals. Though the Chinese companies do seem to provide relatively fewer inputs, this is in the context of all companies moving towards a minimal-input approach. The levels of fertiliser inputs cited by our focus groups, for example, are already far below the optimal inputs (four bags of basal and two bags of top-dressing fertilisers) recommended by local authorities for cotton production. As mentioned above, anecdotal evidence suggests that ginning companies may be adding significant profit margins onto the inputs they source. Fertiliser, for example, is sold to farmers on contract at a markup of about 54%, which is large even if distribution costs are taken into account. This practice is likely contributing to the perceived unfairness in trading/contracting terms offered by ginners, making farmers feel justified in side-selling.

The overall decline in the provision of inputs by all companies is reflected in declining farmer satisfaction with their contracts. Indeed, in our household survey, 65% of farmers in Zimbabwe reported dissatisfaction with input packages supplied by their contracted ginners. This complaint vastly outweighed other issues cited (including low price for cotton, delays in payment, and issues of cheating and corruption). In addition, all companies appear to have ceased extension services altogether, adding a further barrier to good agronomic practices for enhanced yields and sustainable practices in production of cotton. This trend holds for farmers contracted by both Chinese and non-Chinese companies, though there appears to be a slightly higher rate of dissatisfaction among farmers contracted with Chinese companies versus non-Chinese companies (see Table 3).

Table 3: Levels of farmer satisfaction with Chinese vs non-Chinese contracts in Zimbabwe, 2016

Company ethnicity	Number of companies	Percentage satisfied (N=176)
Indian (n=100)	5	21
Local (Cottco) (n=45)	1	15.6
Chinese (n=31)	5	13

Source: Household survey, 2016

Thus, while Chinese ginners are by no means alone in this new, low-input business strategy, in both countries they do play an active role in a larger disruptive shift, where a surge in ginning capacity has occurred against a backdrop of stagnating cotton production. All ginning companies are scrambling to find sufficient seed cotton to meet their procurement targets, and to generate a return on their investments. This has increased competition for cotton on the market, and has put a severe strain on the contract-farming model.

Another aspect of Chinese behaviour that has been seen to disrupt the sector is their approach to government relations. Among the newcomers, Chinese investors in particular have been seen to use political connections to avoid conformance with sector norms. We found Chinese investors develop strong links with government more than other similarly-sized companies (particularly the Western multinationals or smaller Asian or local operators) – and indeed local governments until recently have sought to form strong links with them, for example, through Zimbabwe's 'Look East' policy. This does provide a competitive advantage in some cases. CAC appears to have a very good relationship with the government in Zambia: their Chipata office was launched by a former president in 2004. Key informant interviews (KIIs) point to the fact that they have a "good relationship with local and national government" and that this close relationship with the government has helped CAC survive sustained attacks from other large companies who "tried to push it out of business."

Despite what are often strong political links between Chinese investors and the governments in Zambia and Zimbabwe, Chinese ginners do not appear to be above the law. In 2015, CAC was reportedly fined half a million dollars for tax fraud in Zimbabwe (*The Herald* 2016). This case was brought after managers who were fired from the company disclosed the company's private dealings. CAC and Sinotex, which are wholly privately owned, have faced challenges in complying with an indigenisation policy in Zimbabwe that requires foreign investors in ginning and textiles to maintain a 51% local shareholding, and appear to be struggling to sustain their business operations despite their good government relations. According to our KIIs as well, some Chinese companies

have allegedly been colluding with influential politicians and businesspeople to inflate local shareholding in a bid to meet the deadline for compliance.

Sino-Zim, a company with its origins in a partnership between the Zimbabwean government and Chinese investors, has easily complied with the policy requirement but has faced other legal challenges. The High Court interdicted Sino-Zim from purchasing or receiving any contracted seed cotton from growers contracted by CGA members, including any seed cotton packed in sacks belonging to other merchants. Further, Sino-Zim was banned from “selling, exporting or howsoever disposing of any seed cotton purchased in Zimbabwe during the year 2010.” In spite of perceptions that Chinese ginners are particularly above the law, our research indicates that in Zimbabwe, the national company Cottco seemed to have the most explicit business-government ties. In the 2016/17 season they were able to leverage these ties to circumvent existing contracts between farmers and other ginners to secure additional cotton.

In summary, this analysis of the role of Chinese investors and markets in the Zambian and Zimbabwean cotton sector shows that the allegations of negative impacts were partly misplaced. The opportunistic informal ‘briefcase’ trade, which caused much finger-pointing towards the Chinese, was a short-lived phenomenon.

At the same time, we do observe that the Chinese business strategy is contributing to a more fundamental and long-term disruption of the sector in both countries. For example, the now widely-used approach of giving cash payments to farmers in Zambia was first introduced by Chinese companies, and will likely impact the sector’s growth since it bypasses payment by quality/grade.<sup>14</sup> The Chinese are also among the leading cost minimisers (along with the Indians), in terms of inputs and extension services in both countries, contributing to farmer dissatisfaction, low productivity and high rates of side-selling. All other ginning companies have had to follow this trend of cash payments and reduced input provision in order to reduce their exposure to default.

These potentially influential behaviours adopted by Chinese investors do not seem to support the Chinese official policy rhetoric in terms of positive contribution to the African agriculture, because there is little technology transfer of Chinese cotton agronomy into the sector. One possible exception to this is CAC’s acid-delinting plant in Zambia, which has the potential to improve seed quality and access to cotton farmers in the region. This requires further research.

These disruptive roles need to be considered together with other more conformist behaviours of Chinese investors. For example, despite their disrupting impact through specific business strategies (cash payments and low cost/quality inputs), longer-term Chinese investors in both countries have generally displayed over time an inclination

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<sup>14</sup> When payments were delayed until after cotton was collected and graded for quality, farmers were paid more for – and thus incentivised to produce more – higher-quality cotton.

to collaborate and conform to the existing sector norms. In the wake of the pervasive informal purchasing practices that have destabilised the industry, nearly all Chinese companies still operating in both countries have joined the CGAs and signed Codes of Conduct, established to preserve the contract-farming model and prevent freeriding by non-invested buyers.<sup>15</sup> In Zambia, CAC initially resisted joining the CGA, but began attending meetings in 2010 when a new general manager came on board. The manager explained in an interview (Tang 2014) that the company needed to “avoid being isolated and marginalized in the market.” Tang further observed how the CAC business strategy is ever evolving to fit the needs of different African country contexts, growing from a sole ginner with field agents, to a firm with tens of thousands of contracted farmers, then to a comprehensive multinational business (Tang, forthcoming). For example, CAC’s building of an acid-delinting plant shows long-term investment along the cotton value chain in the region. CAC has also shown willingness to engage in wider programmes to improve the cotton sector in the country. For example, it actively participated in a Farmer Field School training organised by Zambia Cotton Development Trust and funded by FAO.

From these examples, we see that opportunist investors (Chinese or otherwise) modify their business strategies when they see their interests best served by market stability and see sector management as a common good. In this regard, the key distinguishing feature of the investor, is not therefore ethnicity but length of market presence.

## Role of local actors

We now turn to the role of local African actors – particularly small-scale cotton farmers, the ginner’s industry associations, and Zambian and Zimbabwean government players – and discuss how they shape the sector and thus Chinese investors’ behaviours. The picture that emerges is a competitive yet unsustainable investment climate in both Zambia and Zimbabwe’s cotton sectors, characterised by low global cotton prices, high competition, low production, high rate of contract default and poor loan recovery, governance structures not well adapted to the realities of growing competition and informality of trade, constrained government capacity, and distrust between the farmers and others up the value chain.

### Small-scale farmers

The role of local cotton farmers, almost all of whom are smallholders – numbering between 150,000 and 300,000 in Zambia and about 200,000 in Zimbabwe (Chapoto and Zulu-Mabata 2016; ZEPARU 2014) – is significant in driving side-trading. Kabwe et al. (2018) provide detailed information on farmer behaviour and side-trading trends in both countries. Drivers of side-trading include an urgent need for cash, price fluctuations

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<sup>15</sup> In Zimbabwe, CAC was a member of the CGA until 2017, when it pulled out of the association following destabilisation of the sector by government intervention. This occurred after the research phase of our study, and further research may shed light on the motivations and impacts of this event.

for cotton, dissatisfaction with contracts, and general distrust of ginners. As explained later in this report, the livelihood needs of the farmers and the global low cotton prices in particular exacerbate the vicious cycle.

In both locations, farmer organisations and commodity associations exist to represent smallholder cotton farmers' interests in advocacy matters with the government and, in particular, in price negotiations with cotton ginners. However, in practice, farmers need stronger representation to facilitate an enabling environment for successful farming through provision of services, farmer organisation, communication, lobbying and advocacy. As we observed in the above discussion, there is a high level of farmer dissatisfaction with the conditions of production and marketing. Urgent cash needs spur them to divert the already meagre inputs to other crops, and to accept invitations for side-trading when offered cash payments.

### Cotton ginners associations

In both Zambia and Zimbabwe, cotton-ginning companies are central players in the cotton sector, and Chinese ginners' interactions with other ginners have shifted over time, as the sector has become increasingly competitive. All ginning companies are scrambling for seed cotton to meet their procurement targets, and trying to generate a return on their investments in facilities that chronically run below capacity.<sup>16</sup> Consequently, ginning companies, including established players, have restructured their business strategies in attempts to secure sufficient volumes of seed cotton and returns on their investments. Our research has shown that all companies have adjusted to the new realities in ways that can foster side-trading and undermine contract farming, and that seek to protect them from contract defaults and significant financial losses.

In Zambia, the institutional response to side-trading to date has largely been in the form of self-regulation to safeguard the contract-farming model. The CGA in Zambia has created a Code of Conduct to preserve the contract-farming model and prevent freeriding.<sup>17</sup> This is reinforced by the Cotton Board's remit of revoking ginning licences, and its use of a database to track contracted farmers. In Zimbabwe, the CGA has also been helpful in reducing opportunistic behaviour by all ginners – including the Chinese – particularly in the early phases of their investment cycles when those companies tried to do away with regulatory procedures, such as registration. One such prominent case was the aforementioned Sino-Zim case, which CGA brought to the court. Following this historic court ruling, Sino-Zim ultimately joined other merchants in the CGA as a fully

<sup>16</sup> Ginning capacity utilisation dropped to 33% in Zambia in 2015 and 4% in Zimbabwe in 2016.

<sup>17</sup> The goal of the Code is to provide a framework for common understanding of the standards and behaviour expected from all ginners under the Cotton Act. These include a standardised cotton contract, a minimum standard input package, an agreement to buy seed cotton only from contracted farmers, an agreement to provide information on farmers contracted and the quantity of inputs provided, and a range of penalties for would-be defaulters.

subscribed member during the 2010/11 season, again pointing to the trend of investors collaborating more the longer they are in-country.

These forms of regulation have had some positive effects in reducing informality and strengthening the contract-farming model, but they have also reinforced farmers' perceptions that the institutions are working against rather than for their interests. Many farmers and competition commissions believe that the CGAs have formed price-fixing cartels; farmers express dissatisfaction with the low price of cotton, as well as the inflated costs of inputs. They also voice frustration over what they feel is an insufficient response from the relevant government bodies, such as the Agricultural Marketing Authority (AMA), to enforce the relevant legislation and penalties. In addition, side-trading continues to be practised to some degree by all ginners. This is driven by a system of field agents who work on commission, and are incentivised to maximise returns to help ginneries operate closer to capacity in a market with excess capacity and high default rates.

This creates a business environment that is chaotic and unpredictable, as ginners cannot reliably predict their return on investment in terms of cotton volumes secured during the harvest season. This influences the willingness of investors – Chinese and all others – to invest in business strategies that support the long-term performance of the sector (through quality inputs, extension services and grading). Our interviews with Chinese ginners described a sector rife with “vicious competition” where the only hedge against high rates of defaulting is a reduced provision of inputs. A representative of one Chinese ginning company told us that by avoiding expensive fertiliser loans to farmers, they managed to reduce their default rate to an acceptable 5%. Tang (forthcoming) found similar reflections in his fieldwork in Zambia. According to an interview with a key informant, the firm sees itself as “one of the few profitable Chinese agricultural investments in Africa” with a higher margin than even multinational competitors like Cargill and NWK, thanks to “strict financial discipline”.

However, good business practice for ginners is not necessarily good for the sector overall. As the ginning business model heads towards a low-investment, low-yield, low-quality situation, chronic informality can take hold in the grey area between contract farming and an open market. In the short term, this may suit the needs of farmers, agents and ginners desperate for profitability and business survival; in the long term, however, it is a recipe for sector demise. In light of this, the role of the government becomes crucial for the future development of the sector.

### Host governments

The governments of Zambia and Zimbabwe have struggled to come up with a solution to defend their cotton sectors and the contract-farming model against decline. As mentioned above, Zambian authorities have largely relied on self-regulation by the ginners themselves. In Zimbabwe, the parastatal AMA is the most important institution

for the regulation of side-trading. The legislation that established the AMA called for the appointment of the Cotton Marketing Technical Committee (CMTTC), compulsory registration of farmers and ginner, and common buying points (CBPs) to promote transparency in the financing and purchasing of seed cotton. Cotton regulatory agencies in both countries suffer from limited resources to carry out their mandates to improve sector performance, and regulate ginner and farmer behaviour. These failures have contributed to unregulated competition, side-buying, a decrease in inputs provided to farmers, and a decline in quality of cotton produced in the country.

As discussed earlier, political elites have also been accused of corruptive practices specifically linked to Chinese players. These accusations are due to the Chinese investors' tendency to develop strong ties with governments. While these ties do sometimes provide competitive advantage for Chinese ginner as discussed earlier, we have not seen evidence of Chinese investors (systematically or otherwise) engaged in corrupt dealings with local governments in Zambia or Zimbabwe.

This section has explored the value chain of the cotton sectors in Zambia and Zimbabwe, and considered the role of Chinese players within the political economy of the chain and its institutions. We saw similarities between the two countries – the players, their operations and relationships, the incentives and disincentives, and the distribution of power and value throughout the chain, which affect the stability of the cotton sectors. We also saw the diverse roles of the Chinese in the value chain, from independent traders disrupting the existing business models to investors conforming to the sector norms in both countries.

In this way, Chinese players are both shaping and shaped by the changes in the sector. Furthermore, while Chinese investors are welcomed by local governments, particularly in Zimbabwe, they are not above the law. Rather than pointing to clear power on the part of Chinese actors, this analysis has highlighted the dynamic agency of all actors along the value chain in shaping the sector. Chinese and other newcomers have, through practices such as cash buying (which they used to rapidly establish a producer pool in a sector with excess capacity scrambling for cotton), helped drive a wider disruption that obliged more established industry players to follow suit or face being squeezed out of the market. This has led to a downward cycle in terms of reduced input and service provision, poor productivity and quality of harvests, high levels of default and side-trading in some seasons, and declining investor confidence. In this way, Chinese actors, along with all other companies, farmers, field agents and ginner, negotiate their roles and ultimately contribute in their own ways to the practices and ultimately to the deterioration of the sector. However, the recent re-entry of the Zimbabwean state into the cotton market will likely drive a divergence between the two countries, which may in turn lead to divergence in the future role and impact of Chinese actors.

Ultimately, what we observed is two countries with declining cotton sectors, where Chinese firms are both makers and takers of reduced sector performance, trying to survive, adapt and innovate to maintain profit margins, while responding to the local regulatory context and competition from other investors. The conformance of Chinese and non-Chinese companies to dominant models of procurement, corporate behaviour or levels/nature of their investment is likely to vary depending on the specific characteristics of the company – as well as the needs of the farmers, the behaviour of competitors, and the strength of external governance attempts. Finally, some of the observed adaptations, such as cash payments, are beneficial for farm livelihoods in the short-term (as explained below). Other behaviours, such as rolling back input and extension provisions, are likely detrimental for the sector in the long-term.

## Impacts

This section takes a closer look at the impacts that Chinese actors have had on the cotton sectors of Zimbabwe and Zambia. It is clear that both Chinese and other newcomers are bringing new business strategies, in terms of reduced input packages and cash payments to farmers, but our research did not find the Chinese to be the sole drivers of illegal practices, such as side-trading, nor of the decline of the sector in either country. Rather, these trends are the result of a negotiated process by all actors along the value chain, of which the Chinese are one part. While accusations against the Chinese for the sector demise may be unjustified, our research reveals that the Chinese actors have impacted the cotton sectors in three key areas: 1) increasing competition in the sector, with potential harm to natural resources; 2) introducing business practices that benefit the poor in the short term; and 3) contributing to some technical improvement of the cotton sector.

First, as discussed above, Chinese investors have been active participants in the wave of new investments in the cotton sectors of Zimbabwe and Zambia, and the increasing competition has put a strain on sector governance while the increased excess capacity has raised incentives for side-trading. The low input business strategy first introduced by the Chinese (rapidly becoming the norm, as companies who do not follow cannot compete) contrasts with the prior practice of contract farming based on intensive extension services and high-quality and -quantity inputs.

The nature of this new competition has forced a 'race to the bottom' for all companies, as they struggle to survive. Indeed, the exit of Cargill from the cotton sector in Zimbabwe in 2014 and from Zambia in 2017 is indicative of growing challenges, and their impact on sector performance and investment climate. The company had tried to maintain high standards of input packages to farmers (both in quality and quantity), in the face of increasing competition and declining loan recovery levels, but it ultimately found this

model unviable (Kadzere 2014). By contrast, in 2015, the Zimbabwean government came to the rescue of the other large player, Cottco, by taking over its debt of US\$56m and increasing its stake in the company from 16% to 65%. In Zambia, Cargill announced the sale of its cotton gin to Parrogate Ginnery Ltd. (an Indian company), in effect exiting the Zambian cotton sector and greatly increasing the role of Asian capital in the country's cotton sector, further tipping the market towards increasingly lower investment. In the new sector reality then, it seems that companies only survive with strong government backing, or by pursuing a low-investment, low-yield, low-quality strategy.

One of the potential casualties of this new business paradigm is environmental sustainability. Prior to the recent influx of new investors, companies like Cargill (and also Alliance, NWK and Parrogate in Zambia) were leading the implementation of sustainability programmes, such as CMiA. Under this programme, farmers receive training to implement efficient and environmentally-friendly cultivation methods, with the aim of increasing yields and the quality of cotton produced (and thus incomes). This requires gradual adherence to a range of sustainability criteria. For example, farmers are required to maintain soil fertility, protect waters, and reduce and control pesticide use. Ginners or buying companies are also required to secure pre-financing for smallholder farmers for investments in seed and fertiliser necessary for cotton production, and pay farmers a fair price. However, the rollback of extension services by companies in both countries poses challenges for implementing the intensive training necessary for this programme to work. The practice of cash payments also removes incentives towards quality, since payments are made upfront rather than after grading. Indeed, implementation of the programme appears to have weakened (CMiA 2015), and the exit of Cargill from both Zambia and Zimbabwe is likely to have been a further blow for conservation agriculture. In summary, therefore, the long-term impacts of the business strategies practised by the Chinese and other newcomers will likely compromise farmers' ability to grow cotton, their overall cotton output and associated public revenue earned from the sector, as well as environmental sustainability.

While the practices employed by Chinese and other newcomer investors may have negative environmental implications for the cotton sectors in the long term, it seems counterintuitive that we found strong evidence that the Chinese business practices carry livelihood benefits, at least in the short term. This finding revolves around CAC's introduction of cash payments to farmers, now a widespread practice.<sup>18</sup> Farmers are incentivised more by immediate access to cash in the marketing season than by higher prices per se. Indeed, the majority of cotton-growing households in both countries are

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<sup>18</sup> Though it is now commonplace, our research indicates that it was Chinese companies that first offered cash at the point of purchase in Zambia, rather than delaying payment until after grading. These findings correlate with research done by Tang (2014), who found that "cotton buyers in Zambia did not used to pay cash to farmers, but CAC introduced cash payments as an incentive to sell to them." Our research has highlighted how household cash scarcity is a central driver of side-selling.

cash-constrained (Haggblade, Hazell, and Reardon 2010), often with no viable cash-crop alternative, given the geophysical nature of cotton-growing areas (CIT 2012). Our research shows that cash is required to cover basic needs – especially food and time-sensitive education fees – before re-investment is made in agricultural productivity (see Kabwe et al. 2018 for details).

These urgent cash needs of farmers, driving side-selling, highlight the failure of the previous payment approach to meet those needs in the context of declining purchase prices and input packages. The introduction of immediate cash payments by the Chinese companies has potential for income gains for farmers, thus potential livelihood benefits. Indeed, in Zimbabwe, side-sellers in our study earned more income from cotton than non-side-sellers.<sup>19</sup> This demonstrates that side-selling has real potential for income gains, since side-sellers can avoid loan repayment and benefit from better prices offered by non-contracting ginneries.

However, such gains are not guaranteed and, as discussed above, they come at the expense of the sustainable development of the sector overall. Clearly, there is still work to be done to ensure that mechanisms for payment are both responsive to farmers' needs and to the sustainability of the sector. It is interesting and important to note CAC's relative responsiveness to farmer livelihood needs, and its ripple effects across all ginning companies. The potential livelihood benefits of the practice of cash payments introduced by the Chinese are also interesting in their contrast to prevailing media discourse, which suggests that Chinese investments do not benefit the poor. For example, Parks et al. (2016) assert that benefits tend to favour richer localities due to Chinese investors' links with political elites. While that may be true from a macro-economic perspective, in this case, from the perspective of the needs of marginalised smallholder farmers in relation to prevailing sectoral practices, the disruption introduced by Chinese practices is decidedly pro-poor.

Finally, Chinese investors are also contributing to some degree to technical improvements in the cotton sector in many African countries, including Zambia and Zimbabwe, though this is an area that is perhaps still underdeveloped. As discussed earlier, China has made explicit commitments to enhance the competitiveness of cotton in Africa, specifically focusing on "production, processing and income" (FOCAC 2015). China is in fact one of the leading global producers of cotton, and has a tremendous amount of knowledge, equipment and genetic material that, if adapted for the needs of African countries and shared effectively, could potentially contribute to huge gains in the sector.

The Agriculture Technology Demonstration Centers (ATDCs) in Benin and Malawi aim to do just that, introducing drip irrigation, integrated fertiliser-watering, and developing cross-breeds of Chinese and local cotton varieties. CAC runs the ATDC in Malawi, which will

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<sup>19</sup> Side-sellers earned more despite strong similarities between side-sellers and non-side-sellers in the average quantity of cotton produced, the average area under cotton, and the average size of land holdings.

likely benefit the company's operations in Zambia and Zimbabwe. In addition, in Zambia, CAC established the China Africa Cotton Zambia Acid Delinting Seed Plant in 2013, and uses the hybrid seeds produced there with its contract farmers in the region. Though our research highlighted high levels of farmer dissatisfaction with all ginning companies, including Chinese, Tang (forthcoming) found that farmers contracted by CAC in Zambia were particularly positive about the delinted seeds provided by the company, citing a particularly high germination rate. This has attracted the attention of other companies as well, with CAC's Zambia manager stating that other ginners were bringing their seeds to CAC's plant for delinting, and that they were also selling seeds to NWK, Parrogate and Grafax. In this way, explained the manager, "we break down the monopoly of [the] Zimbabwean seed company Quton in Malawi whose seeds sell for 1,800–2,600 kwacha [US\$2.5–3.5] while our seeds sell only for 900 kwacha [US\$1.25]. The purpose is to make the whole sector prosper."

While CAC does seem to be developing innovations that are improving the quality of cotton seeds in Zambia, there remains a missed opportunity for deeper technology transfer through sharing of the full set of Chinese agronomic practices in cotton. In the context of intense competition and minimal extension services that is the sector norm today, there is little room for meaningful capacity building of local farmers by Chinese ginning companies. Though Tang (forthcoming) did find that CAC was providing some training to Zambian farmers (primarily through field agents), and also actively collaborating with wider training programmes, such as the FAO-funded Farmer Field Schools, even CAC management acknowledge the need for better outreach and training of farmers. Compared with Cargill, CAC had fewer and less comprehensive trainings for field agents, and instead relied primarily on the quality of their seeds to realise yields. This was supported by our field observations. This is partly a deliberate business strategy to cut costs, but also a result of language and structural barriers in the company. Tang observes that of the twelve Chinese employees in the Zambian headquarters, only two had agronomic knowledge in cotton, and even they "had not figured out how to disseminate the Chinese knowledge to Zambians." As one employee explained, "The way of growing cotton in China is totally different [from in Zambia]. We have no idea how to teach [Zambian farmers]."

## Summary

In summary, our research did find that Chinese investors have played a role in the decline of the cotton sectors in Zambia and Zimbabwe; however, they are not alone. Chinese and other newcomers have, through practices such as cash buying and side-buying, helped drive a wider disruption that obliged more established industry players to follow suit. All companies competing in the current environment are now attempting to find the most efficient model, which does not allow for the previous capital-intensive model. There are

clear ways in which Chinese investors have helped create this environment, and as a consequence have impacted the rural poor and the natural resources on which future productivity depends.

On the one hand, the sparse input packages and hands-off service techniques of Chinese investors are contributing to sector decline, which leads to depleted soil and undernourished crops, and also hampers efforts to promote conservation agriculture. On the other hand, cash payments have realised immediate livelihood benefits for farmers who are cash-poor, but have also driven side-selling in both countries. Within these disruptive impacts, it is important to note that there is significant diversity within the 'Chinese' investor community, and we found that long-term investors do, over time, support strong sector governance in order to guard against sector chaos and to protect their investments.

Finally, there is some evidence of successful Chinese technology transfer in CAC's investment in a delinting plant in Zambia, contributing to potentially lasting technical improvements in the cotton sector. However, there is much more room for improvement in knowledge exchange between Chinese investors and farmers to realise meaningful benefits from Chinese experience in cotton. While deeper technology exchange with China may be an area for further development and improvement of the sector, it also runs the risk of exporting the negative impacts of China's environmentally-costly, input-intensive cotton-growing model. Thus, environmental safeguarding will be essential for any future promotion of China-Africa cotton-technology transfer.



Mukula timber debarking, Zambia. Credit: CIFOR, 2018.



# 5

## Forestry

### Background

In contrast to China's long-standing engagement in African agriculture, the forestry sector is a relatively new addition to China's commercial relationship with Africa, and has elicited growing interest and concern from the international community. The role of forests in mitigating climate change has sparked keen interests among the press, environmental groups and policymakers in slowing deforestation and addressing its various drivers, including the global timber trade.

China has become one of the major consumers and processing hubs of timber products worldwide, with a threefold increase in processing capacity between 2000 and 2015 (WWF 2017). Chinese manufacturers largely relied on domestic timber supply until a 1998 domestic logging ban, following a historic flood that was caused by eroded upstream watersheds and devastated the Yellow River Basin. Chinese manufactures thereafter had to look outward to secure timber supplies, rapidly increasing imports. Today, more than half of China's timber supply is imported, and with a renewed logging ban in natural forests in 2016, this trend will likely continue (Sun, Canby, and Liu 2016).

The China-Africa timber trade has attracted particular attention from the media and environmental groups, as illustrated by headlines such as *"Appetite for destruction"* (EIA 2012), *"China's imports ransack Mozambique's forests"* and *"China's rosewood boom is killing Africa's forests"*. This is because China is one of the largest tropical timber importers in the world. Along with other emerging economies, such as Vietnam and India, since 2011, China has imported more tropical timber (in value) than traditional players, such as the EU, the US and Australia, and this gap is expected to widen further in the future (Masiero et al. 2016). Of the overall African timber exports in 2015, China absorbed about 40% (FAO 2017).

Despite its significant market share in the global timber trade, the Chinese government has not yet adopted stricter import regulations to demand domestic importers ascertain legal (let alone sustainable) origin, unlike the efforts deployed over the past fifteen years by traditional markets, such as the EU, the US, Australia and Japan. This is a sticking point for environmental groups and development policymakers, who advocate the use of "demand-side measures" as a leverage point to clean up timber supply chains. These tools generally rely on proof of legality as the indicator for meeting basic legal requirements, which usually include environmental stipulations. It is noteworthy, however, that some researchers have questioned the reliability of the legality stamp, given the low monitoring capacity of national governments and the endemic corruption observed in the natural-resources sector in tropical countries (Brown et al. 2008; Putzel, Padoch, and Pinedo-Vasquez 2008; Weng et al. 2014). Some have also questioned who truly benefits from implementing the legality-based regulations and, in particular, how it may disproportionately raise the cost of compliance for small-scale loggers (Brown et al. 2006; Leipold et al. 2016; Pokorny 2017).

Nevertheless, the legality-based timber regulations have come to reign as the new norm in global timber trade governance. From this perspective, proponents of 'legal timber' perceive China to be disrupting the emergent global governance regime – and therefore indirectly obstructing the fight to protect the forests of Africa and beyond.<sup>20</sup>

Consequently, environmental groups both in China and abroad, as well as development agencies, have initiated discussions with the Chinese government and industries to adopt similar measures. In response, the Chinese government has in the last decade issued several voluntary guidelines on sustainable forestry management and trade, targeted at Chinese companies operating overseas; it has also conducted trainings to raise awareness among Chinese investors and traders (Cook et al. 2018). There is also

<sup>20</sup> The argument goes that this will help prevent a 'leakage' point in the emerging governance framework (that is, companies in producer countries shift their market to China, in order to avoid the stringent regulations imposed by traditional markets). But it is worth noting that there has been limited evidence as to whether this leakage effect in fact exists. One study (Masiero et al. 2016) found that the shift in market destination is likely due to other factors, such as financial crisis, more concentrated industry within producer countries due to legality-linked regulations, and so on. More research is needed to confirm the existence and level of the leakage effect.

interest within forestry-policy circles in installing import measures, although garnering political support from other departments, such as customs, will prove crucial (ibid.). To underscore the increasing political attention paid to forestry within the China-Africa cooperation framework, the FOCAC Action Plan of 2015 specifically lists sustainable forest management as an area for cooperation under the environmental protection section (FOCAC 2015).

While such hopeful signs of progress are seen on the Chinese policy front, the image of many Chinese companies remains tainted by news on biodiversity loss resulting from overexploitation and trade of specific timber species. In particular, over the past decade or so, reports about the rosewood ('*hongmu*') trade driving several African tree species into extinction have stirred outcries from some African governments and environmental groups. *Hongmu* comprises several families of tropical hardwoods with a reddish colour, commonly called 'rosewood' in English.<sup>21</sup> Although Southeast Asian countries traditionally supplied such timber in the past, Chinese traders are increasingly targeting African forests for previously unexploited species, as evidenced by a 700% increase in Chinese imports of African rosewood since 2010 (Treanor 2015). Because these species fetch a high price on the traditional Chinese furniture market, trade volume tends to rise rapidly once the commercial potential is discovered. As a result, environmental groups report rampant illegalities and ineffective host-government responses to such a fast-developing and lucrative trade, fearing negative environmental and social consequences (ibid. and EIA 2017).

It is precisely this fast-evolving nature of the rosewood trade that poses another disruption to the current forest governance paradigm in Africa. Traditionally, commercial timber production uses a 'concessionary' model, whereby the government grants a company authorisation to harvest and manage a large area of forests. In general, concessions are legally required to follow a management plan that dictates harvestable species and volumes in selected areas, in addition to several other socio-economic and ecological requirements. Whether companies diligently comply with the plan is another issue, considering the extremely low capacity for African government departments to monitor activities in remote areas (Cerutti, Nasi, and Tacconi 2008; van Hensbergen and Njovu 2015).

Regardless of this, because of its long history, the concessionary model stands at the heart of sustainable forest management for the commercial timber sector in Africa. In turn, national legal frameworks have been modelled and adopted to regulate it. Conversely, alternative models, notably those unrelated to fixed geographical spaces, such as the fast-evolving rosewood trade, challenge the concessionary model and the laws that came to regulate it fundamentally, through an altered business strategy that links small-scale

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<sup>21</sup> The Chinese '*hongmu*' classification, however, also includes several species outside the common rosewood definition used in the West.

loggers and Chinese traders (Weng et al. 2014). As discussed earlier, such transactions often occur beyond the purview of the government in the informal area.

Similarly, the rosewood trade challenges and indeed exploits – as we will argue – another long-standing characteristic of forest governance: the ‘silos’ approach used by many countries when it comes to policymaking. This approach applies to both policymaking by single ministries *within* the same country (whereby one ministry may issue regulations without consultation of any other relevant ministry), and policymaking by one country that relates to other countries, neighbouring or belonging to the same region (ecologically or economically), whereby one country adopts rules that may affect other countries in the same region. Yet eco-regions, biodiversity and trees rarely respect those ‘silos’ and in fact almost always extend across multiple jurisdictions, transcending human-imposed boundaries. When rosewood traders move across porous borders in search of a particular species, trade routes and production patterns change, making it difficult for national policymakers to address the ever-shifting commercial landscape. In recent years, such volatility was observed across ten West African countries for a rosewood species called *Pterocarpus erinaceus* and across six Congo Basin countries for the *Guibourtia* species (CITES 2016). Our study demonstrates a similar dynamic for mukula, *Pterocarpus chrysotrix*, across Zambia, the Democratic Republic of Congo, Malawi and Mozambique.

What are the implications of such a disruptive business strategy on the African environment and small-scale timber producers? A limited number of empirical studies provide a mixed verdict on this question. Some argue that, while the Chinese market influences trade patterns and operational models of forestry companies, limited differences are observed when it comes to the concessionary model between Chinese and other investors in terms of environmental practices (Cerutti et al. 2011 on Cameroon) or local livelihood impacts (ibid.; Putzel et al. 2011; Weng et al. 2014 on several SSA countries). A few even discuss short-term benefits for rural populations (Asanzi et al. 2014; Weng and Putzel 2017). Yet, environmental damage on the selected species can be significant (Wertz-Kanounnikoff, Falcão, and Putzel 2013; Weng and Putzel 2017). Importantly, they all allude to the important role of the local context – the power of and norms among local stakeholders – in determining the social and environmental outcomes. In particular, the high-value timber trade is prone to patronage politics and rent-seeking behaviours by local elites (Weng and Putzel 2017). This agency of African actors in shaping the environmental and social outcomes agrees with the recent trends in China-Africa literature reviewed earlier, underscoring the importance of examining the distributed agency among all participants in the face of disruptions, and how their responses and interactions together produce the outcomes. Our research follows in these footsteps.

## The mukula trade between Zambia and China

The species and country selected for this study, mukula from Zambia,<sup>22</sup> represent no exception to the general trends of disruption and distributed agency discussed above. Mukula, a rosewood species found in Zambia, the Democratic Republic of Congo, Malawi and Mozambique has been the focus of several media investigations (Peel 2015; Campbell 2016; Kuo 2017). The mukula trade started around 2010 in Zambia, when Chinese buyers 'discovered' its commercial potential for the Chinese market. Since then, the trade has boomed across the region, drawing in rural populations, traditional chiefs, peri-urban traders and urban elites. The government of Zambia – the main exporter of mukula – has attempted to regulate this lucrative and chaotic trade through a cycle of ban-and-lift regulations.

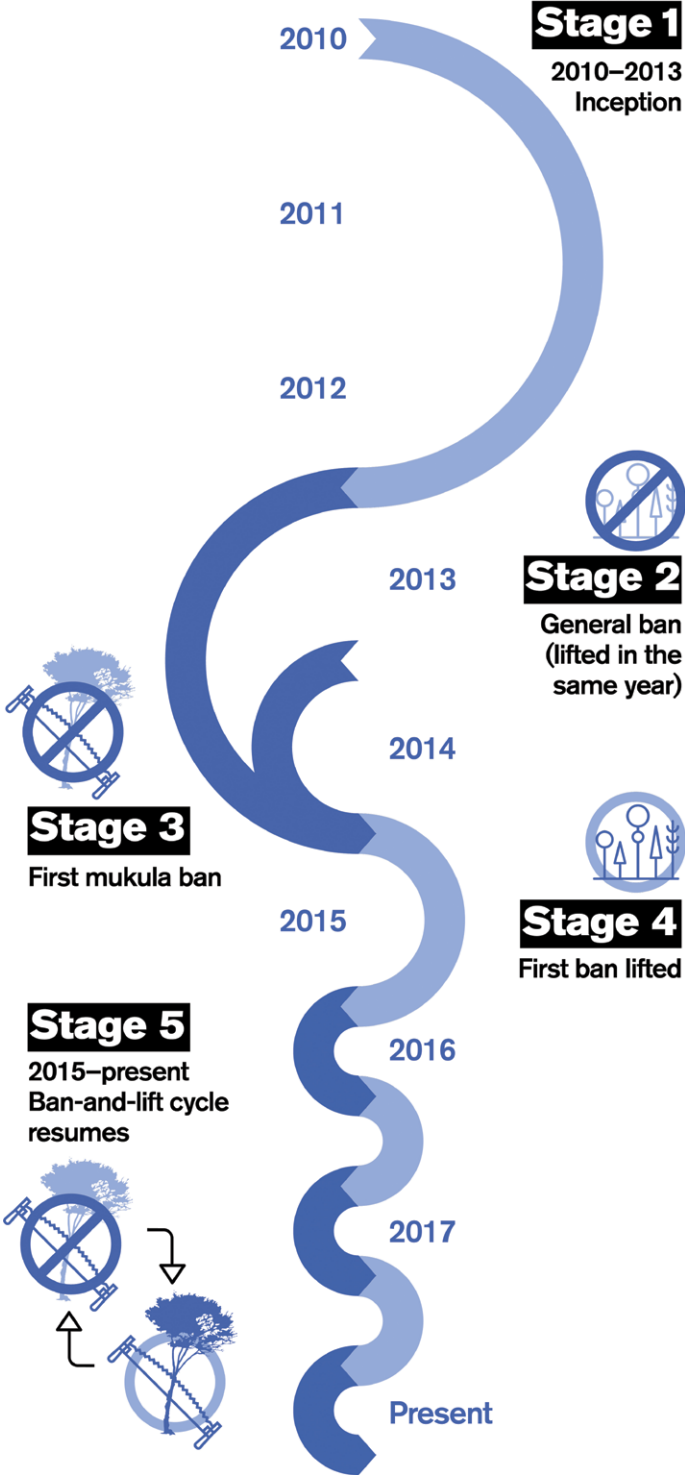
Figure 1 illustrates how the regulations evolved through five stages: 1) no specific regulation during the inception phase of the trade, between 2010 and 2013; 2) the general logging ban on commercial species, which was issued in the beginning of 2013 and lifted at the end of the same year; 3) the first mukula-specific ban in 2014 and 2015; 4) the first mukula ban being lifted in October 2015; and 5) the ongoing ban-and-lift cycle between 2015 and the present day. To make matters worse, most bans were not supported by statutory instruments, making them legally invalid if challenged in court. Most policy announcements were simply communicated through word-of-mouth, press statements or the public radio.

As a result, lower-level government officials responsible for enforcement in the forests struggled to implement the ever-shifting instructions, causing policy confusion and inconsistency on the ground across the nation. As explained later, this ban-lift cycle had a strong bearing on several social and environmental outcomes, such as the effectiveness of government intervention in achieving conservation goals, and how regulations disproportionately affected the small-scale loggers.

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<sup>22</sup> In Zambia, mukula is identified with *Pterocarpus tinctorius* or its synonym *P. chrysothrix*. Yet look-alike is a common phenomenon among this species, and more research is needed to understand whether traders referred to one or multiple species, all having a dark-brown or dark-red colour.

Figure 1: Timeline of mukula regulations



It is worth noting that even before the mukula trade started, Zambia's forest governance regime was under severe strain; the Forestry Department received low political priority and suffered from severe resource constraints. For example, between 2012 and 2015, it was only given a budget of, on average, US\$1.7 million per year to oversee 50 million hectares of forest, an area twice the size of the UK (Cerutti et al. 2018). Short of vehicles and fuel money, the Forestry Department struggled to conduct any monitoring operations in the forests where timber harvesting actually occurred. This meant that any system that the Zambian government set up to monitor and trace legal production was compromised from the start, as it could not collect credible information at the source of production (ibid.). As will be discussed later, this lack of monitoring and enforcement capacity, combined with the ban-lift cycle, significantly compromised the effectiveness of mukula regulations and solicited unintended responses from Chinese and Zambian actors as they moved the trade network more underground and closer to the power, which shielded them from the official regulations.

The capacity constraints to implementing the official mandate means that the government also becomes prone to rent-seeking behaviours by local elites. Several studies illustrate how the natural-resources sector, particularly minerals, have fuelled patronage politics in Zambia (Dietz, Neumayer, and De Soysa 2007; Stevens and Dietsche 2008; Crain 2010). As a high-value commodity, mukula did not escape this trend either. The sudden influx of money and the opportunity to extract rent made the mukula trade a highly politicised commodity for personal enrichment by Zambian elites.

Additionally, until 2015, Zambia's forest regulations did not provide legal options for rural populations to benefit from the commercial timber trade. The registration process for small-scale logging permits was onerous and expensive, effectively leaving most small-scale timber production to be undertaken informally – technically illegally but mostly carried on outside the government's capacity to monitor (Cerutti et al. 2018). Until the new Forest Act of 2015, communities were not given a formal right to operate a commercial timber operation. In contrast, the Chinese mukula traders provided villagers with a rare opportunity to participate in and earn significant incomes from the commercial timber trade.

As we will see later, the mukula trade thrived on these pre-existing conditions in Zambia and the strong agency exercised by local players in response to Chinese demands. It found willing collaborators and suppliers among cash-strapped community members. The already-compromised forest governance regime did not enable the Forestry Department to execute its regulations effectively, and made the government vulnerable to rent-seeking behaviours by Zambian elites. It is in this context that we will discuss the disruptions brought about by the new business model, and the role of Chinese and Zambian players in shaping the trade and determining the socioeconomic and environmental outcomes.

## Findings

The research reveals two ways in which the innovative business model used by the mukula value chain actors challenged the existing governance paradigm in Zambia: 1) direct sourcing from the rural small-scale loggers; and 2) the fast-moving, transboundary nature of the trade. This section shows that these characteristics served to disrupt the established model, built on a logic of stationary, long-term investments within a national territory, in line with the concessionary model. While the new model poses significant long-term environmental risk – namely, potential extinction of the targeted species – it also brings tangible short-term livelihood benefits to rural populations suffering from high levels of acute poverty.

These environmental and socioeconomic impacts are a product of distributed agency among all actors. In particular, how effectively the Zambian government responded to this new trade model is a point of interest for policy analysts seeking to design effective interventions. Unfortunately, due to the capacity constraint and its tendency for elite capture and patronage politics, the government largely issued incoherent policy positions, which resulted in a mix of conservation, rent-seeking and underground activities. As a result of these interventions, we see that the environmental achievements still fall far short of the intended outcome, while small-scale loggers without any political or economic capital disproportionately bear the cost of regulation, even losing much of the original short-term benefits. The following sections describe the shifting roles of Chinese and Zambian actors in the mukula trade, and how their agency manifested in their responses to the volatile regulatory context.

## Roles of Chinese and local actors

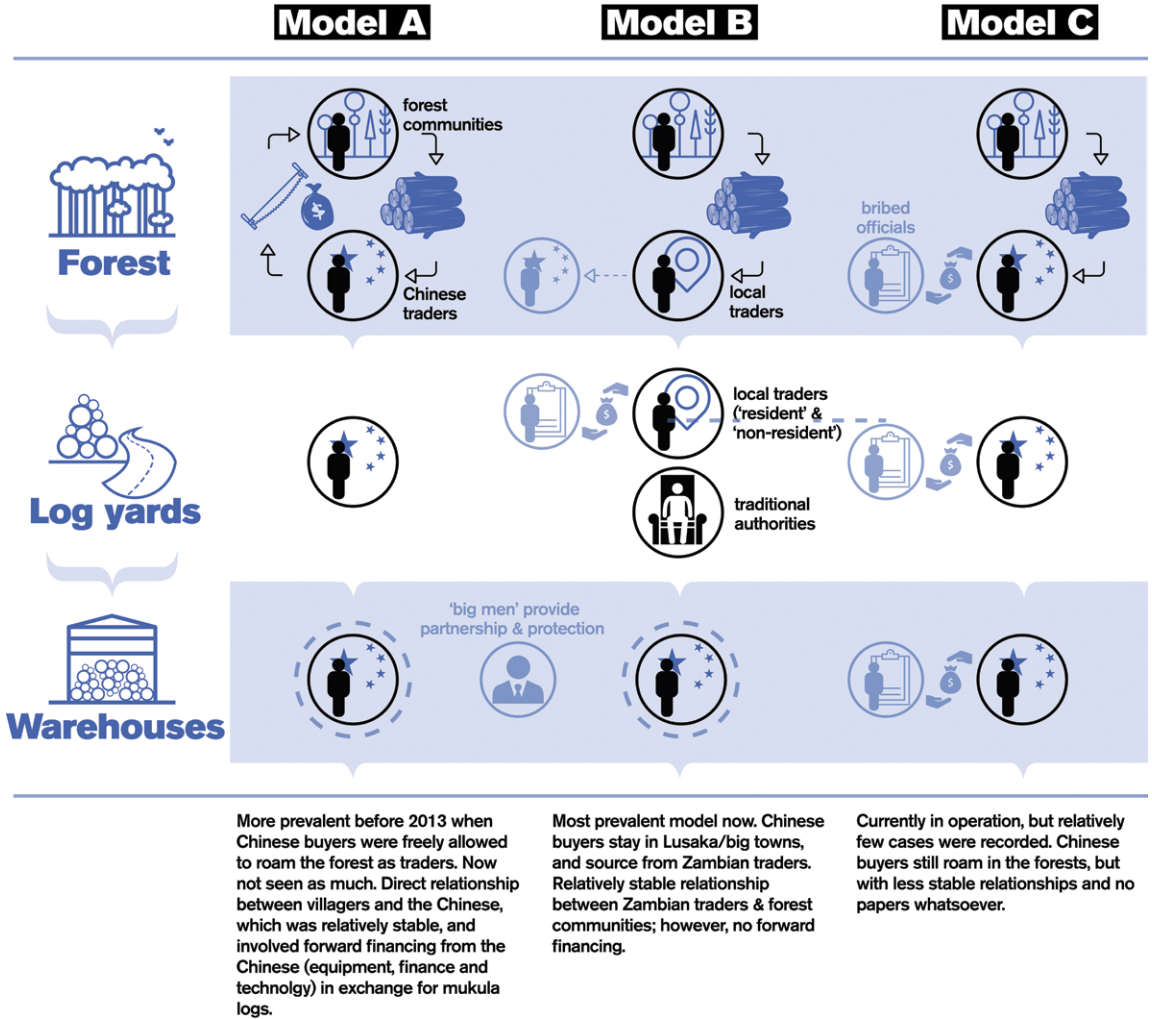
First and foremost, the Chinese-initiated mukula trade connected local small-scale producers of timber directly with the global timber trade. In this way, the traditional concession model with vertical integration from production to trading is replaced with a purely trading relationship between buyers and local producers. Such a trading relationship does not require long-term, stationary investment and is quick to respond to changes in demands, in terms of volume and characteristics.

### Role of Chinese actors

Our research shows that this was not a purely 'extractive' relationship, as the Chinese traders sought to form stable, medium-term trading relationships with the local communities. In this early phase, the Chinese traders also acted as financiers, providing pre-financing to these communities for food and machinery for the operations. This early phase is illustrated by Model A in Figure 2 – it was largely conducted informally, but it

had not been criminalised by a ban, as it would be in later years. This early phase, when the Chinese buyers entered the forests and villages directly, was also when the livelihood benefits to the small-scale loggers were largest, since no middlemen, rent-seeking elites or bribe-seeking officials had yet cut into the producers' profits (elaborated later).

Figure 2: Chinese operational models in Zambia over time



Around 2012, the Zambian government listed mukula as a commercial species, tightening its control over the booming trade. Between 2012 and 2017, the government responded with an array of conflicting policies, described earlier. This sent confusing and conflicting signals to the value chain actors, from rural loggers to Chinese buyers, and even government officials at the front line tasked with enforcement. After the increased monitoring and enforcement, Chinese buyers largely disappeared from direct purchases

in the forests and instead partnered with Zambian traders while operating through the big cities (see Model B in Figure 1). Forward financing largely disappeared.

As the Chinese buyers shifted their business model – away from the forests to the capital and use of middlemen – in response to the regulations, the value distribution became unfavourable to the primary producers. Surveys illustrate that, at the time of the research, the rural timber producers earned US\$23/m<sup>3</sup> for logs on average, while importers and traders in China received on average US\$800–1,100/m<sup>3</sup> for exactly the same logs, without any value addition. While the value distribution today remains skewed towards the Chinese players who control the downstream section, where value accumulation is the greatest (from exports to manufacturing in China), our research also highlights the significant economic inefficiency within Zambia and the value-capture by Zambian elites and officials at the cost of the rural timber producers.<sup>23</sup> These occur both at the street level, through informal payments, and at higher levels, through collusion between Chinese brokers/exporters and the political establishment. Interviews point to how regulations intended to curb the mukula trade were used for patronage politics, whereby powerful political elites facilitate necessary licences or exit strategies for exports of mukula. Next, we turn to the various roles played by Zambian players in the value chain and their interactions with various Chinese actors to understand the distributed agency behind these dynamics.

## Role of local actors

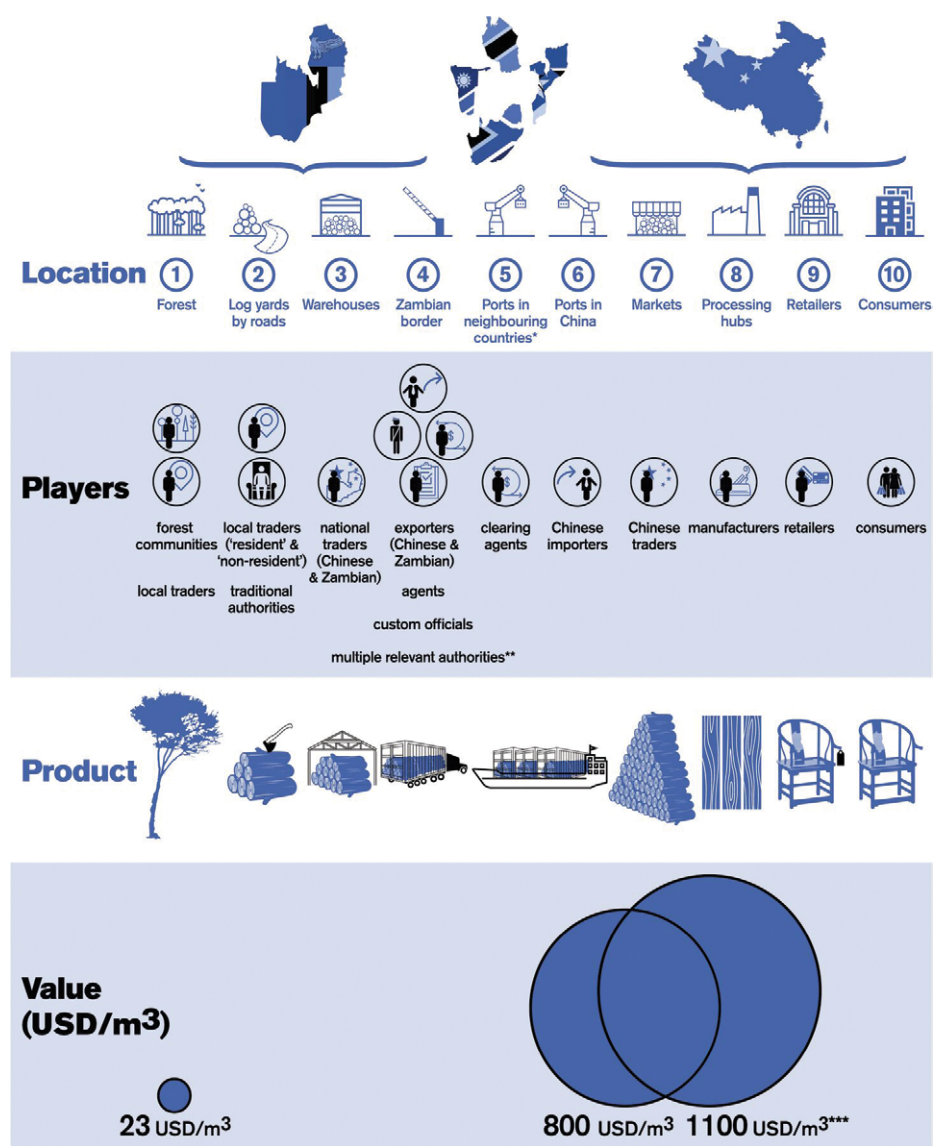
There are five types of Zambian players, from the forests to the Zambian border points: producers, traditional authorities, traders, custom agents and government officials from various departments (see Figure 2).

In the inception phase before the ban-lift cycle, the chain was simply comprised of producers, Chinese buyers and traditional authorities. Our surveys show that the timber producers were mostly from nearby villages, and were drawn into the business because they were attracted by the timber trade. As mentioned above, in those days, Chinese buyers sometimes provided forward financing of capital and machinery to local villagers. The small-scale loggers from the local villages responded to the opportunity by forming logging teams of five people and spending an average of three months or more in the forests. They sometimes filled pre-orders made by Zambian traders but also at times became entrepreneurial 'free sellers', stockpiling mukula logs by the road in anticipation of buyers.

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<sup>23</sup> Very few Zambian or non-Chinese players are active at the downstream end of the chain, possibly due to the linguistic, cultural and structural barriers to conducting timber business as a foreigner in China. Additionally, the rosewood furniture sold in China requires highly specialised and sophisticated processing and wood-carving skills, often touted as traditional craftsmanship in China. This method of furniture-making favours carving from one large body of wood, rather than compiling sawn-wood pieces, thus strongly favouring timber in the form of logs. This makes it challenging for Zambian upstream players to engage in value addition.

Figure 3: Value chain diagrams of the mukula trade



\* Namibia, Mozambique, South Africa, & Tanzania

\*\* Forest Department, Zambian Bureau of Standards, Zambian Revenue Authority, Ministry of Agriculture

\*\*\* this figure was obtained outside of the main body of research and is for illustrative purpose only

Overtime, however, the space for small-scale loggers to exercise agency in these ways decreased significantly. The regulatory interventions mentioned above changed the value chain configuration and power dynamics in favour of local actors with capital or political access, and against the interests of rural villagers and those with less capital and access. The mukula trade saw a confusing and at times contradictory regulatory stance from the Zambian government – one that alternated between legalising and illegalising mukula harvest and transport within a mere five years, as explained earlier. Two key impacts of the policy on the value chains are noteworthy: the upstream players – the timber producers and village-based traders – experienced a decrease in their profitability and access to the trade, while those connected to capital and political power were able to increase their participation in the lucrative trade and capture a large amount of profits.

To highlight the level of elite capture after the regulatory changes, the extrapolation of survey results shows that the informal payments made to enforcement government officials amounted to US\$1.6 million. This figure only includes those payments exchanged at the lower levels of the pyramid, that is, enforcement officials on the road and in log yards; it does not capture the potentially much larger amount exchanging hands between political elites and buyers and traders at the higher levels of the power pyramid.

Interviews suggest that the regulatory changes increased the opportunity for rent-seeking behaviours by government officials and traditional authorities, as illegalisation gave them the opportunity to extort money from value chain actors instead of implementing control measures to stem the trade. The ineffective implementation is evidenced by: the persistently high volumes of mukula exported to China even after bans (based on China customs data); the high level of suspected under-declaration of exports of logs (based on a comparison between Chinese and Zambian customs data); and the extrapolated national mukula production figures (based on household surveys). We estimate the losses incurred by avoided production and conveyance fees could amount to about US\$3.2 million per year. In this way, the mukula trade continued underground, supported by a network of traders and buyers well-connected to the political elites of Zambia, highlighting the distributed agency among the Zambian actors. While the informal payments filled the pockets of the elites and officials who captured the trade, the timber producers were pushed out, and the state's coffers remained empty.

Not surprisingly, the elite capture also empowered Zambian traders and brokers with access to power and capital at the expense of rural producers. Interviews reveal the strong negotiation power of the former in determining the terms of the trade (price, working conditions, and so on) after the Chinese operators left the forests due to regulations. While the producers lack collective bargaining capacity, since timber harvest is only a short-term livelihood choice for most villagers to complement their farm work, Zambian traders by contrast play the critical role of linking rural producers with Chinese buyers residing in urban areas. The stricter control by the government meant that Chinese

buyers could no longer reach rural communities easily, nor could rural residents venture out to connect with buyers and transport the goods on their own without political or financial backing.

Thus the traders, who were often Zambian outsiders residing in towns close to the production areas, became first-tier buyers, and invested their disposable capital in transportation and making informal payments to ward off any harassment from the government during transportation. Because there are limited numbers of traders who have sufficient capital, knowledge, and connections to conduct this high-risk business, our surveys show that a select few came to control the price offered to loggers. In other words, seen from rural producers' perspectives, the sector became more concentrated with fewer buyers to compete with each other at the village level. Repeatedly, the rural producers pointed to decreased profitability compared to the pre-regulatory phase, and complained about the lower return to labour for the same hard logging work.

Ultimately, this short description of the value chain evolution highlights the distributed agency exercised by all parties – by the Chinese, to initiate the trade, finance rural producers, and then shift their model in response to tighter regulation; and by the Zambians, to become the suppliers, brokers, regulators and rent-seeking elites. In discussing the socio-economic impacts of the non-traditional trade-business model of timber trade, the regulatory landscape (particularly the chaotic ban-and-lift regulatory cycles) played a key role in further empowering those with access to power and capital while disadvantaging small-scale timber producers. Rent-seeking behaviours by Zambian elites, made possible by imperfect regulations and ineffective implementation, generate significant economic inefficiency on the Zambian side of the value chain. The amount of informal payments made to Zambian officials (estimated to be US\$1.8 million for the lower level of the power pyramid) could theoretically be channelled into the profits of upstream actors and communities if the value chain functioned in an open and competitive market enabled by an effective regulatory regime.

Another disruption from the mukula trade to the logic of the existing formal governance model is the state-centric policymaking model. The mukula case sheds light on some limitations of national policies when they are developed and adopted in isolation from broader regional and global dynamics, and without paying enough attention to the creativity of private capital in search of highly valuable commodities. This allows leakage effects to develop, which only shift negative impacts from one geography to another, as illustrated by the recent large-scale expansion of mukula harvesting and trade into Zambia's neighbouring countries, such as Malawi, Mozambique and the Democratic Republic of Congo. In addition, the ambiguity about which species are officially recognised as mukula or *hongmu* (rosewood) contributes to the fast-changing demand for any species that fit the requested characteristics.

Mukula is not among the 33 species recognised as *hongmu* by the Chinese government; it has not been included in the CITES 2016 decision to add some rosewood species, particularly from Africa, to Annex II; and it has been 'discovered' and added to the list of Zambian commercial species only recently. Yet, initially because of its characteristics and resemblance to the listed rosewood species, and later because it was commercially recognised as a valuable species on its own, operators have been active in harvesting, trading and promoting it, and mukula and other similar species fetch high prices on the international market.

This active and fast-shifting business model challenges current policymaking on rural development and resource governance, particularly in SSA but also beyond, as small-scale timber production for commercial purposes is booming across much of the continent and has become a key source of income for rural communities (Milledge, Gelvas, and Ahrends 2007). This is partly because such an atypical model (when compared to the historically more geographically and financially 'static' timber concession model) is not fully acknowledged, let alone legislated for, in the current forest or environmental legal frameworks. It links farmers-turned-loggers with capital (both foreign and domestic) provided by individuals and small- and medium-sized enterprises, firmly embedded in the informal economy. This creates a dynamic value chain and market that develop outside the formal concessionary model, and yet at critical nodes (for instance, delivery of export permits) maintains the necessary links to the latter.

Though largely invisible in the official statistics of timber production in many SSA countries, including Zambia, this type of business has attracted a broad array of operators (Cerutti, Eba'a Atyi et al. 2017). The latter often operate in the grey space between legality and illegality for several reasons: 1) generally high barriers of entry due to unrealistic legal requirements for small-scale operators or farmers-turned-loggers in rural villages (where such regulations are largely unknown); 2) lack of enforcement capacity on the ground by the agencies with such mandate; and 3) confusing and at times conflicting regulations issued by a multitude of 'authorities'. Yet, for various reasons discussed earlier and below, the model greatly impacts both the socioeconomic and the environmental conditions found in rural areas. As such, policymaking and implementation need to go beyond simplistic 'enforce-or-ban' models currently applied to most illegal logging debates, and instead find innovative ways of tackling the difficult trade-offs between positive financial impacts and negative environmental ones.

## Impacts

Throughout the course of this research, rural community members and cutters attributed significant livelihood benefits to the mukula trade despite the decreasing profitability described earlier. This section presents: 1) who the small-scale loggers are; 2) their poverty portfolio; 3) how they used cash incomes from mukula to meet basic needs; and 4) the limited corporate social responsibility (CSR) benefits at the community level.

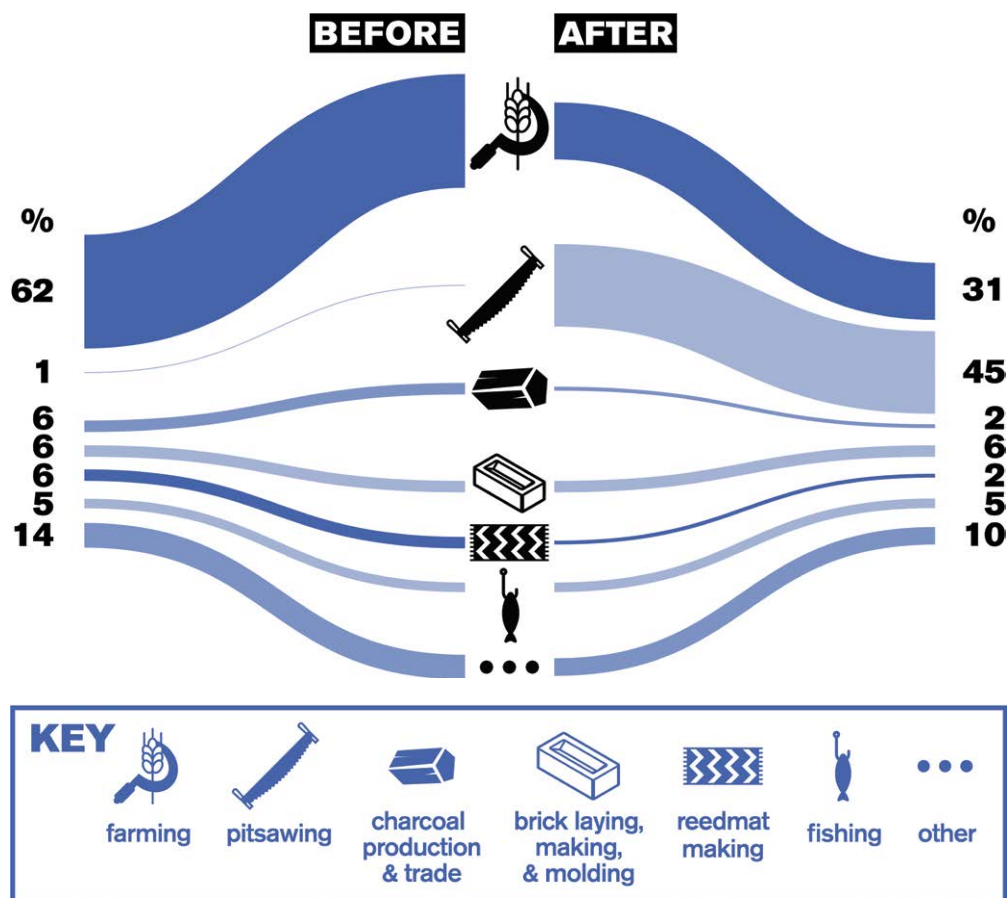
First, surveys show that small-scale loggers are generally men and youths with large families from villages near where the logging occurs. On average, they were 33 years old and had families composed of six members. Women also played a minor role (10% of surveyed loggers) in areas where the demand for mukula was particularly high. About 87% of interviewed loggers originate from the area (village or chiefdom) where operations occur. Only about 13% were migrants who moved in largely because of the thriving timber business.

A large proportion of the interviewees qualified as multi-dimensionally poor. In terms of fulfilment of basic needs, between May 2015 and April 2016 about 78% of interviewees reported experiencing an average of about three months during which they lacked enough food to meet family needs. Similarly, about 77% of interviewees reported insufficient money to pay for school fees. In addition to food and school fees, other important items that could not be procured were fertilisers (30%) and medicines (30%). It is thus not surprising that all interviewees (100%) reported the need for additional income as their reason for entry, expressed in ways as diverse as “an employment opportunity” or because there was “money to be made” from the mukula business.

In some places, peculiar environmental conditions, such as long-lasting droughts that affected farming, also pushed people to look for alternative employment, as mentioned by about 12% of key informants. Figure 4 illustrates the decreasing importance of farming relative to logging, before and after the mukula trade. Combined with earlier information, we can deduce that the mukula loggers were mostly local farmers who took up logging to earn money to fulfil basic needs. Overall, once started, mukula logging replaced farming as the most important source of income carried out by loggers.

Surveys show that these rural farmers-turned-loggers spent a large majority of the money earned from the timber trade on food and education (Figure 5.1: daily purchases). In addition, cutters also invest money back on the farm, by hiring labour, purchasing improved tools and fertilisers or even diversifying activities (such as investing in livestock). About 79% of interviewees also bought what they defined as an asset (one or more) with money earned from the mukula trade (Figure 5.2: major assets). At the top of the list are house-related assets (29%), such as beds, mattresses and iron sheets for the roof, followed by bicycles (16%), phones (14%), solar panels (10%), radio sets (8%) and livestock (6%). The results from the randomised sampling of 201 rural loggers

Figure 4: Activities before and after starting timber business



across Zambia, combined with focus group discussions (FGDs) and key informant interviews (KIIs), clearly indicate that the mukula timber trade with China made significant contributions to the lives of the rural populations near forests.

**It is important, however, to discuss such livelihood benefits in the context of environmental sustainability.** Using several variables associated with the speed and scale of operations over the past five to seven years,<sup>24</sup> the research points to a rapidly declining resource base. First, Chinese customs data indicate a fast increase in logs imported from Zambia despite the numerous mukula bans. Figure 6 shows that log exports to China continued to rise between 2015 and 2017, reaching a level at which

<sup>24</sup> The indicators point to **potential** environmental damage; given the speed at which the mukula value chain has been developing, its recent developments, the limited botanical knowledge about mukula, and the spatial and financial limitations of this study, it remains difficult to scientifically assess the long-term environmental impacts of current harvesting operations.

Figure 5.1 and 5.2: Use of income earned from cutting timber, and major assets purchased

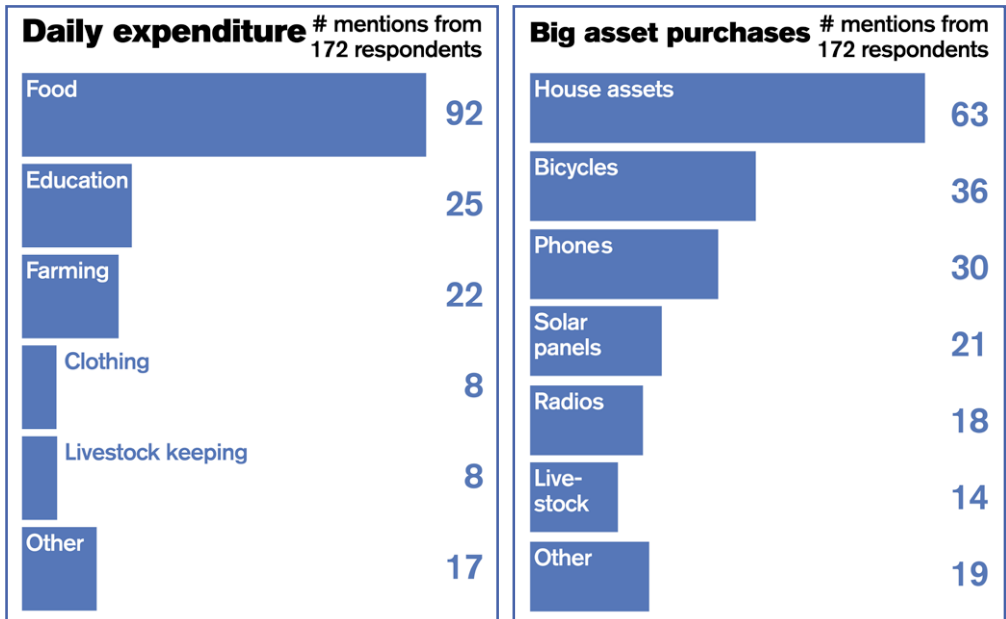
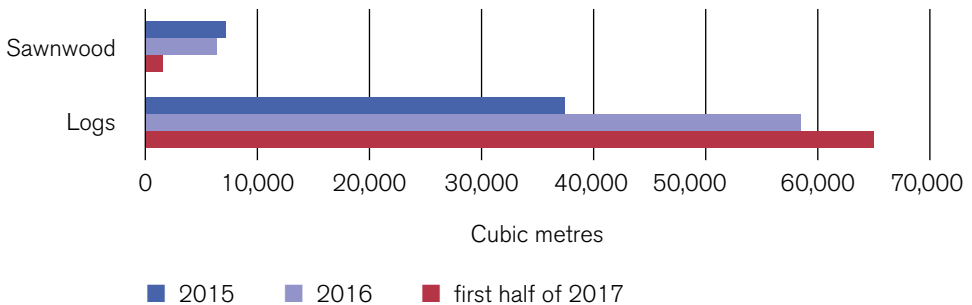


Figure 6: Zambian timber imports reported by Chinese customs



Source: China customs

the log imports during the first half of 2017 – the most recent data available – already exceeded the total imports of logs in 2016, despite a series of regulations in 2016.<sup>25</sup>

Second, surveys show that the small-scale loggers harvest mukula in the forests with little attention to sustainable practices. This is most evident in the criteria that loggers use to identify which tree to fell. In sustainable forest management, the most well-known and respected environmental criterion is generally the maximum height at which trees are

<sup>25</sup> It is difficult to ascertain the exact share of mukula logs within this data; however, interviews with stakeholders linked to the trade in China indicate that the vast majority, if not almost all, of the logs are mukula, and in particular, that the sharp increase year-on-year is attributed to the rising popularity of mukula in China.

cut, meaning the height of the stump left on the ground after cutting, in order to allow the most efficient use of available resources. About 18% of our respondents, however, indicated a cutting height above 30 cm, the legal requirement for mukula felling, pointing to a sub-optimal utilisation of available resources.

About 82% of the surveyed loggers conducted no post-harvesting waste removal or cleaning of the cutting area, as mandated by law to avoid fires and help regeneration. Similarly, about 90% of the loggers were unaware of the prohibition against felling trees within 50 metres of a river – a regulation intended to prevent soil erosion around water sources. Additionally, about a quarter of respondents reported buyers' preferences as the top criterion for selecting trees, instead of environmental criteria. Unless the buyers actively follow legally stipulated measures intended for ensuring sustainable forest management, such prioritisation could mean that sustainability criteria are abandoned to maximise profits. For example, some loggers mentioned felling trees that have diameters below the legal minimum diameter (intended to maintain a healthy stock of young trees). When combined with a virtual lack of government monitoring capacity on the ground – another finding of our research – these reported high levels of noncompliance reveal that increasing amounts of mukula are harvested with little regard for sustainable forest management practices, potentially triggering severe negative environmental impacts.

Loggers' own perceptions corroborate the potential negative environmental impacts. When asked whether they think that, in five years' time, they will be able to keep harvesting at the current rate, about 68% of cutters replied negatively because of current depletion trends observed. This was corroborated by about 95% of the key informants who seriously questioned the sustainability of mukula harvesting under the present arrangement, some of whom in fact foresee the species "going extinct." Given the rapidly declining resource base and the potential threat to the survival of mukula as a species, the mukula trade with China cannot likely be sustained at the same level in the long term; thus the rural livelihood benefits described earlier are decidedly short-term.

Finally, the mukula trade seems to exert little impact at the community level. Although about 20% of FGDs (with a majority of female participants) reported that the mukula trade was boosting the local business environment, about 40% of FGDs also indicated that benefits from the mukula trade tend to accrue only to the households of the individual cutters, with ambiguous community-level benefits. Our findings did not identify any direct material contribution made to communities by mukula buyers. It was noted by traditional authorities that their agreements with buyers did not generally address the issue of corporate social responsibility to the community; yet some interviewees complained that buyers supposedly promised repairs of various infrastructure in their chiefdom that never materialised, due to a lack of active negotiation and enforcement from traditional authorities – or worse still, taking the profits for personal enrichment. It is also noteworthy, however, that the lack of community benefits is not specific to the

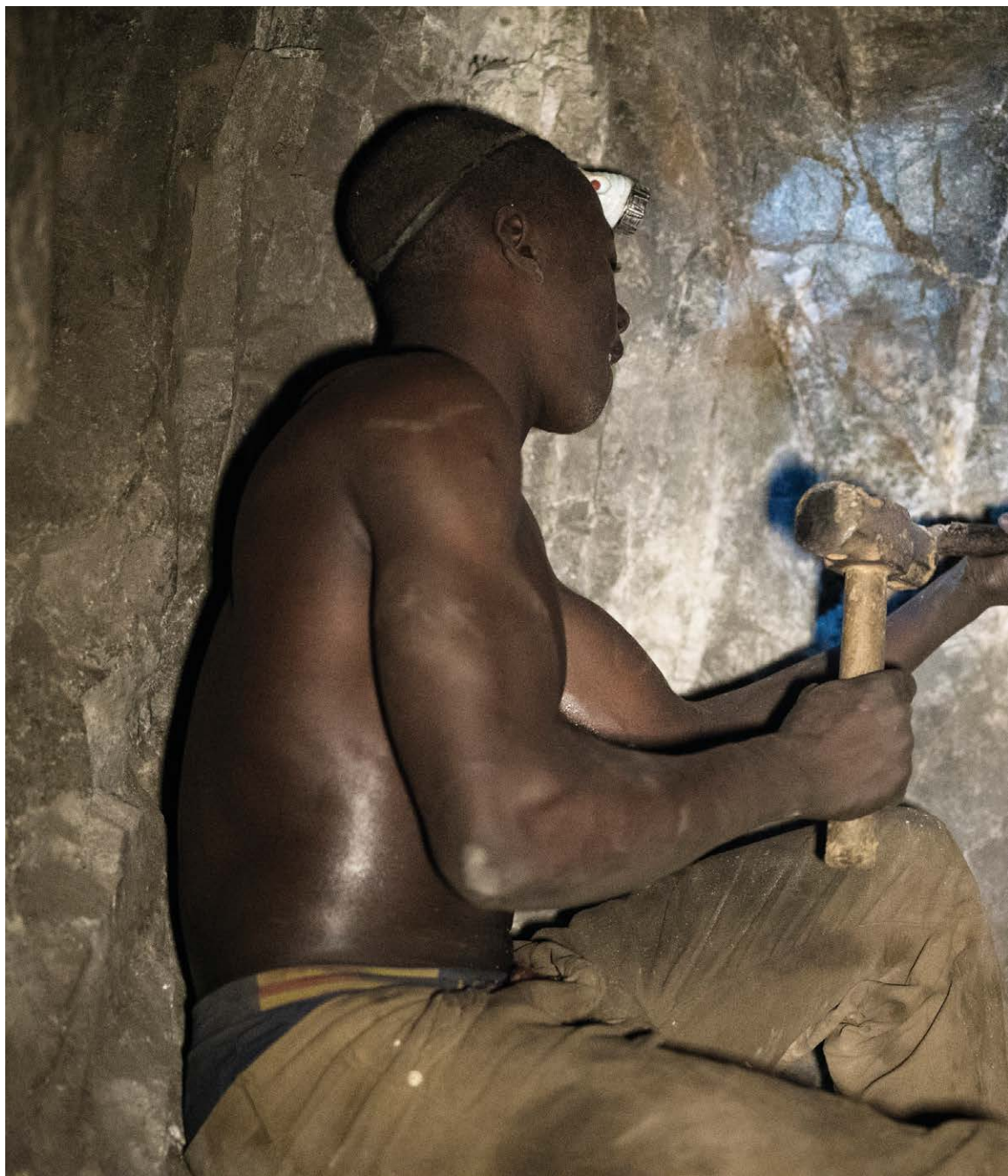
mukula trade – even in the traditional logging concession model, the Zambian regulations are silent on the details of companies' obligations toward communities.

## Summary

Ultimately, the impact analysis reveals a cautionary tale for policymakers and environmental groups hoping to conserve tree resources in the face of a booming rosewood trade with China. Zambia continues to lose vast amounts of mukula trees despite the official regulations, while the political and economic elites are enriched through underground trade. All the while, benefit flows decreased to the primary producers, who display the highest levels of acute poverty and the most need for cash to access basic needs, such as food and education.

At the heart of the policy failure and adverse outcomes is the fact that the Zambian government employed bans – a conventional policy response designed for the traditional concession model – to tackle a new business model that fundamentally challenges the existing forest governance paradigm. The direct sourcing from rural small-scale loggers and the fast-moving transboundary nature of the trade differs significantly from the established model based on stationary, long-term investments contained within a national territory. The policymaking process neglected to predict how the various local players would respond eagerly to the mukula trade – by becoming suppliers, brokers, traders and rent-seeking officials.

By focusing on the distributed agency of all players contributing to this situation, this forestry case points to the need for a disaggregated approach in designing interventions aimed at issues associated with the Chinese market and investors. Understanding the incentives and motivations of all players on both sides in Africa and China would allow policymakers to identify leverage points, and anticipate reactions by various players and the effects at the sector level, allowing them to design more effective interventions toward social and environmental goals. In the mukula case, this means addressing the pervasive elite capture and the low resources and capacities of the Forestry Department, while continuing efforts to promote demand-side regulations in the Chinese market.



Fortunatus Waziri, a driller, works deep within a tunnel at the Nsangano Gold Mine, Mawemeru village in Geita District, Tanzania on March 15, 2015. Fortunatus is an orphan and is recently divorced. His only child lives with his grandmother, and he sends them money earned in the mine whenever possible. Credit: Brian Sokol/Panos Pictures



# 6

## Mining

### Background

The mineral sector, like the forestry sector, is a relatively recent addition to the China-Africa relationship. Chinese investments in Africa's mineral sector also have a short history compared with other foreign investors, particularly from Europe. While records show that Chinese migrants were working on South African mines as early as the late 19th century (Park 2012), it was not until the late 1990s that large-scale mining sites were developed with Chinese capital (ERA 2009). Currently, Zambia, South Africa and the Democratic Republic of Congo are the primary destinations for Chinese mining investments (Vedie 2017). These have grown fast in recent years, aided by the strong Chinese mineral demand; China imports around 50% of the world's trade in nickel, copper, steel and aluminium (Desjardins 2018). One study claims a 25-fold increase in the number of Chinese mining companies in Africa between 2006 and 2015, starting with only a handful in the early 2000s (Basov 2015). State-owned Chinese enterprises have also sealed several high-profile deals, such as uranium in Namibia and copper in the Democratic Republic of Congo (ibid.). Mining has become the second most popular sector for Chinese foreign direct investment (FDI) in Africa: as of 2016, mining accounted for

26.1% of the total Chinese FDI stock in Africa, second to the construction sector, which accounted for 28.3% of the stock (MOFCOM 2016).

The social and environmental impacts of large-scale Chinese mining investments have mixed records in Africa. Wegenast et al. (2017) use quantitative analyses based on data between 1997 and 2004 to show that across the continent, populations living close to Chinese mining sites enjoyed better infrastructure, such as paved roads or piped water, despite a persistent level of unemployment and anti-Chinese sentiment. A prominent controversial case is the Chinese-owned copper mine in Zambia, where human rights abuses were the focus of a high-profile NGO campaign (Human Rights Watch 2011). Haglund (2008) examined this case and concluded that the project indeed posed significant regulatory challenges, but also noted that these were not unique to the Chinese project.

In the context of such controversies, and partially in response to the international criticism, Chinese stakeholders have increasingly emphasised the need for sustainable mining investments overseas. The Forum on China-Africa Cooperation Action Plan of 2015 listed "rehabilitate disused mines" as one of the environmental protection measures that the Chinese and African governments will work on. Similar to the timber sector, the China Chamber of Commerce of Metals, Minerals and Chemicals Importers and Exporters (CCCME) has published two voluntary guidelines encouraging responsible investments in the mining sector overseas, and has carried out awareness-raising activities among major mining companies in China seeking to expand operations abroad.

## Chinese investors, small-scale miners and the environment

Despite the encouraging signs on the Chinese policy front, Chinese investors' involvement in small-scale mining has stirred vehement controversies in recent years. Mining in Africa encompasses a significant subsector of artisanal and small-scale mining (ASM). Largely conducted in the informal economy with rudimentary tools or limited mechanisation, across the continent, it is estimated that it employs eight million small-scale miners and indirectly supports 45 million people's livelihoods in rural areas where off-farm employment opportunities are sorely lacking (Benkenstein 2012; Jönsson and Bryceson 2009). But it is also associated with hazardous working conditions, use of mercury, water and soil contamination (ibid.). Various development initiatives, with limited success, have attempted to integrate the artisanal and small-scale miners into the formal economy, improve their conditions, and reduce health and environmental risks (Hilson and McQuilken 2014).

Traditionally, very limited foreign capital has gone into this subsector because ASM was largely viewed as an activity exclusive to local miners with limited capital, technology and knowledge. A pro-national discourse touts the ASM sector as a key source of income for local communities, providing opportunities for small-scale miners to 'strike rich'. As

such, even the legislative framework across many African countries, where they have accommodated ASM, reserve artisanal and small-scale licences exclusively for nationals (Crawford and Botchwey 2017).<sup>26</sup>

Not surprisingly, the recent Chinese foray into Africa's small-scale mining has attracted much attention from the media, civil society groups and policymakers, as illustrated by headlines such as *"China's African gold rush"* (Al Jazeera 2016), *"The Chinese scramble to mine Africa"* (Basov 2015) and *"Ghana's crackdown on illegal gold mining inflames tensions with Beijing"* (Fick 2017). The history of this Chinese entry, however, is not well documented, and the social, environmental and policy implications remain poorly understood. A small number of available studies and media reports indicate that Ghana first experienced an influx of Chinese investors in small-scale gold mining in the early 2000s. At its peak, about 2000 Chinese-managed mines were estimated to have been active until a major crackdown in 2013 (Al Jazeera 2016). Around the same period in Cameroon, Asian investors from China, South Korea and other countries, started to operate mechanised gold mines in Betare Oya, the country's traditional ASM production centre (Kindzeka 2017). In Tanzania, as explained below, our research indicates that Chinese investors entered the small-scale gold and copper trade a decade ago, starting as traders or processors and then eventually moving into the production stage by partnering with local ASM miners.

Emerging from a limited number of studies – from Ghana, Cameroon and Tanzania, as elaborated later – is an initial picture of disruptions caused by Chinese investments into the ASM sector, observed in two aspects: a new business model, and accompanying governance challenges. In terms of the business model, the Chinese investors partnered with local ASM miners/licence holders and used improved extraction and processing technology to upgrade their operations or utilise previously idle mining areas; this significantly increased the subsector's production volumes. For example, the share of small-scale production in Ghana's total gold production increased from 11% to 36% from 2005 to 2014, during the period when the Chinese were active in the sector (Crawford et al. 2015). Cameroon's ASM sector also witnessed technology transfer and efficiency increases (Weng et al. 2014).

Such mechanisation and upgrading of ASM mines through Chinese investments, however, is accompanied by significant governance challenges, particularly in terms of managing increased environmental and safety risks associated with the increased scale of operation. In Ghana, this governance failure is documented by local NGOs, whose study claimed that Chinese-linked mechanised mines have polluted more than 250 rivers (WACAM 2010). As discussed later, safety risks are also a serious concern in Tanzania's Chinese mines.

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<sup>26</sup> It is worth noting that the transaction cost to obtain licences is often prohibitive for small-scale miners, and therefore the compliance rate is low (Hilson, Hilson, and Adu-Darko 2014); in Ghana, the government estimates that less than 30% of ASM actually have licences (Crawford et al. 2015).

An important governance mechanism to ameliorate these risks is licensing, by requiring an environmental impact assessment as a pre-condition to licence approval, or by revoking licences when noncompliance is found. Yet the licence status of many of the Chinese-linked small-scale mines remains ambiguous. In Ghana, it is illegal for foreigners to own small-scale licences, but the government initially allowed foreigners to provide 'technical support' – a loophole through which many of the Chinese companies operated until this clause was removed in 2012 (ibid.). In Cameroon, the government created a legal loophole for investors to lease small-scale licences from a semi-governmental agency (Weng et al. 2014). As discussed below, the legal ambiguity is also observed in Tanzania, limiting effective government responses to the social and environmental risks at the mechanised mines.

Examination of the disruptions caused by Chinese investments to the ASM sector, particularly the impacts on small-scale miners and the environment, is not simply an academic exercise. This upgrading of ASM comes at a critical moment when many African governments are revisiting policy frameworks for the mining sector and, by extension, ASM's place in it. For the past two decades, Africa's mining sector was regulated by liberal policies as a part of the Structural Adjustment Programs (SAPs); these provided preferential terms for foreign investment in large-scale mines, often to the detriment of national tax revenues and local development (Campbell 2009).

In recent years, however, some governments have started to take a more active and assertive regulatory role, for example, by raising royalty percentages, local content requirements, and the share of national ownership (Bryceson et al., eds 2014). At the same time, some governments also increasingly attach political significance to the development of the ASM sector (Pedersen and Jacob 2017; Kaiman and Hirsch 2013). This re-emergence of the state in sector governance is a welcome development for ASM and, in particular, for investor-linked small-scale mining. Following the conceptualisation of Evans (1995), rather than engaging investors in the role of custodian, in which the state primarily regulates and enforces rules as it does now, a more active state would engage in a combination of midwifery and husbandry – the former implying facilitation, relationship-building and enabling collaboration, and the latter cajoling and arm-twisting.

## Chinese investments in small-scale mining in Tanzania

Tanzania is an appropriate choice for further examining these general trends associated with Chinese investments in small-scale mining. Mining is key to its national economy, as the largest source of foreign exchange earnings (UN-COMTRADE database 2017). The country holds deposits of, among others, gold, iron ore, uranium, rare earth minerals, graphite, nickel, copper, diamonds and various gemstones. The country has a long tradition of ASM in gold and gemstones, with an estimated 685,000 to 800,000 miners working at ASM mines (Bryceson et al. 2012). Gold has been historically the target for foreign investors interested in Tanzania's mineral potential. In 2015, Tanzania was

estimated to be the fifth largest producer of gold in Africa, following South Africa, Ghana, Mali, and Sudan. However, official gold-production data only captures large-scale mines, while ASM production is not systematically monitored or captured in export statistics. UNEP (2012) estimates that small-scale mining is responsible for 10% to 15% of total national output, most of which is traded on informal markets, and some industry experts consider this estimate too low.

Tanzania's current government has made it a political priority to capture the country's mineral wealth, as seen by the high-profile negotiation with the country's largest gold-mining investor, over alleged unpaid royalties in 2017 (Jacob and Pedersen 2018). The mining-sector reform that swept through the country in 2017 significantly increased the government's role, through detailed regulations and tough fiscal and operational requirements (Pedersen and Jacob 2017). The government's enthusiasm also extends to small-scale mining. Seeing this as a key driver for rural development, the government has renewed its emphasis on supporting ASM, underscored by a specific reference to it by the President in his inaugural speech (Magufuli 2015).

At the same time, foreign investments from China and elsewhere are already transforming Tanzania's ASM landscape. In the gold trade, starting around the late 2000s, foreign investors from, among others, China, India and Zimbabwe, brought in technology to process leftover ASM tailings with high gold content. Most of these investors have since moved into partnering with local ASM for production. Unlike West and Central Africa, where Chinese players are perceived to exercise a near-monopoly, our research reveals that in Tanzania the Chinese are one of the main investor groups in small-scale gold mining. Chinese traders initiated the small-scale copper trade in Tanzania around the early 2010s, procuring copper ores extracted by ASM across the country. This triggered investors from other countries to enter into copper mining and primary processing. Yet, as explained later, with decreasing world prices for copper and the government's ban on ore exports, most Chinese traders seemed to have left, and only those that have invested in partnering with ASM for production are still active, along with other investors from Oman, India, Russia, the US and Canada.

Despite the key role played by Chinese and other investors, Tanzania's mining legislative framework was, until very recently, silent on the legality of such foreign involvement in primary mining licences (PMLs), the licence type reserved for ASM. This changed with the 2017 amendments, which now explicitly allow for technical support by foreigners, although, strictly speaking, it still excludes foreigners from managing or owning a small-scale mining operation (Schoneveld et al. 2018). Instead, foreign investors are required to apply for the more rigorous Mining Licence (ML). In practice, however, many of them partner with Tanzanian ASM licence holders, thus going beyond the legally allowed 'technical support' capacity to avoid bureaucratic complexity and upfront investment costs, such as obtaining an Environmental Permit.

Such an informal operation is enabled by the strong role of Tanzanian players – in partnering with investors, working as miners, and prioritising mining development over addressing social and environmental risks as government officials. In the next section, we illustrate the roles and agency of both Chinese and Tanzanian players and the implications for the environment and Tanzania's small-scale miners and sector governance.

## Findings

Our research reveals that while the business strategy employed by Chinese and other investors contributes to the upgrading of the ASM sector through technology transfer, increased outputs and efficient processing, it also challenges the existing governance paradigm, in terms of licensing and addressing environmental and safety risks associated with the increased scale of operation. Nevertheless, as in the agriculture and timber sectors, the Chinese investments brought stable incomes to small-scale miners, who reported an improved ability to pay for crucial basic needs. We also highlight the distributed agency among Tanzanian players and Chinese investors in determining the social and environmental outcomes – in particular, the key role played by Tanzanian government officials in prioritising mining development over social and environmental mandates.

It is noteworthy that, as in the case of agriculture, the mining study in Tanzania presents Chinese players as just one of the disruptive elements, along with investors from other emerging economies and a few risk-taking entrepreneurs from the West. All of these investors employed a largely similar business model, yielding similar governance challenges. This contradicts with the cases in Ghana and Cameroon, where Chinese played the dominant role. Nevertheless, where possible, we sought to understand differences between Chinese and other investors, especially in their impacts on the environment and small-scale miners, and have noted those differences in our discussions below.

## Roles of Chinese and local actors

The Chinese and other investors changed the ASM commercial landscape in several ways: initiating new trade, using new technology, and infusing underutilised ASM mines with capital and technology through partnerships with local licence holders.

### Role of Chinese investors

First, the Chinese and other investors initiated the trade in gold tailings<sup>27</sup> and copper ore, whose commercial potential had been previously explored. In small-scale gold

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<sup>27</sup> Tailings are leftover sand from processing, which still contains gold that cannot be extracted without improved processing technology. The extraction methods commonly used in Tanzania's small-scale mining are currently cyanidation and CIP plants; see Schoneveld et al. (2018) for details.

mining, miners traditionally discarded a large quantity of tailings. The Chinese investors were among the first to establish processing plants for gold tailings. This led to commodification of gold tailings, previously a byproduct of local ASM mines. Tanzanian ASM miners repeatedly emphasised the benefits of the new value addition activity during the interviews, as they were now able to sell off waste products. It is worth noting that, while the Chinese investor pioneered the use of this technology in one of the study sites, we also identified other foreign investors (from India and Zimbabwe) using value addition technology in another site, though interviews with local miners reveal that the Chinese investors consistently paid higher prices than other investors.

In the case of the small-scale copper trade, it formed almost entirely anew in response to high global copper prices in the 2010s. Between 2006 and 2012, Tanzanian copper ore and concentrate exports increased from nil to a value of US\$324 million (UN-COMTRADE 2017). More than half of these exports were destined for China, perhaps not surprisingly, given that China consumes 50% of the global copper production. During this period, our interviews reveal a vibrant trade between ASM copper miners and mostly Chinese buyers who provided forward financing to local small-scale miners for mining copper ore. Taiwanese and Korean-American entrepreneurs also constructed several processing plants to export copper concentrates to China.

The Chinese and other traders initially exported copper as ores or concentrates with limited value addition. This changed in March 2017, when the government placed a ban on ore and concentrate exports in order to promote investments in domestic value addition. This ban created pressure to upgrade small-scale copper mining; a recent trend in environmental and business permit applications for small- and medium-scale copper smelters suggests that there is an emerging domestic market for copper processing relying on supplies of ores from ASM.<sup>28</sup> Our research revealed that investors from China, Oman, India, Russia, the US and Canada have invested in partnering with local ASM miners in production.

Behind this commodification of previously unexplored products is the key role of new technology used by Chinese and other investors. The foreign investors introduced processing technology (cyanidation plants for gold tailings and leaching, froth-flotation and smelting plants for copper ore), which enabled more efficient mineral extraction. Particularly in small-scale gold mining, our interviews indicate that most of the more modern and efficient processing plants for gold tailings are constructed by Chinese businesses. This technology adoption by foreign investors also had demonstration effects on local ASM miners. Seeing the business opportunity and learning about the relatively cheap cost of the new technology, local mining companies started to adopt it too, leading

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<sup>28</sup> However, the world copper price has continued to decline in recent years, and with slowing Chinese market appetite and the government's ban on exports of non-value added copper products, our research indicates that the Chinese traders have now largely exited the sector, except for a few investing in value addition activities. In 2015, Tanzania exported an amount equal to only 3.5% of the peak volume in 2012.

to a mushrooming of leaching plants run by Tanzanians in gold-production areas, as explained by a government interviewee.

Eventually, the Chinese and other investors in both gold-tailing and copper trades moved up the value chains to engage in production. Instead of applying for the mining licence, as they are legally required to do, they have formed partnerships with local ASM licence holders, in order to exploit the gap in a policy meant to constrain foreign participation in small-scale mining activities. The investors consider this approach to accessing and exploiting mineral rights to be less expensive and bureaucratically simpler. For example, there exist critical differences between the two in terms of upfront investment cost: the ML requires a full environmental impact assessment conducted by accredited third-party consultants and approved by the National Environmental Management Council, while the PML only needs self-reported environmental protection plans to be filed with the local mining office (which in reality does not often check compliance). As a result, the compliance cost is a strong deterrence factor in applying for an ML, without proven economic viability of the mining sites. This partnership is perhaps the most unique and disruptive aspect of the Chinese and other investments – and one that has significant implications for the governance framework. To discuss how this partnership is made possible, and how the investors continue to operate in this legal grey area, we now turn to the roles of the Tanzanian stakeholders: the licence holders, workers and government officials.

## Role of local actors

To understand the investor-ASM partnership, Figure 7 first illustrates how ASM generally works, and who the local stakeholders are. A typical ASM operation has a multi-tier structure with a pit holder at the centre of production. The pit holder manages a team of miners, using a performance-based pay system, receives forward financing from a broker for mineral production, and rents the right to extraction from the official licence holder. Once the Chinese and other investors enter the sector and purchase licences from local ASM licence holders (Figure 8), however, pit holders and rural brokers are displaced, workers become salaried employees, and a local partner with political and economic capital often provides support in exchange for profits.

In the process of this transition, our research finds that the investors rely heavily on local actors to access mineral rights informally, guarantee the smooth operation of their mining pit and processing plants, and utilise local networks to make their operations economically viable. While the investors bring capital and technology, the Tanzanian value chain actors exercise their agency in controlling access to other types of resources – human, political and legal. For example, the activities of dealers and brokers largely remain unchanged, but they become the key 'networkers' between Chinese and other value chain nodes as suppliers of mercury, purchasers of gold produced, and bridges to

Figure 7: Typical ASM value chain structure

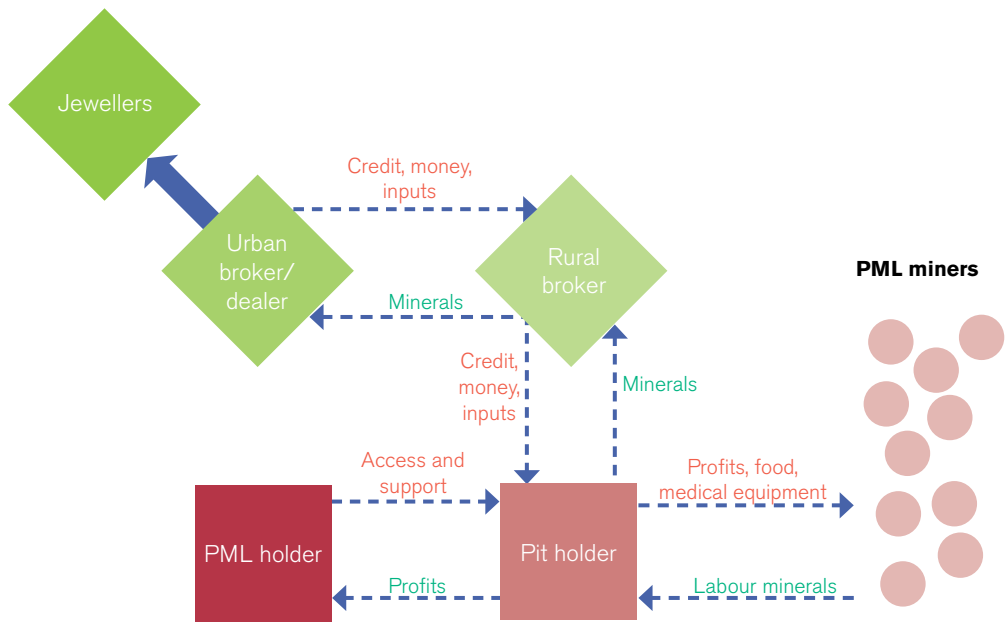
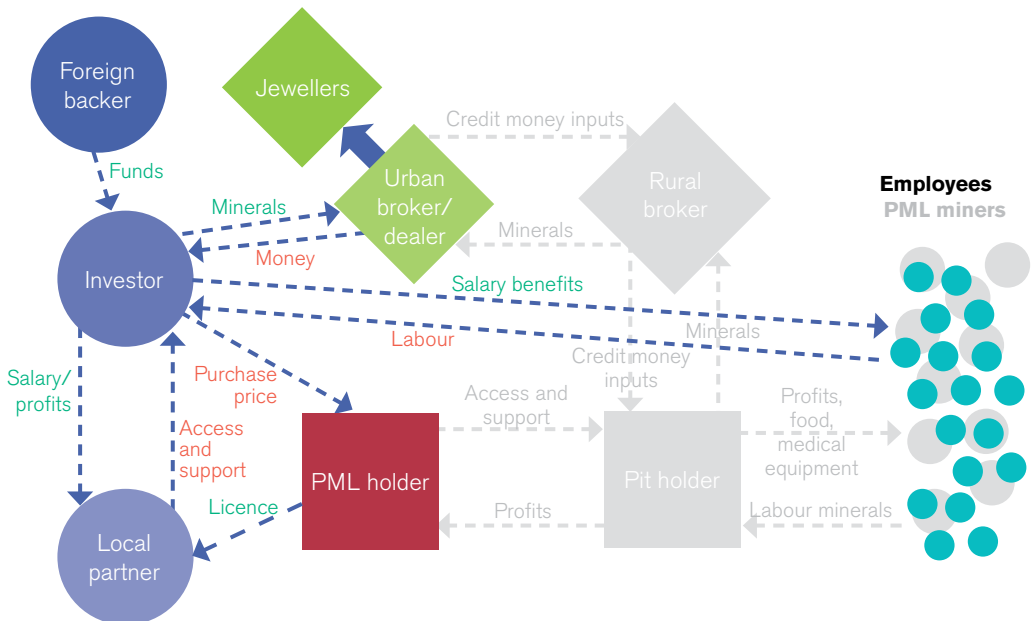


Figure 8: Value chain structure after investors' entry



link Chinese buyers with suppliers. The position of such key Tanzanian operators is based on their local networks, which allow them to exploit weakness and/or ambiguity in the regulatory framework.

This is particularly evident in the key role played by the Tanzanian brokers who connect the investors with the final market. The informal nature of the trade meant that commerce often moved through social relations embedded in trust and familial and ethnic networks. This arrangement meant that local brokers became extremely important. For example, they are the principal suppliers of mercury, which, since its use and sale is regulated with increasing stringency in Tanzania, is often smuggled from Kenya or Zambia through urban broker and jeweller networks. Most of the gold originating from small-scale mines, including foreign-owned mechanised ones, is sold to one of five Tanzanian jewellers, all of whom are of Indian descent, via local brokers' networks. Interviews with investors clearly indicated that the Chinese and other newcomers had no hope of capturing the mid- and down-stream section of the chain, where value addition was the greatest.

Indeed, contrary to media allegations of Chinese monopoly over resource extraction, the Chinese and other investors were part of a highly competitive and dynamic domestic gold market. The subsector was extremely competitive, with no single 'lead firm' dominating or controlling the terms of trade. Value chain actors – Chinese, Tanzanian and other foreigners – engaged in constant negotiation and revision of their commercial relationships. For example, in the gold-tailings and copper-ore trades, this involved switching suppliers and buyers constantly, and maintaining relatively open and flexible relationships with local ASM suppliers. In the gold trade in particular, Chinese investors have not been able to capture the high-value components of the chain downstream. The Indian community in Tanzania maintains tight control over the downstream of the gold trade, making it impossible for the Chinese to capture the entire chain, unlike the situation in Ghana, where Chinese investments are portrayed as subsuming the small-scale gold economy.

Perhaps the aspect of their business strategy most disruptive to the governance framework is how Tanzanian licence holders acted as the 'gatekeepers' for Chinese and other foreign investors to access the mineral rights in a cost-effective and low-risk manner. As discussed earlier, Tanzanian laws did not explicitly allow non-Tanzanian companies from engaging in PMLs until recently, and only technical assistance has been allowed since 2017. Yet Chinese and other investors are increasingly purchasing PMLs and taking over the de facto ownership and management of the mines, and mechanising the small-scale mines. Similarly, in copper production, only those companies that partnered with PML holders continued to operate after global copper prices collapsed. Our research shows that foreigner-PML licence-holder partnerships became the established entry strategy for most medium-scale mechanised mines in gold and copper, across both Chinese and non-Chinese-controlled mines.

Our research reveals that this business strategy was largely condoned by Tanzanian government officials. There are several reasons for such policy-practice gaps. First, government officials from local government and mining ministries largely consider the PML ownership restrictions as excessively stringent and a deterrent to investments that could spur local development. Especially given the low utilisation rate of PMLs due to capital constraints or speculation, many of the officials interviewed view the entry of Chinese and other investors as an encouraging development that helps modernise ASM and the local economy.

Vested interests also play into this situation of weak governance. For example, we documented a number of local government and mining officials familiar with local mining operations and mineral deposits, who were assisting investors – typically in an unofficial capacity – in identifying and negotiating partnership arrangements. Similarly, several investors (both Chinese and non-Chinese) alleged that their ambiguous legal status based on PML regulations made them especially vulnerable to rent-seeking behaviours by regulatory authorities. A few Chinese investors recall several occasions in which enforcement officials made repeated inspections for miniscule noncompliance issues, only to negotiate informal payments in the end, while the officials overlooked more significant noncompliance at the surrounding Tanzanian mines. When government officials view foreign investors as a source of extra-legal income, they arguably become compromised in the fulfilment of their duties, and in turn become dependent on those investors continuing to operate in an extra-legal capacity.

Weak horizontal and vertical coordination within government also affects the regulation of Chinese and other small-scale mines, in relation to environmental and social impacts. While mining-sector officials are typically more familiar with mining operations on the ground, and have more financial and human-resource capacity than those from environmental or occupational-safety agencies, our research finds that the former are often disinclined to report to the latter about problematic and improperly licensed mines.<sup>29</sup>

This situation severely constrains the government's capacity to monitor environmental and occupational-safety risks associated with the foreign mines. It can also be seen as a conflict between a development and revenue-generation agenda, on the one hand, and a regulatory agenda related to environmental and social compliance on the other. For example, we encountered a case in which local government and mining ministry officers disagreed openly with those from the environmental agency, in a multi-agency consultation meeting regarding revoking the licence of one Chinese mine for environmental noncompliance; our interviews reveal that the local government and mining ministry officers feared the impact on local development if the mine halted operation. In

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<sup>29</sup> The government recently announced a sharp increase in the appointment of environmental inspectors (from 60 to 435), drawing on existing government staff from NEMC, LGAs and other departments. The appointment empowers inspectors to stop or fine an operation for noncompliance, although it remains to be seen whether new inspectors will have the necessary resources to undertake monitoring and enforcement work.

essence, our research observed a government favouring mineral output gains, through opportunities associated with mechanised mines linked to Chinese and other investors, despite the increasing social and environmental risks. Next, we turn to understanding what impacts the Chinese investors actually had on the environment, small-scale miners and communities.

## Impacts

Across all mechanised mines – not specific to the Chinese – the most publicly contentious environmental disturbances are attributable primarily to processing activities. Indeed, two of the four Chinese mines studied were associated with contamination of groundwater and rivers, with heavy metals released from the crushing of rock and cyanide in processing, due to poorly constructed storage facilities and poorly covered processing plants. The other Chinese mines were noted for a lack of toilet facilities and proper liquid-waste treatment facilities. Other environmental concerns – across both Chinese and non-Chinese mines – included clearance of vegetation and forested land; noise pollution from ball mills and crushers, often located close to settlements; and cattle fatalities, due to livestock grazing close to polluted water from the mines.

Despite these environmental risks, our research shows that several Chinese investors, like non-Chinese investors in similar mines, did not conduct an environmental impact assessment, as this was not normally demanded when operating through PMLs. As a result, appropriate environmental protection plans were lacking. For example, the downstream community located near one of the Chinese sites complained about the lack of safeguards against water pollution during the rainy season.

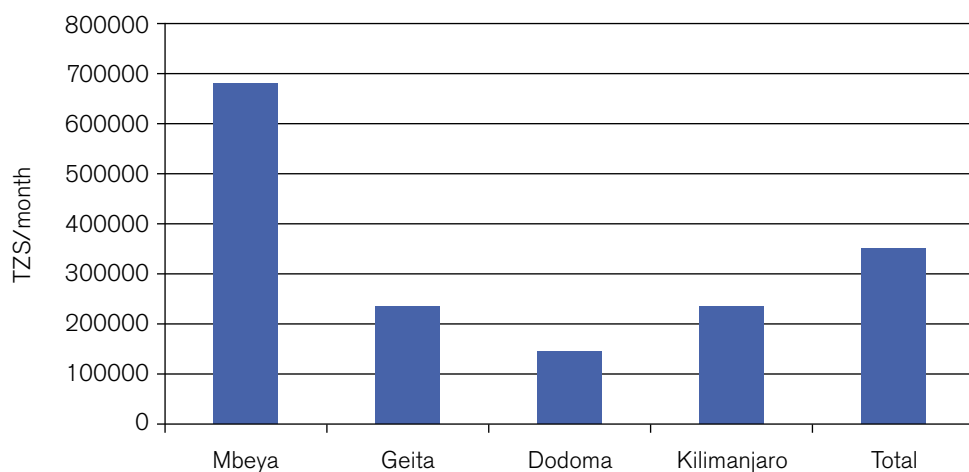
Situations like these occur where the relatively lax environmental requirements for PMLs create a problem for the environment and communities living near the mechanised mines. But our research also suggests that stricter enforcement of environmental regulations by government officials can have an impact. For example, during the course of the research, three out of the four Chinese sites studied were suspended from operation for a certain period due to noncompliance with environmental regulations. All three complied with the order and reviewed their environmental compliance; one in particular made significant investments to change its storage facility using certified EIA consultants. Therefore, despite the higher environmental risks, the visibility of foreign-owned mines to the government and their financial ability to invest in compliance measures means that effective monitoring could potentially make them a greener solution than locally-owned mines.

Regarding the impacts on the small-scale miners, as in the agriculture and timber sectors, we found tangible livelihood benefits in the form of higher incomes and improved ability to pay for basic needs at the foreign mines. However, these came alongside high

occupational hazards and strenuous working conditions, particularly at the Chinese mines. Below, we present the data gathered from 155 Tanzanian miners working at the Chinese mines.<sup>30</sup> The miners at the four Chinese mines are mostly male, averaging 29 years old, with a family size of four. Many of the interviewed workers were migrants (particularly at the gold sites), who predominantly listed mining employment opportunities as their reason for migration.

Although the interviewed small-scale miners and their household members did not, by and large, suffer from food insecurity and lack of access to education, in contrast to small-scale producers in the agriculture and forestry cases, they still reported positive impacts from the increased income and employment opportunities associated with the Chinese investments. The surveyed Chinese mines provided between 40 and 330 jobs per mine, depending on the site. With the exception of one mine, salaries at the surveyed Chinese mines tended to exceed the minimum monthly wage of TZS 200,000 (approximately US\$90), as set by the government for small-scale mining operations (Figure 9). Interestingly, salaries at the Chinese mine in Mbeya – the largest operation among all sampled Chinese mines – are on average three times higher than other comparable mines operated by non-Chinese investors. This difference in salary levels is one variability of many observed across the four Chinese mines, as discussed further below.

Figure 9: Income per month at the Chinese mines



<sup>30</sup> Due to resource constraints, we only obtained survey data from workers at the Chinese mines, although comparative questions in the surveys, as well as qualitative data from focus group discussions and key informant interviews reveal differences in salary levels and working conditions between Chinese and non-Chinese mines, which are noted below.

Although access to food and education was not a major issue, interviewees still generally reported positive impacts on their abilities to pay for food, school fees, medical costs and accumulation of assets (Figures 10–13).

Figure 10: Perceived food security impacts at Chinese-owned mines

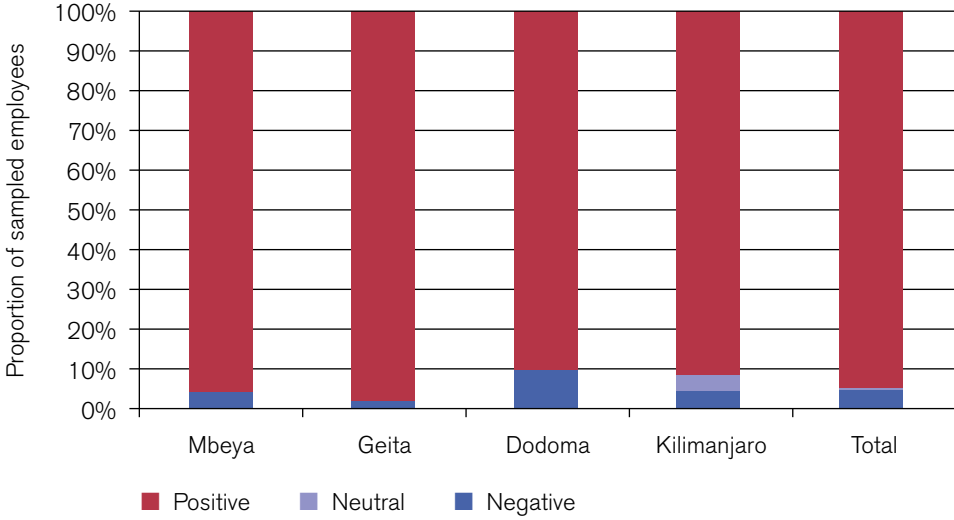


Figure 11: Perceived impacts on ability to pay school fees at Chinese-owned mines

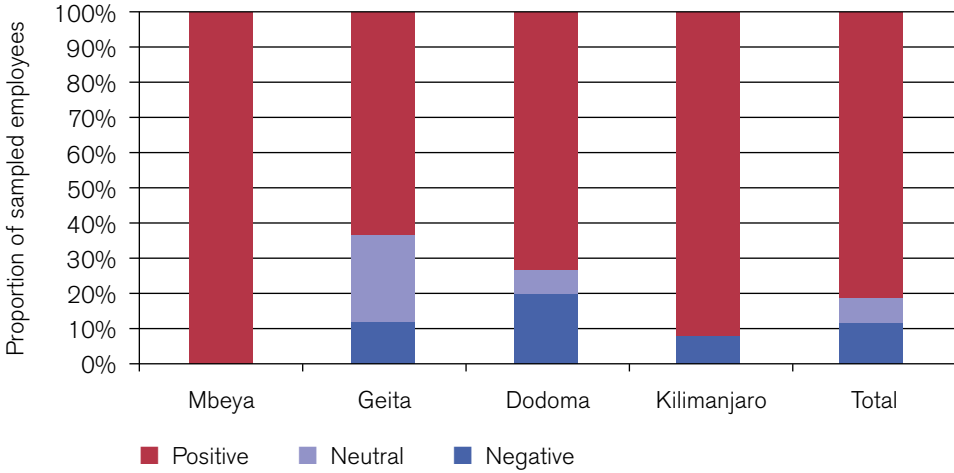


Figure 12: Perceived impacts on ability to pay medical costs at Chinese-owned mines

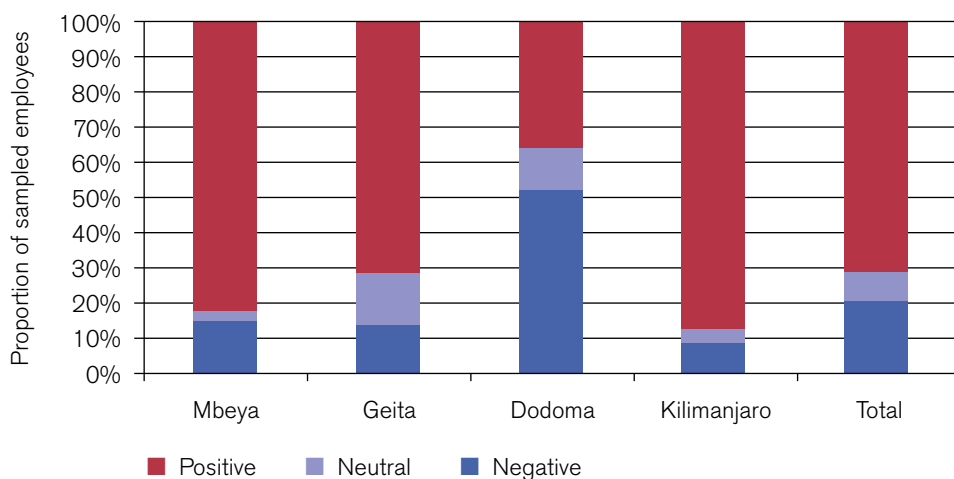
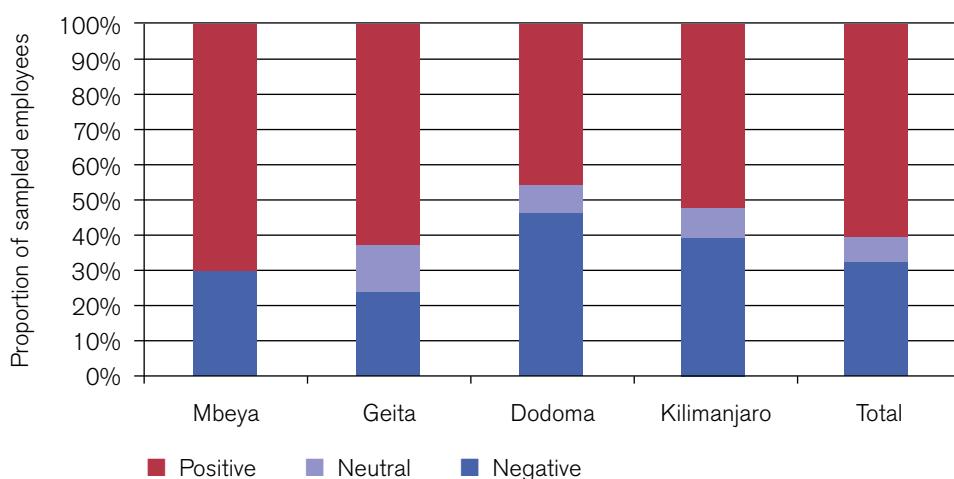


Figure 13: Perceived impacts on ability to accumulate household assets at Chinese-owned mines



These livelihood benefits, however, need to be discussed in the context of strenuous working conditions reported by the interviewees. Most employees perceive working conditions at the Chinese mines negatively (Figure 14), citing harsh working conditions, coercive management styles and lack of regard for worker safety. Nevertheless, employees with experience working at local Tanzanian-run mines consider the working conditions at the Chinese mines as marginally better (Figure 15).

Figure 14: Perception of working conditions at the Chinese mines

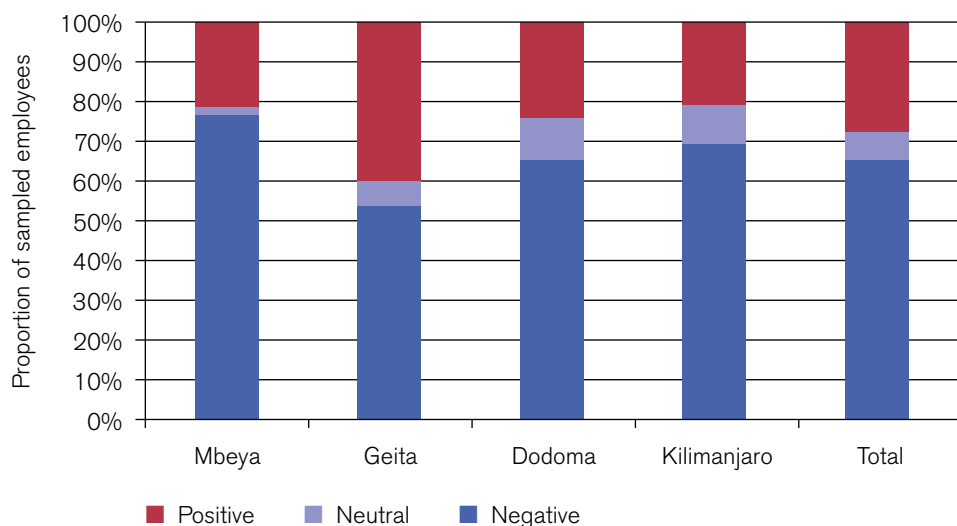
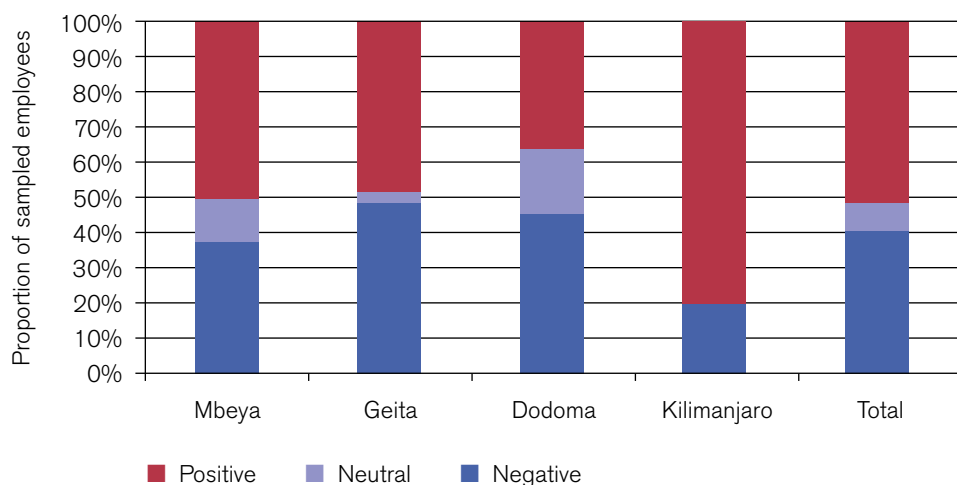


Figure 15: Perception of working conditions at Chinese mines compared to local small-scale mines



Note: This question only applied to 63 of the 155 surveyed miners that previously worked at ASM mines.

Comparing Chinese and non-Chinese mines (both foreign and local), anecdotal evidence indicates that the Chinese sites generally have more labour conflicts, mainly due to language barriers and unrealistic productivity expectations. For example, because Chinese workers rarely remain at the mines for extended periods of time (since few, for instance, have official working permits), there are few opportunities for the Chinese technicians and supervisors to develop social capital and cross-cultural communication skills. This contributes to comparatively high worker turnover rates.

Underscoring the variation in Chinese mines, one of the mines has started to invest more in worker retention and solving labour conflicts – for example, through hiring a Tanzanian human resource management company – to both reduce exposure to litigation and enhance productivity. This is possibly because of this company's relatively larger scale of operation and longer investment time horizon. The managers at Chinese gold-mining companies had differing lengths of investment plans – the longest with ten to fifteen years, and others with only three to four years. This factor naturally manifests in their differing commitments to employee training and community relations, as well as compliance with environmental and labour laws.

Personal protective equipment (PPE) is typically limited to gloves, helmets and boots (Table 4). While outperforming locally owned small-scale mines in this regard, PPE conditions at the Chinese mines systematically fall behind those at other foreign-invested mines of comparable size. For example, earplugs and goggles are rarely provided to miners, despite working in environments where power drills and explosives are frequently used. Most mines reportedly also do not evacuate workers (Chinese or local) from the mines when blasting activities are carried out. The incidence of non-lethal injuries preventing miners from working is especially prevalent in the two Chinese gold mines, where the likelihood of sustaining such injuries in a given year exceeds 40% (Table 5).<sup>31</sup> While some medical support is typically provided, when employees experience injuries at the mines they are usually given leave without pay. These practices do not necessarily reflect discrimination towards local workers, rather a lack of rigorous safety standards at a project level, with Chinese workers exposed to similar hazards. However, again, significant differences in standards can be observed across the four mines (Table 5).

Table 4: Personal protective equipment at Chinese mines

Project	Costume	Helmet	Boots	Earplugs	Goggles
Mbeya	8.5%	80.9%	93.6%	2.1%	2.1%
Geita	8.0%	80.0%	70.0%	0.0%	4.0%
Dodoma	51.7%	55.2%	79.3%	0.0%	3.4%
Kilimanjaro	0.0%	58.6%	55.2%	0.0%	3.4%

<sup>31</sup> We were not able to obtain comparable data from other mines managed by foreign investors, but anecdotal evidence suggests the prevalence is lower.

Table 5: Probability of injury for miners, per year worked at Chinese mines

Project	Probability
Mbeya	42.8%
Geita	47.2%
Dodoma	25.5%
Kilimanjaro	17.7%

Finally, in terms of relations with and impacts on communities, no discernible differences were observed between Chinese and other foreign investors. Despite some reported culturally inappropriate behaviours, most local interviewees considered Chinese investors to be good neighbours. Significant goodwill was created in many communities by the practice of purchasing goods locally. All Chinese mines made CSR commitments to their host communities as part of the mine-establishment process. These included: infrastructure rehabilitation and building (boreholes, roads and classrooms), hardware purchases (water pipes, mattresses for schools and building materials for a mosque) and donations (to churches or local sports teams).

One of the mines, however, had particularly strained relations with the local community because the management invested in building good relations with the district government whilst conducting limited CSR activities among the local communities. Another Chinese mine experienced mixed relations because employment opportunities were taken up by communities near the mines in the mountains, while the communities at lower elevations both lost out on jobs and bore the risk of water-source contamination from the mine upstream. This kind of frustration manifests not only in discontent towards the mine, but also towards village and district governments perceived to be motivated only by self-interest. Such dynamics highlight how (perceived) differentiated access to opportunities emerging from new investments can foster heightened distrust amongst local stakeholder groups when capture is suspected.

From the investors' perspectives, however, communities and their local leadership at times make unreasonable demands and expectations. One investor described being seen as the go-to solution for financing any large project. Our interviews with communities show that there is indeed a reliance on these companies to develop public infrastructure such as schools, clinics and boreholes. Shifting accountability for service provision away from the government increases the risk that local government agencies may tend to absolve themselves from their development responsibilities in mining areas.

## Summary

The mining case illustrates how the unique business strategy adopted by Chinese and other investors has begun to transform Tanzania's ASM sector significantly – in terms of outputs, value addition, efficiency, technology and capital infusion through partnerships. Our impact analysis shows that these changes have brought stable salaries to artisanal miners, and some CSR benefits to the surrounding communities, but also carry high safety and environmental risks if not properly regulated. We observe the strong agency of the Tanzanian stakeholders in facilitating and securing success for the foreign investments, by working as employees, supplying raw materials, providing access to mineral rights, providing market access, condoning foreign partnerships with ASMs, and prioritising mining development over social and environmental goals.

In particular, our research points to the need to understand the governance context – resource constraints, misaligned incentive structures, and weak institutional coordination among the agencies – in bolstering the environmental and safety risks. Importantly, our research did not identify noticeable differences between the business strategy employed by Chinese investors and that of others, but our analysis of working conditions and environmental compliance between the two groups seems to suggest that the Chinese players, on average, lag behind other foreign investors, although they are slightly better than Tanzanian-owned mines, and significant differences were observed even among the four Chinese investors. More systematic research is needed to verify this point.



Photo: Zambian children walk to school in rural areas. Paying for education is one of the top uses for money earned from mukula. Credit: Simon Lim



# 7

## Cross-sector discussion and conclusion

In this final section, we reflect on the findings from the three sectors and discuss their implications for the broader China-Africa literature and development policymaking. Although the three case studies differ in terms of the commodity and the governance context, we have nevertheless identified several insights – in themes related to business strategies, political economy, and social and environmental impacts – pertinent to the debates about disruptions to sustainable development associated with the Chinese engagement in Africa, and their implications for the environment and small-scale producers.

## Business strategies

First, across the sectors, the Chinese players employed **innovative business strategies** that differed greatly from the established models. The supplier-trading relationship that the Chinese rosewood traders introduced will have significant ramifications for the current state-centric and concession-focused forestry policymaking. The ASM-investor partnership model used by Chinese mining companies has spurred mining development, yet presents high safety and environmental risks if not better regulated. The low-investment and cash-payment model first used by the Chinese cotton companies brings about short-term benefits to farmers and companies, yet the long-term sustainability of the sector as well as soil quality and productivity may be compromised.

In the agriculture and mining cases, however, the Chinese were not alone in these innovations. Many of their practices (such as partnering with ASM miners, or paying farmers in cash) were shared with or replicated by other investors, particularly those from other emerging economies, such as India. In the forestry case, because of the dominance of the peculiar demand for rosewood from China, Chinese traders dominated the market, benefiting from their intimate knowledge of the consumer market and holding a monopoly over linkages with timber merchants in China.

Our research suggests that the level of linkage to the Chinese market is a key determining factor in whether targeting the Chinese government or Chinese players will improve the sustainability of the sector. In both the agriculture and mining cases, although China commands significant market shares in the commodities studied, the connection between the Chinese investors in Africa and the final Chinese market seems to be less linear and exclusive, in comparison with timber. This is possibly also because product specification is more standardised, for example, for cotton and copper (assessed in terms of purity and volume) than timber (assessed in terms of colour, dimension and volume), making it easier for non-Chinese traders, processors, and intermediaries in cotton and copper to supply more standardised products directly.

Second, though this report has largely provided a generalised picture within each sector, **a significant level of diversity** was observed among Chinese players within each case. The differences mainly concerned entry and exit strategies, ways of collaborating with local value chain actors, and relationships with local communities and political elites. In the forestry case, some Chinese traders forged connections with powerful politicians while others did not enter into any political alliance, preferring to negotiate passage at every checkpoint through informal payments. Others simply failed in the business because they had come to Zambia on the wave of the mukula boom and grossly underestimated the cost of operations. In the mining case, the differing timescales of their investments influenced the investors' varying levels of commitment to employee training, community relations, and compliance with environmental and labour laws. Similarly, in the cotton

case, we have discussed how a large established Chinese company conformed to the dominant industry norms and tried to work through the existing governance mechanisms, while smaller private Chinese companies have been less willing to join with other foreign investors.

This willingness to collaborate or disrupt depends on the nature of the investment (whether or not a company has, for instance, invested in processing capacity, which is relatively immobile). As noted in the literature review, the diversity of Chinese actors is a consistent theme in the China-Africa literature, yet it continues to be overlooked in most media and policy circles. Policymakers, journalists and NGOs often choose to represent the Chinese actors as a monolith for the sake of simplicity and advocacy.

Our research points particularly to an important **correlation between the diversity across the sectors and the level of vertical integration** required in each commodity trade. The level of vertical integration varied among timber (the lowest level), mining, and agriculture (the highest). In the same order, we observed increasing long-term thinking and willingness to comply with local regulations and operate through formal channels. The nature of each sector requires a differing level of stationary presence and interaction with local stakeholders, with timber trade being the most extractive 'cut-and-run' type of operation; followed by mines, which are more stationary and demanding in terms of managing employees, community and government relations; followed by cotton farming and ginning, which necessitate a significant level of coordination and regular interaction with farmers, suppliers and government agencies. This may seem an obvious point, but the literature review reveals that these Chinese investors are often lumped together without due consideration of the nature of their investment and the relevant sector.

One commonality observed across all three sectors, however, is the **adaptability** of the Chinese players to shifting regulatory contexts, and **their nimble business strategies**. Tracing how the value chain evolved over the past decade in each sector, we saw that the Chinese players constantly changed their business strategies and their place in the value chain in response to the shifting political, regulatory and economic landscapes. In the forestry case, the Chinese buyers changed from sourcing directly from the forested communities to sourcing through several layers of intermediaries – within a matter of several months – as the Zambian policy environment swung between legalising and illegalising the trade. In the mining case, once the global copper price collapsed and the Tanzanian government banned the export of unprocessed copper, the Chinese players quickly shifted from simple trading to production, and finally to processing; and in the gold sector, from reprocessing of tailings to extraction, in response to increased supply constraints. In the case of agriculture, there was a shift in the role of a Chinese company from initially being an outsider, to active participation in the industry association, and finally to becoming a market leader in adopting new business strategies that other established players swiftly followed.

Although this high level of adaptability was itself beyond the scope of our research, anecdotal evidence from several interviews points to the high liquidity and cash flow held by Chinese investors back home, allowing rapid mobilisation of resources as needed, and increasing the investors' propensity to undertake high-risk business strategies rather than simply exiting the sector when the regulatory context changes. This observation is also consistent with other emerging research, such as that of Tang (forthcoming).

Finally, the extent of **technology transfer** from China to Africa – a key theme in the win-win discourse touting the advantages of cheap and efficient Chinese technology in Africa – differed across the three sectors. The forestry case documented no technology transfer, as the Chinese market demanded the product in log form (from Africa and elsewhere) for highly specialised processing in China, thus presenting no value addition opportunities for African producers. In contrast, the mining case presented the clearest case for beneficial technology diffusion and the introduction of efficient and cheap technology suited to the local context, evidenced by even the non-Chinese investors mostly using Chinese technology or hiring Chinese companies to build processing plants. In the agriculture case, some technology transfer was recorded in the form of a new processing technology (acid-delinting), and new fertiliser and seeds, although our research did not document a transformative impact from these technologies.

While technology transfer is an area that could possibly be strengthened for greater benefit in both the mining and the agriculture cases, there is also a risk that efficiency gains from Chinese technologies could have substantial ecological costs. This is an area that warrants further scrutiny, particularly in the context of active promotion of Sino-African technology transfer by both Chinese and African leaders – and increasingly even by traditional OECD aid networks through trilateral cooperation efforts.

## Political economy

Another key theme in the China-Africa literature is **the strong agency of African actors** and the key role of the local governance context in shaping the social and environmental outcomes. First, we see from these cases that **any discussion of Chinese impacts needs to be situated within the pre-existing governance system and to address its strengths and weaknesses** that affect local small-scale producers and may drive small-scale producers to engage in economic activities that contradict regulations. At times considered illegal, some of these informal economic activities have complex social and political drivers – and these in turn shape and are shaped by Chinese investments. For example, in the mining and forestry cases, small-scale miners and loggers and their harvesting activities were already in a legal grey area predating the arrival of the Chinese investors. In the agriculture case, the concentrated and competitive industry had already compromised farmers' welfare and set the stage for a vicious cycle of low investment and low production.

In other words, although the Chinese agency and its associated disruptive business activity is important to highlight, some of the impacts on the sector may be less attributable to Chinese actors than to potentially inevitable developments given the pre-existing conditions. Certainly, the impact of Chinese actors tends to be unduly exaggerated above that of others.

**The capacity constraints, incentive structures and elite capture of the African government agencies** strongly determine social and environmental outcomes.

We observed that across the three sectors, the regulatory agencies' monitoring and enforcement capacities were hugely constrained, especially on the ground, close to where rural production happened; in the case of forestry, it was almost non-existent. In addition, across the three sectors, the incentive structures of the field-level government officials incline them toward sustaining existing policy-practice gaps. In the mining case, revenue collection and the development of the industry triumphed over social and environmental mandates, since regulators are evaluated on economic indicators. Rent-seeking behaviours by political and economic elites were also a significant factor in determining the successful implementation of government policies across the three sectors.

Any discussion of the role of foreign investment in Africa's mining calls for a political economy analysis examining these contextual backgrounds, especially in a context where decentralisation and devolution trends are the norm across countries. The weak monitoring and enforcement capacities of African governments in rural areas also mean that the governance framework is prone to abuse by foreign investors and rent-seeking local political and economic elites. For example, in mining, upgrading of the ASM through foreign investment demands careful deliberation on the role of the state as enforcer of social and environmental compliance at mechanised mines, and nurturer of an incipient subsector that contributes to upgrading and off-farm employment. Finding that balance demands a functional government agency with high implementation capacity, aligned incentive structures, and a governance context that dispels elite capture of resource rights.

Finally, the issue of **corruptive practices** – illustrated by rent-seeking behaviours at higher levels of the power pyramid, or payments exchanged between corruptors and the corrupted at lower levels, to keep the commodity moving freely from production to market (notwithstanding existing regulations) – was alluded to by several interviewees, but we were not able to triangulate those claims due to the sensitivity of the topic. However, our research highlighted that this behaviour is **not specific to the Chinese actors**. Other investors have admitted in our research to bribing the government (in the mining case), as well as local traders and fixers who use their political connections to ensure smooth operation of the trade (in the forestry case).

What seems to be different are several specific ways in which Chinese companies tend to engage in corruption. In the mining case, for example, several interviewees commented

on the speed and openness with which the Chinese investors offered bribes to settle issues related to noncompliance. **From the Chinese perspective**, however, many of the interviewees feel that they are simply adapting to the operating environment on the ground. Much criticism is levelled against the Chinese paying the bribes in the China-Africa discourse, focusing on the 'co-optation' of the local actors. Although we cannot generalise our findings, as issues of corruption differ on a case-by-case basis, our analysis of the three sectors reveals fluid and shifting norms related to corruption, as Chinese and government players both engaged in negotiations to determine the appropriate behaviour in unstable and ever-changing regulatory landscapes.

## Impacts on the environment and small-scale producers

Across the three cases, we find tangible livelihood benefits for the small-scale producers. This indicates that the Chinese-linked trade and investments are surprisingly 'pro-poor' if we examine the accumulation of wealth, assets, and capture of value among rural producers and their families, especially considering the lack of other income-generating activities in these rural areas. There are a few caveats, however: the benefits are decidedly short-term in timber and agriculture, and obtained under strenuous working conditions in mining. The largest caveat is that it comes at a significant risk to the environment across all three sectors.

Whether the Chinese actors have a **unique livelihood footprint compared to other foreign investors** seems to depend on the sector. In the forestry case, due to a lack of other foreign traders and buyers interested in mukula, we could not answer this question directly. Previous research however, indicates that the traditional logging concession model – the alternative business model for foreign investors in the timber sector – has largely failed to deliver the promised benefits to the resident local communities, either through in-kind contributions or provision of employment opportunities (Cerutti et al. 2017b; Counsell, Long, and Wilson, eds 2007). In the case of Zambia, current regulations do not even require companies to make CSR contributions to the local community. In comparison, the mukula timber trade has offered direct participation opportunities for and cash inflow to the local communities, perceived as an important contribution to their livelihoods by many villagers.

In the mining case, the level of compensation at the Chinese mines is higher than at local mines, but similar to that of other mines run by foreign investors. But safety standards and skill-development opportunities there seem to lag behind some other investors. The diversity among the Chinese mines, even in the four samples in our study, however, points to scale of operation rather than ethnicity of ownership as a more helpful lens; the larger established Chinese mines seem to outperform both smaller mines run by other foreign

investors and smaller Chinese-run mines. In the agriculture case, the cash-payment business strategy started by a Chinese company does help to alleviate the immediate cash needs felt by farmers. However, the low quality and quantity of inputs provided by newcomers – specifically Indian and Chinese investors – may indirectly affect farmers' livelihoods through lower productivity and overall sector decline.

Regarding environmental impact, whether the Chinese actors have a **unique environmental footprint compared to other foreign investors** depends on the commodity. In the timber case, the environmental consequences of this Chinese market-linked trade will be grave, unless effective enforcement is implemented. Again, there is no other investor to compare with directly, but the speed, volume and transboundary nature of the mukula trade – and of the rosewood trade across the world – is unique to the Chinese market and its itinerant timber merchants, with significant implications for international forestry policymaking (Cerutti et al. 2018). In the mining case, no discernible difference exists between Chinese and other foreign investors in terms of environmental footprint. Compared to local mines, due to the sheer scale of investment, the mechanised mines have a higher potential for environmental damage, but these are, at least in theory, easier for government to monitor and regulate. In the cotton case, the lack of investment in extension and inputs by Indian, Chinese and other companies will likely affect long-term soil fertility and render sustainability schemes, such as Cotton Made in Africa, impossible to implement.

Finally, in terms of **community relations**, impacts and relationships depend almost entirely on the specific investment case. Overall, our detailed household survey and disaggregated community focus groups show that the presence of foreign investors heightens the expectation (compared to a local investor) of benefits accruing to local communities, with two consequences. First, both the forestry and mining cases showed that community members who could not derive direct benefits – due to factors such as location of their village or power politics within the village – experienced an acute sense of unfairness and 'losing out', and thus became more vocal critics of the trade and investments.

Second, the communities displayed a significant level of reliance on foreign investors (Chinese or otherwise) as a source of funding and improving public infrastructure due to the weak presence of their own government in the remote areas. Therefore, researchers and practitioners should pay particular attention to disaggregation of community voices and pre-existing power asymmetries when evaluating the impacts of foreign investment projects on local communities.

## Conclusion

We started our research by analysing the extent to which Chinese engagement in Africa, in particular its trade and investments in the agriculture, forestry and mining sectors, is reshaping the commercial landscape and upsetting the established sustainable-development policymaking in those sectors. We were particularly interested in whether Chinese actors employed business strategies that have impacts different from those of traditional practices on the environment and local small-scale producers (of agricultural goods, timber and minerals), and their governance implications.

A general thread emerged across the sectors. The Chinese investors and traders – along with other emerging economy investors in the cases of agriculture and mining – have devised **unique business strategies that challenge the pre-existing governance paradigms** catered to traditional formal business operations. These challenges ranged from dealing with fast-evolving cross-border trade to ensuring long-term quality and investments, as well as nurturing and regulating risky operations that may hold the key to sector upgrading. However, **the immediate impacts of the Chinese investments and trade on small-scale producers were found to be positive, through increased cash incomes and livelihood opportunities**. Yet these benefits may be compromised in the long term by high environmental, safety and economic risks, such as erosion of the resource base, toxic-metal pollution of water and soil, severe injuries, and potential industry collapse.

The governance responses to date have not yielded much success, partly because the policies are still designed to fit old business models employed by the traditional investors, and partly because African governments continue to design them without due consideration of their existing constraints, such as capacity, resources, misaligned incentive structures, and limited cross-agency coordination. In some cases, rent-seeking behaviours of elites and officials seriously crippled the government's ability to execute its own policies.

Of course, we must note the limits to any generalisation, given the diversity of Chinese and African actors within each case and across sectors and countries. As the comparative discussion highlights, beyond general themes such as new business strategies, governance limitations, livelihood benefits and high environmental risks, the actual political and economic dynamics and the configuration of the value chain all varied significantly, revealing a **need to cater research and policymaking to each commodity, sector and country**. This report aimed to offer one such example of this approach, representing a rigorous empirical effort, based on a large quantity of primary data. Increasingly, other studies are taking up the task of conducting grounded empirical research, and future research could employ holistic analytical frameworks in order to capture a more complete

story, which would allow policymakers and practitioners to understand the multiple leverage points for their commodity, sector or country of focus.

**A focus on the agency of all players** is another key theme worth emphasising for future research and policymaking. In their evolving relationship, the Chinese actors are playing an active role in Africa's development through aid, trade and investment. But our research demonstrates that this engagement is very much embedded in the priorities and agency of African actors from government to local small-scale producers. This means that concerted efforts on the African side toward improving domestic governance, and addressing the needs of poverty-stricken rural producers, is a necessary part of the solution to harnessing the potential of the Chinese engagement and minimising its risks.

This is not to absolve the Chinese (or any other) government, consumers or businesses of their responsibilities to encourage sustainable development outcomes in the producing countries where their goods and profits come from. Instead, a focus on the distributed agency could contribute to targeted policymaking on both sides. It also ensures the long-term sustainability of development policymaking, when the Chinese market and investors may be replaced by other markets and investors in the future. China is undergoing its own structural transformation; its labour cost is rising fast, and it is turning away from a resource-intensive growth model. In the not-so-distant future, therefore, the global manufacturing hub and consumer market for commodities such as timber, copper and cotton may shift to other countries, bringing a new set of investors and market rules into rural communities across Africa.

Finally, back to our original question, could Chinese investments and trade contribute to improving the lives of rural African producers reliant on land and natural resources in the coming decades? Our findings neither confirm nor dispel this hope. They instead illuminate the diversity of the nature of engagements and appropriate responses, and the limitations of existing governance paradigms in regulating fast-evolving new business strategies. They therefore underscore the key role of both Chinese and African stakeholders in guiding the inevitable disruptions towards more socially and environmentally beneficial outcomes.

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Knowledge  
Products

# Research Report

June 2018

**Sustainable markets, natural  
resource management**

*Keywords:*

China-Africa, foreign investment,  
informality, illegal logging, artisanal  
mining, agriculture, sector governance

The report aims to understand Chinese trade and investments in Africa's rural economy in the agriculture, forestry and mining sectors. Based on data collected from over 700 surveys, 130 interviews and 100 focus groups. We find that Chinese and other newcomer investors employ a variety of business strategies that contrast with those employed by established players. The impacts on rural producers are generally positive as they gain cash incomes to purchase food, education and assets, and are able to integrate into the global commodity trade with better financial returns. However, positive socio-economic gains were accompanied by high environmental risks.

Despite the cross-sector similarities, we tell a cautionary tale about development research or interventions focused solely on Chinese actors. The heterogeneous nature of China-Africa commercial relationships highlights the need to identify leverage points with the role of all stakeholders in mind. Indeed, we highlight the agency of both Chinese and African actors in co-creating the new commercial landscape. In contrast, improving local governance – through increased capacity, aligned incentive structures, and better coordination across government agencies – appears to be universally useful to achieve better socioeconomic and environmental outcomes.

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Research jointly supported by the ESRC and DFID



This research was funded by the DFID-ESRC Growth Research Programme, the CGIAR Research Program on Forests, Trees and Agroforestry (FT), and Danida (Denmark), Irish Aid and Sida (Sweden). The views presented in this publication are those of the authors and do not necessarily reflect the views of DFID, ESRC, CGIAR, Danida, Irish Aid or Sida.