

Economic Geographies of Future-Making along a Development Corridor: Effects of the Southern Agricultural Growth Corridor of Tanzania (SAGCOT) on agro-industrial Global Value Chains

Inaugural-Dissertation

zur

Erlangung des Doktorgrades
der Mathematisch-Naturwissenschaftlichen Fakultät
der Universität zu Köln

vorgelegt von
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Eingereicht in Köln, 2021

Publiziert in Köln, 2023

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Abstract

Development corridors are currently spreading all over the Global South and especially over the African continent. Fuelled by the global commodities boom and its culmination in the global food and finance crisis in 2007/08, African development corridors have been popularly heralded as a high road to development. Alluring especially with a rapid transformation of agricultural landscapes, many of them are since seen as territorial tool for rapid agro-industrial modernization and globalization. This thesis analyses and explains the mechanisms, processes, and effects behind the mobilization of the perhaps most prominent corridor in Africa with such agro-industrial focus: Namely, the *Southern Agricultural Growth Corridor of Tanzania* (SAGCOT). Bringing together literature on future-making and economic geography, the thesis contributes a critical realist account on how a narrow vision of modernization and globalization has underpinned the making of the spatial imaginary SAGCOT. This spatial imaginary emptied the future from its (viable) alternatives and claimed space for its ostensibly friction-free implementation in Tanzania's Southern Highlands.

Using empirical and mainly qualitative case study work along Tanzania's agro-industrial value chain, the thesis traces SAGCOT's materialization and analyses and explains the uneven economic geographies – and frictions – created. Focusing on the supply side of agro-industrial chains, it shows how SAGCOT created the possibility for a fertilizer multinational to integrate Tanzanian farmers into its global production network and explains how this enabled the exertion of unprecedented types of power between “firm and farm”. Focussing on the buying side of agro-industrial chains, the thesis further addresses how the financialization of farmland along the corridor, constituted fragile and eventually rather unsustainable chain linkages between smallholder farmers and large-scale commercial farms. In total, the three thesis articles highlight why a simultaneous making and unmaking of future as well a claim of territorial and networked space was inherent to SAGCOT's mobilization and explain how this had effect on the agro-industrial value chain. Control over a spatial imaginary such as SAGCOT emerges as a critical resource for shaping and nudging economic geographies in

the present. What future becomes privileged and what future becomes marginalized may ultimately have substantial repercussions for who loses out and who benefits when practices of future-making are at play.

Zusammenfassung

Entwicklungskorridore werden im globalen Süden und insbesondere auf dem afrikanischen Kontinent derzeit vermehrt angepriesen und umgesetzt. Beflügelt durch den weltweiten Rohstoffboom und dessen Höhepunkt mit der globalen Nahrungsmittel- und Finanzkrise 2007/08 wurden afrikanische Entwicklungskorridore weithin als ein Königsweg zur Entwicklung ländlicher Regionen angepriesen. Viele dieser Korridore, die vor allem auch mit der schnellen Transformation der Landwirtschaft verlocken, werden daher seither als territoriales Instrument für eine agroindustrielle Modernisierung und Globalisierung verstanden.

Diese Arbeit analysiert und erklärt die Mechanismen, Prozesse und Effekte, die hinter der Mobilisierung des derzeit vielleicht prominentesten Korridors in Afrika stehen: Der *Southern Agricultural Growth Corridor of Tanzania* (SAGCOT). Indem die Arbeit Konzepte aus der Literatur über das Machen von Zukunft (future-making) und der Wirtschaftsgeographie zusammenbringt, trägt sie zu einer vom Kritischen Realismus inspirierten Darstellung bei, wie eine Vision von Modernisierung und Globalisierung die Gestaltung einer räumlichen Imagination in Form von SAGCOT bedingen konnte. Diese räumliche Imagination entleerte die Zukunft von ihren (realisierbaren und nicht realisierbaren) Alternativen und beanspruchte so Raum für ihre vermeintlich reibungslose Umsetzung im südlichen Hochland Tansanias. Anhand empirisch, qualitativer Arbeit, die die Materialisierung von SAGCOT nachzeichnet, analysiert und erklärt die Dissertation die ungleichen Wirtschaftsgeographien - und die damit verbundenen Reibungen -, die schlussendlich durch SAGCOT geschaffen wurden. Dazu nutzt sie mehrere Fallstudien entlang der agro-industriellen Wertschöpfungskette in Tansania. Ein erster Schwerpunkt liegt auf der Angebotsseite der agro-industriellen Wertschöpfungskette. Es wird untersucht, wie SAGCOT einem multinationalen Düngemittelkonzern die Möglichkeit eröffnete, tansanische Bauern in sein globales Produktionsnetzwerk zu integrieren, und erklärt dabei weiterhin wie dies die Ausübung von Macht zwischen "Unternehmen und Bauernhof" rund um die Ware Dünger ermöglichte. Ein zweiter Schwerpunkt der

Arbeit konzentriert sich auf die Käuferseite der agroindustriellen Wertschöpfungskette und untersucht, wie die Finanzialisierung von Ackerland entlang des Korridors fragile und letztendlich nicht nachhaltige Wertschöpfungsketten zwischen landwirtschaftlichen Großbetrieben und tansanischen Kleinbauern und -bäuerinnen geschaffen hat. Insgesamt verdeutlichen die drei Artikel dieser Arbeit, warum der Mobilisierung von Entwicklungskorridoren das gleichzeitige Machen und Un-machen von Zukunft sowie die Beanspruchung von territorialem und relationalem Raum inhärent unterliegen. Die Kontrolle über eine räumliche Imagination wie SAGCOT wird so zu einer entscheidenden Ressource für die Schaffung und Beeinflussung von Wirtschaftsgeographien der Gegenwart. Welche Zukunft privilegiert und welche Zukunft marginalisiert wird, kann letztlich erhebliche Auswirkungen darauf haben, wer profitiert und wer verliert, wenn Zukunft gemacht wird.

Acknowledgments

Writing a doctoral dissertation is both a privilege as well as it is an ordeal. Enjoying the privilege and enduring the ordeal would be impossible without the support by many people.

My sincerest gratitude is first of all directed to my supervisor **Peter Dannenberg**. He trusted my competences not only in terms of the research work necessary for my dissertation, but also in terms of allowing me to become a vital part for advancing the project work in the *CRC228 Future Rural Africa (CRC228)*. I thank Peter for categorically trusting and always supporting my often spontaneous and sometimes eclectic ideas. This freedom was instrumental for this thesis as it literally allowed me to establish “my route” along a wide and difficult to grasp corridor. Keeping this route adaptive to change was paramount for the productive and continuous process of aligning and reconsidering my research in a truly critical realist fashion. The very same freedom did however not imply any lack of accountability from Peter’s side. In any crises – and there were quite a handful – Peter was available just a knock at the door or a phone call away; ready to mobilize whatever was necessary to come to a solution. Even when at geographical distance, Peter’s presence was guaranteed.

Second, I want to highlight my indebtedness to all Tanzanians who made this thesis possible. It was an outstanding and unique experience to meet, talk, discuss, and learn with and from Tanzanian people. Be they government representatives, managerial staff of multi-million-dollar companies, agricultural extension and development workers or small- and large-scale farmers alike: hundreds of people devoted their valuable time to make my research possible. Their many and diverse perspectives on rural Tanzania’s future and practices of future-making are the fundament of my arguments. I further thank academic staff from *Mzumbe University*. Namely **Frank Theodory** for managing all necessary arrangements with our affiliated hosting institution in Mzumbe. I thank **Moses Ndunguru** (*Mzumbe University*) for being my major research partner. Moses was the backbone of the CRC228’s household survey and he was a great companion when it was about finishing a day of tedious work with some *kiti moto* in

the evenings. I thank **Faraja Sanga** (St. Augustine University of Tanzania) who has accompanied my first explorative steps along the corridor. The many hours travelling in Faraja's car between Iringa, Mbeya and Njombe constituted an important empirical basis for identifying and sharpening the focus of this thesis. I am further thankful for **Richard Mbunda's** (*Dar es Salaam University*) support in Dar es Salaam as he challenged and encouraged me to be more critical in my analysis. Further, I thank **Godfrey Joachim** (*Sokoine University*), my closest research assistant during field work. Joachim supported me in sickness and crises and he was pivotal for deepening my research insights particularly in the later stage of my field work. I thank **Hartmut** and **Emma Rottcher** (*Ndoto Farms*) and **Steve "Mr. Parachichi" Lawrieson** (*Southern Highland Avocado*) for their hospitality as well as for their notorious insistence to challenge the use and non-use of another naïve and foreign researcher who was undoubtedly struggling to better grasp agrarian change in the Southern Highlands. Finally, what is often hyped as the "**Tanzanian Twitter Nation**" should not be forgotten. I am grateful for a vibrant digital community of Tanzanian scholars, activists, and critical observers who enabled crucial insights into Tanzania's everyday politics even during the Covid-19 pandemic. This community allowed me to keep pace with important news and stay in touch with friends.

Beyond Tanzania, I want to thank the people who created and maintained the crucial research infrastructures supporting this thesis. I feel privileged for the support by **all members of the CRC228**. The many meetings, discussions, events, and field activities allowed for intimate insights into a large-scale research project with regards to theoretical and empirical debates as well as to the hard and soft practices of organizing, governing and navigating a project of such size. Namely, I want to particularly highlight **Detlef Müller-Mahn** for carrying most of the burden in terms of applying, implementing and commencing the CRC228 as a whole. Without him, I (and many others) would not have worked with any of the people mentioned before and in the following. I thank **Claudia Gebauer, Vera Abram, and Matian van Soest** for being at the core of managing many of the everyday, but extremely important organizational issues around the CRC228. I thank **Javier Revilla Diez** for being an excellent Principal

Investigator in our sub-project as well as **Carolyn Hulke** and **Linus Kalvelage** for being close colleagues and friends. I also thank **Clemens Greiner** for providing office shelter at the *Cologne Global South Studies Centre* during the Covid-19 pandemic. Less focussed around the CRC's immediate infrastructures, but still pivotal for my thesis, I further thank my great colleagues from the working group *Urban and Regional Development* in Cologne. **Alexander Follmann** has often helped me as a critical guardian and I am happy to have made a colleague into a friend. The very same applies for **Maximilian Willkomm, Carolina Kiesel, Cathrin Wiedemann, Marcelo Crespo and Susanne Weber**. I have further greatly benefitted from the work of my student assistant **Denja Otte**.

Thinking less about work and purely about friendship, I want to first raise several important colleagues from the CRC228. **Astrid Matejcek, Rene Vesper, and Bisrat Haile Gebredikan** certainly were my compassionate colleagues "in the field". Everything in this thesis is by some degree result of their companionship. **Léa Lacan, Joachim Knab, David Greven, Isaak King'asia, and Christa van der Wulp** were instrumental for stabilizing the exhausting writing process in Cologne as they brightened coffee and lunch breaks on a daily basis. Refreshingly adding their more distanced perspective from Oxford, Rome and Rösrath, **Jonathan Jackson, Shantanou Abe Chatterjee, and Katharina Molitor** were great inspirations and even greater friends as they generously shared their invaluable experience when discussing this project.

Finally, I want to dedicate this thesis to my wife **Nicola**. There were no limits to her support even if much of "my work" meant substantial trouble for her. She supported my long research stays without question, she brightened my mood when I was devastated, and she certainly was the best and most enthusiast partner when it was about celebrating progress. Nothing of this is taken for granted. I couldn't imagine a better partner.

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List of Acronyms

ACT	Agricultural Council of Tanzania
AFAP	African Fertilizer and Agribusiness Partnership
AfDB	African Development Bank
AFSA	Alliance for Food Sovereignty in Africa
AGC	Agricultural Growth Corridor
AGR	African Green Revolution
AGRA	Alliance for a Green Revolution in Africa
ANSAF	Agricultural Non State Actors Forum
ANT	Actor-Network-Theory
ASDP	Agricultural Sector Development Programme
AU	African Union
BAGC	Beira Agricultural Growth Corridor
BMGF	Bill and Melinda Gates Foundation
BRI	Belt and Road Initiative
CAADP	Comprehensive Afr. Agriculture Development Program
CDC	Commonwealth Development Corporation
CDF	Clinton Development Farm
CDI	Clinton Development Initiative
CGT	Critical Grounded Theory
CPE	Cultural Political Economy
DANIDA	Danish International Development Agency
DFID	Department for International Development
FFTI	Fertilizer Fast Track Initiative
FOB	Free on Board
FtMA	Farm to Market Alliance
GDP	Gross Domestic Product

GCC	Global Commodity Chain
GVC	Global Value Chain
GPN	Global Production Network
IFDC	International Fertilizer Development Centre
MALF	Ministry of Agriculture
MDG	Millennium Development Goals
MIGA	Multilateral Investment Guarantee Agency
MSI	Multi-Stakeholder Initiative
NAFSN	New Alliance for Food Security and Nutrition in Africa
NSGRP	National Strategy for Growth and Reduction of Poverty
OPIC	Overseas Private Investment Corporation
PIDA	Programme for Infrastructure Development in Africa
PPP	Public Private Partnership
RUDI	Rural and Urban Development Initiative
SAGCOT	Southern Agricultural Growth Corridor of Tanzania
STS	Science and Technology Studies
TAP	Tanzanian Agricultural Partnership
TFC	Tanzania Fertilizer Company
TNBC	Tanzania National Business Council
TOAM	Tanzania Organic Agriculture Movement
UN	United Nations
WFP	World Food Program

1 Introduction

“Reinventing the future is not something self-evident. In order to take up such a task, one must have a bit of temerity. It was a question of inventing things anew, since the future already seemed to be given.” (Felwine Sarr in Afrotopia (2016))

Can future exist? And if so, what are the effects of its existence? This thesis contributes to responding to these stubborn onto-epistemological questions¹ by providing a grounded perspective on the recent surge of agricultural development corridors in Africa and by explaining some of its ramified effects on the organization of agro-industries in Tanzania and beyond. This perspective aims thereby to take above questions concerning the future seriously and it will show that the existence and the effects of “the future” are not as trivial as they seem to be.

Under Africa’s recent and ongoing re-enchantment with corridors and similar large-scale infrastructures alike, new imaginaries about Africa’s future are not only expressed, but also territorialized². Already the dubbing of corridors as *development-* or *growth* corridors highlights how their contemporary spread is underpinned by a teleological and capitalist growth imperative. Surprisingly, this growth imperative resonates strongly with past hopes – or fictions – which could never materialize nor bring about change. Already in early post-independence Africa, modernization theory had established as a major economic imaginary that allured with the continent’s rapid liberation from colonialism and neo-imperialism as well as with a future of socio-economic flourishing. Despite these

¹ See Sardar (2010) and Tutton (2017)

² See Müller-Mahn (2020) and see also more generally: Mbembe (2000), Mkutu et al. (2021), and Purwins (2021).

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high hopes to rapidly ascend a metaphorical ladder of development³, and even despite substantial actual and material effort to bring about change, Africa's post-independence imaginary has however failed dramatically. A first era devoted to an unprecedented and costly infrastructure-based development could not elevate the continent into a future of widespread growth and prosperity nor of socio-economic independence. Latest under the subsequent era of structural adjustments, earlier hopes to liberate and develop the continent on the backbone of large-scale infrastructures became ridiculed by the sobering and disenchanting reality of staggering public debt, harsh austerity policies, and traumatizing deindustrialization⁴. Given this context of past failures to translate the hopeful and the imaginary into the successful and the real, it is hence foremost remarkable that large-scale infrastructures and especially development corridors are back on the agenda. This thesis, contributes, therefore, not only towards historicizing and contextualizing a re-emergent economic imaginary of infrastructure-led development, but it also sheds light on how "the future" can more generally indeed become existent in its imagined form and how its form may have substantial material effects in the present.

In doing so, the thesis makes important conceptual as well as empirical contributions. Conceptually, I use Critical Realism as a philosophical underlabouring for developing an economic geography of future-making. A critical realist ontology and epistemology support my aim of bringing together two general strands of literature which are usually not in sync. Namely, I bring together the Cultural Political Economy-inspired literature on spatial imaginaries with the Economic Geography-inspired literature on Global Value Chains and Global Production Networks. Cross-fertilizing both strands of literature helps, on the one side, to emphasize the spatio-temporal underpinning of development corridors for its inherent mechanisms of making and spatializing future and, on the other side, to explain these mechanisms' immediate socio-economic effects.

³ Rosenstein-Rodan, 1943; Rostow, 1960

⁴ (Schindler et al., 2020)

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Empirically, I show thereby how the imaginary of rapid agricultural modernization and globalization became spatialized and partly actualized through the mobilization of the development corridor SAGCOT in Tanzania. By addressing the SAGCOT corridor as a spatial imaginary, I can explain its mechanisms and effects along a generalized agricultural value chain. This serves to highlight how SAGCOT could *empty the future* from its manifold and viable agricultural alternatives whilst simultaneously *claiming space* for implementing a future of rapid modernization and globalization. This distinct spatio-temporality eventually translated into resources of subtle power which became available for a narrow set of economic actors. In particular, I show how multinational agro-industrial lead firms have benefitted from SAGCOT's spatio-temporality. For them, SAGCOT functioned as a necessary condition which allowed for the coupling of their global production networks with the corridor region in general as well as it allowed them to integrate Tanzanian smallholders into their global value chains.

In sum, this thesis advances, therefore, an emergent debate on future-making in Africa⁵ and adds to this a focus on the socio-economic effects when future becomes existent in its imaginary form. Benefitting mainly from the Cultural Political Economy literature on spatial imaginaries, I can contribute that every semiotic making of future necessarily goes hand in hand with the un-making of its competing alternatives. Further benefitting from the Economic Geography literature, I can contribute that the dialectic of *made* and *unmade* future provides a mechanism of power which can be capitalized and turned into economic advantage for one actor or another. Lastly, benefitting from my empirical work, I can contribute to explain and identify some of the few beneficiaries of SAGCOT; even despite the corridor's overall underwhelming performance. As such, my work challenges especially the imperative and the approach that underpinned SAGCOT's mobilization. Whereas SAGCOT certainly contributed towards *selling* Tanzania's agricultural future in front of global donors, philanthropists and investors, SAGCOT's erratic and unsustainable outcomes within Tanzania's

⁵ (Cf. Hammar, 2016; Obeng-Odoom, 2015; Ouma et al., 2020; Sarr, 2020)

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agro-industry question if this audience has *bought into* the best possible future or not.

2 Research Objectives and Thesis Structure

The research objectives and the structure of this thesis are in the widest sense aligned with the major research questions of the *CRC228 – Future Rural Africa: Future-making and Social-ecological Transformation*. They are further specified by the research questions of the CRC sub-project *C01 – Future in Chains: Socio-economic Impacts of Growth Corridors*.

The **CRC228** addresses future-making in rural Africa through four research questions. Namely, the CRC228 raises the following questions:

- How can we understand and research future-making in rural Africa from different disciplinary perspectives?
- How and by whom are rural African futures made probable and/or possible?
- What are the main challenges and consequences of future-making in rural Africa?
- In which way are conflicting visions of future expressed, negotiated and translated into large-scale land-use change and ensuing social-ecological transformations?

Complementary to these overarching research questions, the sub-project **Future in Chains** puts an empirical focus on development corridors and their effects on Global Value Chains which further raises the following research questions⁶:

- What are the structures and characteristics of development corridors?
- How do future-making practices affect the governance and implementation of development corridors?
- What are the effects of development corridors along Global Value Chains?

⁶ The listed research questions presented here are only summarizing the sub-project's research questions. Originally, the project proposal provided a total of 13 detailed research questions. As the project-work was divided among five researchers and each sub-question received varying degrees of attention, I focus here on the project's three major objectives.

Research Objectives and Thesis Structure

Based on these rather fundamental research questions, this thesis is hence generally all about contributing to a detailed differentiation and explanation of some of the major mechanisms, processes, and effects of future-making in rural Africa from an Economic Geography perspective. To do so, it uses the empirical case of the Tanzanian development corridor SAGCOT. As the SAGCOT corridor temporally narrated and spatially territorialized a powerful and performative vision of agro-industrial modernization and global integration for rural Tanzania (see thesis article I), the thesis' empirical focus is, on the one hand, all about explaining future-making as it is practiced through a development corridor and, on the other hand, especially interested in its effects on the generalized agricultural value chain along and beyond the same corridor (see thesis articles II & III). To operationalize these effects on the generalized value chain, the thesis aims to contribute not only empirical examples of SAGCOT's effects on the integration of Tanzanian agriculture through linkages to new end markets (the so-called downstream end of GVCs), but especially also how future-making became pivotal to establish Tanzanian agriculture as a more reliable and profitable market for agricultural input suppliers (the so-called upstream end of GVCs). The thesis provides, therefore, unique and important insights on how and why future-making in form of a development corridor created *new* and reconfigured *old* linkages from farms to the global economy and *vice versa*. Taken together, the thesis follows the following two major objectives:

Objective I: Understanding the mechanisms of SAGCOT's mobilization

The first thesis objective aims at historicizing and contextualizing the process of SAGCOT's mobilization (e.g. the designing, drafting, institutionalizing and implementing), but also at theorizing some of its underpinning generative mechanisms and their inherent possibilities to shape and re-shape agro-industries along the corridor.

To do so, the thesis introduces Critical Realism as a research philosophy and as a way to productively engage with two strands of literature even though these strands are usually somehow far apart from one another: On the one hand, the

Research Objectives and Thesis Structure

Cultural Political Economy literature on future-making puts most emphasis on how certain futures are actively performed, imagined, or also contested. This helps to explain how imagined futures become performative as they shape anticipatory action in the present. Accordingly, the gross of the future-making literature is typically concerned with the discursive and performative practices that construct and reconstruct *temporality*. On the other hand, the Economic Geography literature puts far more emphasis on how contingent material and relational⁷, but also evolutionary⁸ structures shape uneven socio-economic outcomes across space. The gross of the Economic Geography literature is, hence, in the widest sense about the networked mechanisms and evolutionary processes that construct and reconstruct *spatiality*.

Bringing together these two seemingly disparate strands of literature⁹, Critical Realism functions as a philosophical underlabourer for this thesis¹⁰. Critical Realism encourages theoretical and methodological pluralism and supports thereby the thesis' engagement with two rather distanced bodies of literature through a distinct perspective on what critical realists typically differentiate as *generative mechanisms, processes, and outcomes/effects*. This perspective establishes the thesis' conceptual approach of cross-fertilizing the concept of spatial imaginaries (derived from Cultural Political Economy) with the concepts of Global Value Chains and Global Production Networks (derived from Economic

⁷ Here I refer mainly to Systems Theory and Marxist theory which has widely inspired relational economic geography approaches in the discipline (Bathelt & Glückler, 2003; Dicken & Malmberg, 2001).

⁸ Here I refer mainly to evolutionary economic geography approaches which have established as a major theoretical faction among economic geographers (Boschma & Frenken, 2006; Grabher, 2009).

⁹ There are certainly more overlaps between the two strands of literature than suggested here. Perhaps most popular, the burgeoning cultural political economy literature has not only explicitly made reference to Critical Realism (Sayer, 2001), but indeed already brought together some typical notions on spatio-temporality from both future-making and economic geography literature (Jessop, 2006, 2012; Jessop et al., 2008). Nevertheless, I contend that especially due to the theoretical and conceptual "island life" in economic geography (Peck, 2012), it is important to dialectically juxtapose both strands of literature at this point and do so even despite the bridges being (knowingly and unknowingly) built by scholars from both sides.

¹⁰ Roy Bhaskar, the most important advocate of Critical Realism popularly stated that Critical Realism acts "not just as the underlabourer, but as the midwife of a science, or group of sciences" (2013, p. 254).

Geography). This cross-fertilization defies thereby a narrow focus on the *temporal* or on the *spatial*. Rather it accentuates *spatio-temporality* as productive way forward not only for this thesis, but just as well for embedding it into the CRC's research objectives as a whole.

In total, the thesis' first objective of differentiating the underpinning mechanisms of SAGCOT's mobilization is hence operationalized by the following research question:

- What are the generative mechanisms for SAGCOT's mobilization and what spatio-temporality did these mechanisms create?

Objective II: Explaining socio-economic processes and effects of SAGCOT along agro-industrial value chains

The second thesis objective builds on the former by explaining and discussing the uneven socio-economic processes and effects of SAGCOT in relation to the generative mechanisms that underpinned its mobilization. As SAGCOT's immediate and belated effects can however impossibly be known in their totality¹¹, the thesis confines its empirical focus on the analysis of SAGCOT's outcomes in cases where the integration of Tanzanian agriculture into global value chains and global production networks has been substantially affected (see thesis articles I, II & III). This empirical focus emphasizes thereby the embedding of the SAGCOT corridor in the complex entanglement between Tanzanian (e.g. farmers, state) and global economy interests (e.g. multi-national agribusiness firms,

¹¹ The geographical extend of SAGCOT includes a third of Tanzania's land mass – which is roughly the size of Italy. The corridor territory further defies any formal or administrative boundaries and neither quantitative nor qualitative measures can claim to give a total representation. This is exacerbated as even the temporalities of SAGCOT are contested. For instance, several projects which have been prominently heralded as SAGCOT success have been launched way before SAGCOT's mobilization. These projects would have materialized even without the corridor (e.g. Kilombero Plantations Limited, Njombe Tea Factory). "SAGCOT outcomes" can and will therefore always remain selective empirical particles rather than coherent datasets. Even the SAGCOT Secretariat, the institutional body behind SAGCOT, has so far failed in a structured documentation of its interventions and effects. Owing to this thesis' critical realist theoretical fundament, this does however not diminish, but rather affirm the value of this research: As critical realists search for causal tendencies, the empirical access to any research object is not about the search for regularity and totality of data, but about making fallible statements under the consideration of epistemic relativism and judgmental rationality (See also thesis chapter 5).

Research Objectives and Thesis Structure

development actors). This focus helps to explain and discuss the ramified socio-economic outcomes that can be associated and partly explained by SAGCOT's distinct spatio-temporality.

In total, the thesis' second objective of explaining and discussing the socio-economic processes and outcomes of SAGCOT's mobilization is operationalized by the following two research questions:

- What are the processes and effects of SAGCOT's mobilization at the downstream end of global value chains?
- What are the processes and effects of SAGCOT's mobilization at the upstream end of global value chains?

Thesis structure

In order to respond to the research questions, the thesis is generally structured into an introductory section, a core section, and a concluding section; each consisting of several chapters and sub-chapters. The introductory section includes four chapters to establish the thesis' research philosophy, its conceptual and empirical background as well as the methodology. The thesis' core section consists of three self-standing, but interlinked articles. Finally, a concluding discussion reflects on the thesis results and embeds them into the CRC228's and Future in Chain project's framing research questions.

In more detail, the **research philosophy** chapter discusses Critical Realism as a philosophical point of departure and as a productive way of linking concepts from the Cultural Political Economy literature with concepts from the Economic Geography literature. Critical Realism embeds the thesis objectives thereby into important ontological, epistemological, and methodological considerations which effectively guide the differentiation and explanation of the generative mechanisms, processes and outcomes that went hand in hand with SAGCOT's mobilization as spatial imaginary as well as with its socio-economic materialization along value chains.

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The **conceptual background** chapter provides brief reflections on key concepts derived from the Cultural Political Economy and the Economic Geography literature. Namely, it firstly introduces the concept of spatial imaginaries for approaching the mobilization of development corridors such as SAGCOT. Secondly, it further introduces the GVC/GPN concept for the analysis of SAGCOT's socio-economic outcomes.

The **empirical background** chapter follows with brief introductions of the surge of development corridors in the Global South and especially Africa, a contextualization of SAGCOT in Tanzania, and finally, an overview over agricultural change in Tanzania.

The **research methodology** chapter concludes the introductory part of the thesis by explaining the choice of research design and applied research methodology. Further, it documents the research process and provides an overview over the collected and analysed data.

Moving to the thesis' core chapters, the following three self-standing articles address both thesis objectives:

Article I: Tups, G. & Dannenberg, P. (2021). Emptying the Future, Claiming Space: The Southern Agricultural Growth Corridor of Tanzania as a Spatial Imaginary for Strategic Coupling Processes. *Geoforum*, 123, 23-35.

Article II: Hartmann, G. Mwaka, I. & Dannenberg, P. (2021). Large investments, small farmers: A financialisation perspective on value chains in a development corridor. *Development Southern Africa*, 38(1), 122-138.

Article III: Tups, G. Dannenberg, P. (2023) Supplying lead firms, intangible assets and power in global value chains: Explaining governance in the fertilizer chain. *Global Networks*, (online first)

All three thesis articles were written with co-authors. My contribution as lead author is however well-documented for each article. The data used in the articles has been exclusively collected and analysed by me during three consecutive

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research phases in Tanzania. Whereas the design and conception of each article was discussed with my co-authors in detail, most writing and publication work was done by me and documented through my lead author status. Additionally to the joint design and conception, all articles have been supported with external proof-reading by a language editor and reviewed by anonymous reviewers during the publication process. As the third article's final version was published after the thesis submission, the thesis text was updated by the published paper prior to its final publication.

3 Research Philosophy

Studying “the future” seems like an impossible task. In fact, the future is usually an issue left to mythology and theology (Colonomos, 2016), art, literature, and design (Vint, 2015), or politics (Granjou et al., 2017; Vervoort & Gupta, 2018). Up until today, the most common practices of approaching the future remain to rely on believing, hoping, and fearing (theology), imagining, fantasizing, and desiring (art, literature, and design) as well as on bolstering, promising, and speculating (politics). These mental and discursive – often metaphysical – practices of approaching the future highlight how one cannot know the future in its totality. Highly subjective, culturally and historically embedded practices of mental intermediation and abstraction are oftentimes the only ways of making the otherwise unknowable knowable (Cf. Appadurai, 2013 in his final chapter *The Future as Cultural Fact*). This importance of a necessarily subjective intermediation between present and future through mental techniques is no surprise. It is simply due to the fact, that future cannot be more immediately experienced. Otherwise it would already be present; or as Niklas Luhmann (1982) reminds his readers: “The future cannot begin.”

Adding to these subjective, discursive, and often metaphysical intermediations between present and future, rapid progress in terms of (quasi-) scientific extrapolations from past into future have however complemented and partly replaced the above intermediations. This has also changed today’s ways of making the future present (Mathews & Barnes, 2016). Latest with Western enlightenment, our ways of relating to the future are no longer confined to the purely subjective, affective and metaphysical realm, but they are extended by methods which claim objectivity, reproducibility, and to some extent universality as they allure with technical extrapolations of past events to make ostensibly robust statements about the future (Colonomos, 2016; Rosa, 2018; Son, 2015). Scenario calculations, scientific modelling, but also more qualitative methods such as the *Delphi*-method, expert knowledge, consultancy and so forth, have since established as complementary, and perhaps equally important, technical apparatus which virtually promises to “tame the future” (Aradau & Van Munster, 2008). By today,

these technical means have hence not only become more ambitious and arguably more reliable in terms of their technical extrapolations, but they have established as cultural techniques *sui generis* for making the future present (Cf. Beckert, 2013; Braun, 2015; Reichmann, 2013).

Both outlined extremes¹² show that studying “the future” inevitably confronts researchers with some of the most fundamental questions debated in the contested arena of different philosophies of science. Considering the two extremes of approaching future as of today – the rather subjective, interpretative, and often metaphysical approach *vis-à-vis* the rather objective, realist, and starkly technical approach – any researcher studying the future is necessarily pushed into making the inconvenient decision what ontological, epistemological, and methodological assumptions guide their respective research. This decision can nudge – if not transform – a research project in one or another direction and potentially lead to principally different analyses and results. In a general sense, above outlined extremes may entice the researcher, therefore, into a philosophy of science that emphasizes either the *mental* or the *material* as the dominant ontological category whilst simultaneously doing this to the detriment of the respective counterpart (Cf. Tutton, 2017). On the one side, a researcher purely interested in the subjective and discursive practices of approaching the future, is well advised to find inspiration and guidance in constructivist, relativist, and interpretivist philosophical factions such as post-modernism, post-structuralism or social-constructivism alike. On the other side, a researcher interested in the (ostensibly) objective, material and technological practices of approaching the future, may rather choose a strongly empiricist, realist and potentially positivist philosophical faction to excavate the causal laws connecting events from the past with those of the future.

¹² There is obviously much more to write about how different societies have approached the future in different periods. My point is to make a generalizing punctuation aimed at comprehensibility rather than at differentiation. Within the field of future studies, a substantial body of literature has covered these aspects exhaustively and much richer than I could ever do it within this thesis. See for instance: Colonomos (2016), Sardar (1993, 2010, 2020), Son (2015).

I am aware of my exaggerating and polarizing claim at this point. My motivation is however not to fully reject or ridicule one of the general philosophical extremes and their capacities for convincingly study the future. Rather, my contention is that there are tremendous differences starting already at the level of ontology in terms of how future and especially future-making can be addressed. These differences cannot simply be dismissed or superficially addressed by any research. They need reflection. The consequential necessity to choose a proper philosophy and to make it explicit explains this thesis' interest in Critical Realism; a philosophy of science that is deliberately positioned "in between" to major philosophical factions as of today.

3.1 Critical Realism as a Philosophy of Science

Within the philosophy of science, Critical Realism offers a productive (as maintaining explanatory power) and emancipatory (as allowing science to drive transformative change) alternative to positivism as well as to social constructivism and various streams of post-modernism alike. The alternative positioning of Critical Realism derives foremost from some of the key tenets of critical realist philosophy as they have been formulated by Roy Bhaskar (1975, 1979); the first and most important thinker of Critical Realism.

First, and mainly referring to ontology, Critical Realism asserts that an objective reality exists. However, and that is the twist of Critical Realism, objective reality is stratified and independent from our knowledge about it. In other words, critical realists claim that an "(objective) world exists independently of people's perceptions, language, or imagination." (O'Mahoney & Vincent, 2014, p. 2). Accordingly, a critical realist ontology deviates drastically from the constructivist or post-modern ontological claim that reality can only exist subjectively and that science is hence solely a relative matter and should be most concerned with epistemology¹³. At first sight, a critical realist ontology rather resonates with a

¹³ For a nuanced and both critical and sympathetic reflection on constructivist/constructionist theory in the social sciences see Sayer's defense of Critical Realism in his seminal work *Realism and Social Science* (1999).

positivist realist ontology. However, despite the critical realist reification of an objective reality – or realist ontology –, critical realists typically reject positivist science existentially and rigorously. Critical realists do so as they criticize positivism for its misguided “naïve objectivism” (Sayer, 1992, p. 31) and for producing an epistemic fallacy which is built on the widespread assumption that facts speak for themselves as well as that objective reality is fully accessible by empiricism as long as the rigid measurement of empirical events is ensured.

The second, and far more distinguishing claim of Critical Realism states, therefore, that reality is stratified into *transitive* and *intransitive* objects or also dimensions of knowledge. Whereas transitive objects of knowledge consist of what can be indeed empirically known and observed, intransitive objects of knowledge are composed of the events, processes, and mechanisms which exist regardless of, and independent from, our knowledge about them. Critical Realism assumes, therefore, that reality is only partly accessible through the empirical realm. It is stratified and shaped by “ontological depth” (Bhaskar, 2013, p. xvii). Some part of reality can indeed be known, observed, and measured, but quite some part of it is neither observable nor measurable. As such, science must also operate intelligibly, and not purely empirically, to approach reality and especially causality in a rational way (Mader et al., 2017, p. 11). Owing to this claim of an ontologically stratified reality which is indeed objective, but which can never be known in its totality, Critical Realism disregards any search for absolute laws in a Humean sense (e.g. “whenever A then B”). Rather, it encourages a more modest theorizing that is devoted to identifying and explaining causal tendencies – or generative mechanisms. This more modest theorization should then explicitly occur under the premise of (theoretical) provisionality and only make the claim to produce fallible – rather than absolute – knowledge. Importantly and despite this principal rejection of universal theories and absolute laws, Critical Realism does however not produce arbitrary or solely relative knowledge. Rather, it’s advocates claim to maintain explanatory strength as they equip researchers with a philosophy of science that neither aims for universality (the positivist fallacy) nor shies away from addressing causality (the post-modernist impasse).

Due to these distinguishing features, Critical Realism can hence be thought of as being positioned *in between* two philosophical extremes which, on the one side, assume that there is one objective reality (positivism) and, on the other side, assume that there are infinite subjective realities (constructivism, post-modernism). In this section, I will illustrate why this unique positioning of Critical Realism in between the two grand philosophies carries great theoretical potential to conceptualize future making in general and the economic geographies of future making in particular (cf. Sayer, 2015; Yeung, 2019a; Yeung, 2019b; Yeung, 1997). To do so, I continue with a more detailed overview over the theoretical fundamentals of Critical Realism as well as over its key features; usually referred to as the holy trinity of Critical Realism.

3.1.1 What is Critical Realism?

“Amidst all this confusion and tumult in the haunted house of philosophy, workaday researchers carry on calmly with their routines. Models are run, ethnographies are written, interviews are conducted, and archives are scanned. Some of the work is very good. Knowledge seems to grow. But no one really knows how or why. Except perhaps Roy Bhaskar” (Gorski (2013, p. 663) in his review „*What is Critical Realism? And Why Should You Care?*”)

To understand what Critical Realism is and why Critical Realism is useful – or in my words: productive –, the theoretical origins of the philosophy must be explained. Critical Realism has been initiated by Roy Bhaskar’s (1944 – 2014) landmark works *A Realist Theory of Science* (1975)¹⁴ and shortly after *The Possibility of Naturalism* (1979)¹⁵. Bhaskar’s work was foremost motivated by

¹⁴ This thesis refers to the second edition (2013) of Bhaskar’s seminal work which has been first published in 2008 and enriched by an introduction by Mervyn Hartwig, as well as an additional preface and a postscript by Bhaskar.

¹⁵ These first two and his third book *Scientific Realism and Human Emancipation* (1986) are all excerpts from his doctoral dissertation *Some Problems about Explanation in Social Sciences*. Bhaskar submitted the thesis in 1971, but it was initially rejected for its excessive length. Only after expansive reworking, the dissertation was finally accepted in 1974 (Cf. Gorski, 2013, p. 663).

timely and outspoken frustration over widespread belief in empiricism and law-like positivism in the natural and social sciences¹⁶. Already in the preface of his first book, Bhaskar – a trained economist and philosopher himself – summarizes his primary aim as follows. He attempts “to provide a comprehensive alternative to the positivism that has usurped the title of science” (2013, p. xxix). Further, he hopes to “show once-and-for-all why no return to positivism is possible” (ibid, xxix). In the cover text of his 3rd edition of *The Possibility of Naturalism* (1998), Bhaskar goes so far to say that Critical Realism offers “perhaps the only viable alternative to positivism and post-modernism.”

Despite Bhaskar’s outstanding role for developing the fundamentals of Critical Realism, it is important to note already at this point that Critical Realism “is not the invention of one man” (Vandenberghe, 2014, p. 3), but rather a contingent philosophical project of many who have either implicitly or outspokenly identified as critical realists. This applies especially when considering how ensuing critical realists such as Archer (1995), Collier (1994), Elder-Vass (2010), and Sayer (1992, 1999) were not only concerned with ultimately finishing-up with positivism (Bhaskar’s initial motivation), but also keen to establish an Anglo-Saxon antipode to burgeoning French philosophy as its widespread success of social constructivist and post-modern theory became constitutive to the paradigmatic cultural turn in the social sciences latest from the 1980s onwards (Cf. Barnes, 2001; Jameson, 1998). Although critical realists share much of their critique towards positivist science with that of constructivist and post-modern theory, critical realists distance themselves ontologically and epistemologically from the hermeneutic, idealist, and metaphysical predisposition as they are characteristic for these post-modern philosophical factions. Critical realism creates this distance from post-modernism especially for the extreme relativity and notorious tendency of fetishizing idiographic and highly contextualized empirical

¹⁶ While Bhaskar’s initial work *A Realist Theory of Science* initiated critical realist debates under the term “transcendental realism” and with focus on the natural sciences, his second work on the *Possibility of Naturalism* adopted the term “critical naturalism” and put focus on the social sciences. Together, and amplified by ensuing work from sympathizing scholars such as (Archer, 1995; Collier, 1994; Elder-Vass, 2010; Sayer, 1999; Sayer, 1992), transcendental realism and critical naturalism became popularized under the umbrella term Critical Realism.

perspectives since these have established to the detriment of abstracting and formulating explanatory theory in the search for causality (Sayer, 1999; Sayer, 1992; Yeung, 2019b). Summarizing the Bhaskarian *and* post-Bhaskarian rise and ambition of a philosophy of science that posits an antipode to both positivism *and* social constructivism/post-modernism, Vandenberghe (2014, p. 4) recapitulates the contemporary positioning of Critical Realism in today's general "science war of philosophy" as follows:

"Critical realism enters the 'science wars' by fighting two fronts. This is not a 'war of position', it is a 'war of movement' that is being waged at the same time against the empiricist-positivist misconception of the sciences and against conventionalist, constructivist and relativist conceptions that are rooted in idealism and drift towards super-idealism. Against the naturalism that seeks a unified conception of the sciences along positivist lines, hermeneutics, structuralism and deconstruction have insisted that nature is socially and linguistically constructed."

Importantly, whereas critical realists distanced themselves from social constructivism and post-modernism only in later theoretical iterations (Cf. Sayer, 1999), Bhaskar's initial and radical critique towards positivism and empiricism was well established in two major threads of critique that are distinctively directed towards positivism. These critiques can be thought of as the origins or the foundational pillars for developing an outspokenly anti-positivist philosophy.

3.1.2 Origins of Critical Realism: Two Threads of Critique towards Positivism

The first thread of critique, according to Bhaskar (2013, p. xxx), is typically represented by work that had already been well established by writers such as Kuhn, Popper, Lakatos, Feyerabend, Toulmin, Polanyi and Ravetz latest with the *Positivismusstreit* from 1960 onwards. According to Bhaskar, this critique of positivism "emphasises the *social* character of science and focusses particularly on the phenomena of scientific change and development. It is generally critical of any monistic interpretation of scientific development, of the kind characteristic

of empiricist historiography and implicit in any doctrine of the foundations of knowledge” (ibid, xxx). For critical realists, an epistemological critique towards positivism derives, therefore, from the pivotal understanding that theory can never be developed in uni-directional manner by beginning from isolated observation, experimentation, and data. Rather, and on the reversal, observation, experimentation, and data are always inevitably embedded in already established theory and assumptions. There is simply no way around it. The social character of science in the processes of theorizing and knowledge creation must hence necessarily be designed and interpreted under this premise. Bhaskar’s argument of an inherently social character of science justifies, therefore an epistemological (how positivist science creates knowledge) critique of positivism whilst it ensures to reify a realist ontology (objective reality exists) (cf. Mader et al., 2017, p. 11f).

With his second thread of critique towards positivism Bhaskar clarifies further that a *stratification of science* must be acknowledged as an important and often either ignored (positivism) or conflated (post-modernism) pillar of knowledge production. For Bhaskar (2013, p. xxx) science is stratified as it is naturally “structured and discriminating in its thought”. Importantly, as remarked by Collier (1994, p. 107), such stratification of science(s) is however “not due to any historical accidents such as which [science] emerged first or how university departments are organized.” Collier explains Bhaskar’s argument in so far that the stratification of reality – or in his words: “nature” – is just as well represented in science. For instance, although almost everything can be studied by physics (e.g. all matter and its chemical processes), only some of these studied objects can be studied by biology (e.g. the vegetable and animal kingdoms). Even less of what biology can study can be studied by psychology (e.g. animal behaviour). This means that while there are more basic (physics) and less basic (psychology) domains of science, these domains are not equal, but they are stratified in a one-way relation: “all animals are composed of chemical substances but not all chemical substances are parts of animals, and so on.” (ibid, p. 107). This uni-directional stratification – or hierarchy of disciplines (Gorski, 2013, p. 664) – implies that depending on the respective stratum, everything on a higher stratum of

discipline/reality (e.g. animals; or even higher: their behaviour) is necessarily operating under its very own mechanisms. Simultaneously however, every event or process at one stratum is just as well determined by its more basic stratum (e.g. physics). Collier (1994, p. 107ff) explains this stratification of reality with the example of a jumping zebra. A zebra must obey the laws of physics as it is bound to the law of gravity and so forth. It can only jump as high as physics allow it. It cannot break the more basic laws of physics as they are inherited from the lower stratum. However, other than any equally heavy, but non-living object, the zebra has the active power – or possibility – to make the decision of either jumping or standing still. This active power to jump or not to jump does not exist at the more basic level (physics); it only emerges at the levels of “biology” and “psychology” respectively. The possibility to jump is hence a mechanism that is distinctive to the respective stratum. This mechanism is unique to its respective stratum (biology, physics), but it remains nevertheless confined by the lower, more basic stratum of “physics” (See also Figure 1).

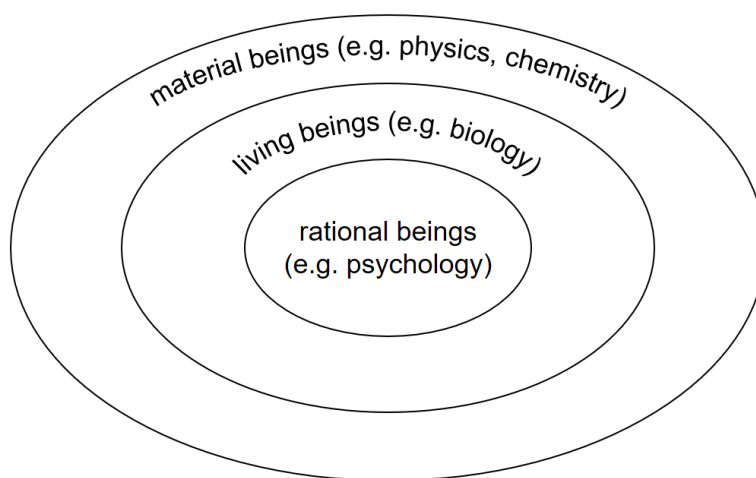


Figure 1: Critical realist stratification of reality (and science)

Graphic stylized and adapted from Collier (1994)

Bhaskar’s claim of a stratified reality and the consequential stratification of science (mainly across different disciplines) should hence warn scientists to carefully emphasize the difference between “explanation and prediction” (Bhaskar, 2013, p. xxx). Due to the hierarchy and rivalry of different sciences and their often absolute claims over their respective strata, Bhaskar remains “highly

critical of the deductivist view of the structure of scientific theories, and more generally of any exclusively formal account of science.” (ibid).

Already in the introduction to *A Realist Theory of Science* (1975), Bhaskar acknowledges that his claim of a stratification of science is not new, but rather a crucial point of departure for developing the ontological argument of a stratified reality which he later introduces as “depth ontology”. He clarifies that writers such as Scriven, Hanson, Hesse and Harré had much earlier established aforementioned post-Humean critique of knowledge production as they were faced by the primacy of deductive-nomological models which all tended to ignorantly operate solely on one stratum. Just like for the case of the social character of science, the Bhaskarian stratified depth ontology advances, therefore, important epistemological considerations in so far that any observation, experimentation and data can only be made intelligible through careful considerations and these considerations must necessarily go beyond the stratum of the empirical.

Both threads of critique – the notion of a social character of science as well as the stratification of science – served Bhaskar to justify the points of departure of his work. They also explain how Critical Realism established important fundamentals to become a quite productive philosophy of science.

3.1.3 The Holy Trinity of Critical Realism: Ontology, Epistemology, and Judgmental Rationality

Departing from Bhaskar’s attempt to reject and abandon positivism once and for all, today’s fundamentals of Critical Realism are typically summarized by the so-called “holy trinity” of Critical Realism (Bhaskar, 2013; Vandenberghe, 2019). *Ontological realism* clarifies the stratified depth ontology underpinning any critical realist reading as well as it introduces the notions of transitive *vis-à-vis* intransitive dimensions of knowledge and the critical realist interest in generative mechanisms. *Epistemic relativism* further considers how research is possible under the assumption of a realist depth ontology and beyond the epistemic fallacy of positivism. Finally, *judgmental rationality* sets the evaluative criteria

for better or worse positions on different fallible and provisional theories and objects of knowledge.

3.1.3.1 Ontological Realism

Reifying ontology is the starting point of any critical realist reading and analysis. Typically, critical realists share consent about Bhaskar's early writings on ontology. The major assumptions of ontological realism are that ontology is entity-based and stratified. Both helps to differentiate it from the positivist naïve realism and its consequential epistemic fallacy (assuming that objective reality exists and that it is empirically accessible in its totality). Further, it avoids to conflate epistemology with ontology as it defines distinct ontological levels – or strata – to be the stratified fundament of a critical realist depth ontology (cf. Morgan, 2016, p. 20f.). To understand, Bhaskar's critical realist ontology, a distinction between *transitive* and *intransitive* dimensions of knowledge is most important. Both dimensions relate directly to Bhaskar's initial critique of positivism.

The *transitive* dimension of knowledge derives particularly from Bhaskar's arguments about the social character of science as it is explained above. On the transitive knowledge dimension, objects of knowledge are produced and made explicit by scientists. This implies that knowledge production can never be stripped from history, context, and even ethics. As such, the transitive dimension of knowledge accentuates that (scientific) knowledge is subjected to constant change in terms of what theories are “out there” and that these theories are always fallible regardless of what object of interest is scrutinized. Scientific knowledge is:

“[...] a social product much like any other, which is no more independent of its production and the men who produce it than motor cars, armchairs or books, which has its own craftsmen, technicians, publicists, standards and skills and which is no less subject to change than any other commodity” (Bhaskar, 2013, p. 11).

Transitive objects of knowledge should hence be understood as the “raw materials of science” (ibid, 11), but these raw materials are necessarily shaped by their inherent epistemic fallacy and subjectivity. This is due to their mode of production and its dependence “upon the employment of antecedently existing cognitive materials” (Bhaskar, 1998, p. 12).

For critical realists, the social character of science and how it impedes the production of transitive objects of knowledge is hence undeniable and of great concern. It marks an important consideration not only for formulating the critical realist, anti-Humean critique of positivism, but also for evoking a self-critical reflection among different sciences regarding ontology, epistemology, and methodology. Bhaskar summarizes the implications of transitive objects of knowledge, therefore, as follows:

„Recognition of the transitive dimension implies that scientific beliefs can no longer be distinguished by their content. For experiences and the facts they generate must now be viewed as socially produced and what is socially produced is socially changeable. There are no absolutely privileged statements. The application of the category ‘empirical’ becomes relative and theory dependent. Hence it cannot be used, without a degree of circularity, to establish the scientificity of one class of statements with respect to another. “(Bhaskar, 2013, p. 180).

Second, the *intransitive* dimension of knowledge relates particularly to Bhaskar’s arguments about the stratification of science. The intransitive dimension of knowledge describes objects of knowledge such as physical processes, social phenomena – or more generally: reality – which must exist independently from the transitive objects of knowledge (theories, discourses, etc.) about them. Bhaskar (2013, 11) summarizes:

“In short, the intransitive objects of knowledge are in general invariant to our knowledge of them: they are the real things and structures, mechanisms and processes, events and possibilities of the world; and for the most part they are quite independent of us.”

Intransitive objects of knowledge are hence the distinguishing ontological feature of Critical Realism *vis-à-vis* other philosophies of science in general and positivism in particular. For critical realists, the existence of an intransitive dimension of knowledge implies that reality is more than any positivist account could ever make observable and knowable. There is not only a distorting social character of science which jeopardizes the ostensibly objectivity and universality of empiricist approaches. Additionally, and perhaps more importantly, empirically inaccessible (intransitive) parts of reality must be existing regardless of whether they are known, experienced, and documented or not. Bhaskar popularly defends ontological realism in this form by stating that “[t]he world consists of things, not events” (2013, 41). Substantiating this important justification of a realist, but stratified ontology, Andrew Sayer, one of the leading critical realists when it comes to promoting Critical Realism among geographers, further states (1999, p.11):

“When theories change (transitive dimension) it does not mean that what they are about (intransitive dimension) necessarily changes too: there is no reason to believe that the shift from a flat earth theory to a round earth theory was accompanied by a change in the shape of the earth itself. [...] For the most part, social scientists are cast in the modest role of construing rather than ‘constructing’ the social world.”

Taking this distinction of the transitive and the intransitive seriously, allows critical realists, therefore, to formulate strong definitions of ontological realism. Archer et al. (2004, p. 1) summarize years of debate on critical realist ontology with the following definition:

“Ontological realism asserts the ontologically objective existence of reality, independent of our beliefs about it. It follows that something may belong to reality even if we remain mistaken about it or even completely ignorant of it.”

This assertion of an objective, but intransitive reality is the basis for the critical realist understanding of a stratified depth ontology. Critical realist depth

ontology consists of three differently layered – or stratified – domains of reality based on their respective degrees of depth. Namely, these domains are the domain of the *empirical*, the *actual*, and the *real* (See Table 1).¹⁷

Table 1: Critical Realist depth ontology

	Domain of Real	Domain of Actual	Domain of Empirical
Mechanisms	✓		
Events	✓		
Experiences	✓	✓	✓

Most shallow, the domain of the *empirical* consists of the transitive events that are and can be directly experienced. The domain of the empirical is, therefore, what is typically measured by the empiricist sciences and embedded into deductive-nomological models, but it would also entail what people experience in their everyday lives. For critical realists, this dimension is however clearly insufficient and a highly limited and distorted stratum of reality. Limited to those events that can be observed and that are eventually experienced, distortion at the empirical level is further exacerbated as human interpretation (beliefs as well as theories) is necessarily pre-filtering what is deemed existent and related. Accordingly, the domain of the empirical, relates to transitive objects of knowledge as they are produced, but confined by the social character and the stratification of science. Both implies that any science stuck at the domain of the empirical must necessarily operate under an epistemic fallacy as it restricts its perspective to a starkly limited and distorted part of objective reality.

Less shallow, the domain of the *actual* moves beyond this ontological (events observed and documented), and social filter (events considered) that is greatly responsible for the limited and distorted view on actually occurring events as they become experienced and measured at the domain of the empirical. As events occur regardless of being experienced, the domain of the actual differs substantially from the domain of the empirical simply by entailing the whole set of

¹⁷ Refer also back to the example of the stratification of sciences and how different scientific domains produce stratified knowledge about a zebra in the previous chapter (Figure 1).

events and processes that are actually occurring. In other words, it includes all events and processes regardless of their observation or non-observation as well as their measuring or non-measuring or also their recognition or non-recognition. The domain of the actual comes, therefore, generally closer to objective reality, but it remains limited to an ontological level of events and processes without explaining why these events and process occur the way they do.

Finally, the domain of the *real* reflects, therefore, a shift of attention from events towards things or entities (entities may be indefinite objects such as for instance agency, structure, networks, and relations). As such, the domain of the real reflects a major tenet of the critical realist entity-based ontology. In his introduction on Bhaskar's depth ontology, Sayer (1999, P. 11) refers to the domain of "the real" as follows:

"When critical realists refer to 'the real' this is not in order to claim privileged knowledge of it but to note two things. First, the real is whatever exists, be it natural or social regardless of whether it is an empirical object for us, and whether we happen to have an adequate understanding of its nature. Secondly, the real is the realm of objects, their structures and powers. Whether they be physical, like minerals, or social, like bureaucracies, they have certain structures and causal powers, that is, capacities to behave in particular ways, and causal liabilities or passive powers, that is, specific susceptibilities to certain kinds of change."

Accordingly, whereas positivist and empiricist sciences assume that the world is composed of atomistic events, but that these events have neither a structure nor inherent power(s), Critical Realism claims otherwise. According to Critical Realism, entities have inherent powers which describe their causal possibilities. These powers are the main concern of critical realists and they are typically described as generative mechanisms. Sometimes also referred to as casual tendencies, generative mechanisms are then the "inherent properties in an object or structure that act as causal forces to produce events" (Fletcher, 2017, p. 183). Although Baskhar (2013, p. 3) remains somehow vague in his definition of generative mechanisms to be "nothing other than the ways of acting of things", he

ensures to raise the intransitive nature of generative mechanisms as any generative mechanism “may be possessed unexercised, exercised unrealised, and realized unperceived (or undetected) by men” (ibid, p. 7). Others have arguably described generative mechanisms more precisely. For instance Morgan (2016, p. 19) states that:

“[t]he multiplicity of powers or capacities of entities, and of a mix of different entities, can be conceptualized as generative mechanisms or structuring processes that cause things to occur as events. One can, therefore, make sense of a reality that we experience as relatively stable much of the time, and in which we are able to knowingly intervene to attempt to manifest given outcomes. Events may rarely be regular (in the ‘whenever x then y’ sense of a constant conjunction) but they are not thereby, when properly understood, uncaused or simply arbitrary. “

Generative mechanisms are then the deepest and perhaps most important layer of reality. Critical realists derive from this ontology that rather than focussing on the search for causal laws and their respective probabilities, science should critically engage with the tendency of things and their possibilities. In doing so, it should first approach and theorize the generative mechanisms likely to be inherent to things and do so mainly through intelligible means (theory). Second, it should acknowledge that the processes and outcomes that can indeed be partly made visible by empirical means are not pre-defined by probabilities or universal laws, but rather by generative mechanisms and their possibilities. Critical Realism is then about distinguishing and considering the various generative mechanisms and possibilities (not probabilities) that are inherent to things (not events).

Taken together, the domain of the *empirical*, the *actual*, and the *real* circumscribe, therefore, a form of ontological realism which states that reality is stratified. This stratification foremost defends a realist ontology from various strands of anti-realist critique (e.g. interpretivism, post-modernism) in so far that it creates outspoken distance from any (positivist) notion of “naïve objectivism” and or claims of “unmediated access to Truth” (Sayer, 1999, p. 2). Only by distinctively considering of reality as stratified, Critical Realism can justify a realist

ontology that goes beyond the epistemic fallacy and naivety of positivism whilst maintaining a realist rather than a non-realist ontology. This form of ontological realism creates thereby the fundament to epistemic relativism when epistemology is addressed by critical realists.

3.1.3.2 Epistemic Relativism

The “Critical” of Critical Realism becomes most apparent in terms of how epistemology must necessarily be addressed under the outlined reification of ontological realism. After all, the critical realist depth ontology is seen as a reminder that no science without ontology can – or should be – possible. Archer et al. (2004) are upfront when they elevate this essential need for considering ontology:

“Ontological realism rescues ontology from absorption into epistemology. Widely fashionable today is an error that critical realists call the “epistemic fallacy”. We commit the epistemic fallacy when we allow epistemology completely to swallow up ontology. [...] Critical realism does not deny the value and theory ladenness of knowledge. What it does is to counter the epistemic fallacy. The epistemic fallacy involves the fallacious inference that because there is no epistemologically objective view of the world, there is also no objective world ontologically.”

Critical realists are not only critical towards others (especially positivists, but also post-modernists), but perhaps even more so towards themselves¹⁸. Indeed, a great part of their philosophical concern is about how science can trust its own assumptions and approaches; be they ontological or epistemological. In terms of epistemology, this critical self-awareness is typically articulated by epistemic relativism rather than dogmatism.

Epistemic relativism derives foremost from the ontological claim that large parts of reality are intransitive. For critical realists, epistemology (how we can know the world) is, therefore, inevitably restricted by the inevitable limits of

¹⁸ See for instance Sayer (1999, p. 3) who notes that his whole book is a “book of critiques”.

experience and observation (stratification) as well as by its contextual, historical, and social embedding (the social character of science). Science is, therefore, fallible by nature regardless of how detailed and standardized empirical measurements may be. Archer et al. (2004, p. 3) summarize this epistemological premise as follows:

„What epistemic relativism does mean is that all our judgements are socially and historically situated. Our judgements are conditioned by our circumstances, by what we know at the time and by the prevailing criteria of evaluation. For this reason among others, our judgements are always fallible. Epistemic relativism further means that we are each positioned to see the world somewhat differently. Our experiences of the world vary.“

Regardless of this self-critical account on epistemology, an important notion among critical realists is however that even if intransitive objects of knowledge can be impossibly fully grasped, they can at least be narrowed down through a careful mixture of intelligible and empirical approaches. This conviction towards maintaining explanatory power and to eventually daring causal statements is what sets them apart from post-modernism. Sayer (1999, p. 30) forestalls any scepticism about the analytical and explanatory value of Critical Realism accordingly:

„Defeatist postmodernists tend to assume that because the world is so open, diverse and complex, nothing of lasting or universal application can be said about it, and because theory is so contestable and yet difficult to test, anything goes. Critical realists accept the premise but argue for a different conclusion: that notwithstanding the daunting complexity of the world and the fallible and situated character of knowledge, it is possible to develop reliable knowledge and for there to be progress in understanding.“

Hence, although critical realists agree with post-modernists that all knowledge is fallible and indeed relative, a key notion for epistemic relativism is that even

if all knowledge is fallible, it must not be equally fallible (Sayer, 1992, p. 46). As long as the stratified nature of knowledge production is acknowledged for producing fallible and provisional results, science remains possible. To remain possible, it must however embrace contingent practices of proposing and critically evaluating the causal tendencies – or generative mechanisms – that seem least fallible (Bhaskar, 2013, p. 40). Contrary to deductive-nomological models and experimentally derived statements such as “whenever A, then B” (the Humean positivist-deterministic approach which ignores epistemology), but also rather than anti-realist claims that there is no actual truth or internal causality as everything is relative and situated (the interpretative, post-modern approach which conflates epistemology with ontology), Critical Realism takes, therefore, distance from a positivist epistemology which dogmatically focalizes on events, but also from constructivist epistemology which avoids causal explanation as it sees reality as entirely constructed and subjective (Bhaskar, 1979; Collier, 1994; Sayer, 1992)

This understanding of epistemic relativism to be (again) positioned somewhere in between its two philosophical rivals obviously creates a certain uneasiness about the potentially arbitrary nature of critical realist approaches of knowledge production. After all, one may wonder how the decision what seems more or less fallible should be made. This uneasiness is explicitly addressed with judgmental rationality; the third part of the critical realist holy trinity.

3.1.3.3 Judgmental Rationality

With the notion of judgmental rationality, critical realists acknowledge that the premise of ontological realism and the necessity for epistemic relativism calls for rational criteria that help evaluating better or worse positions about produced knowledge. For Archer et al. (2004, p. 2) this implies the following:

“Judgmental rationality means that we can publicly discuss our claims about reality, as we think it is, and marshal better or worse arguments on behalf of those claims. By comparatively evaluating the existent arguments, we can arrive at reasoned, though provisional, judgements about

what reality is objectively like: about what belongs to that reality and what does not.”

Accordingly, judgmental rationality is all about evaluating diverse and usually competing claims about the world during and after the research process. As such, judgmental rationality does not only acknowledge the implications of ontological realism and epistemic relativism, but it also advances important guidelines for any critical realist methodology. In order to emphasize judgmental rationality rather than judgmental relativity, critical realists typically propose a two-fold meta-methodology for establishing such fallible claims. Just like for the case of ontology and for the case of epistemology, this methodology is positioned in between two major methodological factions, namely purely *deductive* approaches which move from the general (theory) to the particular (observations) *vis-à-vis* purely *inductive* approaches which move from observations to theory. Rather than induction or deduction, critical realism focusses thereby on *abduction* and *retroduction* to eventually produce rational accounts of knowledge and theory despite the inevitability of an intransitive reality.

Abduction refers to a process of ‘inference or thought operation, implying that a particular phenomenon or event is interpreted from a set of general ideas or concepts’ (Danermark et al., 2019, p. 188). In other words, abduction is about embedding a set of often loose and unstructured observations into an existent theory or framework. At first sight, abduction resembles, therefore, a blending of both inductive and deductive approaches. The “revolution” (ibid, p. 91) of abduction lies however in its ability to give new or alternative meaning to already known phenomena. By starting from loose and rather unstructured observations – or as critical realists call them: *demi-regularities* (Lawson, 1997) – and then theoretically re-interpreting them, the process of abduction is effectively not about discovering new events that have so far been unknown, but rather about identifying and explaining new connections and relations that may explain a widely known phenomena from a new perspective.

To illustrate this critical realist approach of abduction, I can draw from my own research for this thesis. Take the example of large-scale commercial farms in

SAGCOT's Ihemi cluster and their expansive practices of integrating smallholder farmers into their agricultural value chain (thesis article II). In these cases, the observed demi-regularity was the phenomenon of highly commercial, large-scale farms that surprisingly opted for the tedious and at first glance “un-economic” practices of integrating thousands of smallholder farmers into their agricultural value chain. Only by embedding this generally laudable phenomenon into the general theorization of financialization, and hence deviating or re-theorizing my initially dominant interest in value chains, I could explain this practice. By contextualizing these practices with a perspective on financialization the ostensibly irrational chain integration under disastrous economies of scale and high risks of failure could now be explained by more than just the benevolence of the respective farm managers. Rather, the high degree of financialization of both farms and especially the involvement of public funds attracted not at least by SAGCOT had created substantial moral pressures for how the farms could possibly be operated. These pressures basically forced the managers of both large-scale farms to integrate smallholders even against their own preferences.

Abduction – or a theoretical (re-)description – is, hence, raising “the level of theoretical engagement beyond thick description of the empirical entities, but with an acknowledgment that the chosen theory is fallible” (Fletcher, 2017, p. 188). As such, it is especially important in early iterations of knowledge production when first demi-regularities are observed. At such stage, it helps to contextualize empirical events and processes and give them new meaning as they become re-described under the assumption of one or another theory or framework.

Retroduction then typically follows a process of abduction. Retroduction adds to the theoretical description of empirical phenomena in the widest sense the “why”-question of any research. Generally, retroduction does so as it entails a postulation of generative mechanisms which seem reasonable explanations for an observation under consideration. More strictly, it seeks to clarify the basic conditions or “circumstances without which something can't exist” (Vincent & O'Mahoney, 2017, p. 96). Acknowledging a realist, but stratified ontology, the process of retroduction requires, therefore, the postulation of transfactual

arguments about likely mechanisms in order to explain why an observed phenomenon has occurred (Sayer, 1992, p. 107). These postulations are necessarily transfactual, and a such usually not empirically provable, as they are about the intransitive dimension of knowledge (generative mechanisms). Mingers (2006, p. 22) describes the process of retroduction, therefore, also as a “move from experiences in the empirical domain to possible structures in the real domain.”

To illustrate also the critical realist process of retroduction, another example from my research work might add clarification. The example of the fertilizer manufacturer YARA International and its strategic coupling with the Tanzanian market region (see thesis article I & III) was quite unprecedented. Many observers and competitors from the global and domestic agro-industry that I interviewed were quite surprised about the risky commitment to an unruly and immature market by YARA. Further, they were just as well by the heavy financial and institutional support provided by the Tanzanian government as well as by international donors. By conceptualizing the SAGCOT corridor as a spatial imaginary for agro-industrial modernization and globalization and especially by postulating two generative mechanisms underpinning the mobilization of this spatial imaginary, I could retroductively describe two mechanisms without which the eventual coupling process would have been impossible. Namely, by emptying future in such way that SAGCOT became tightly aligned with YARA’s strategic needs and by further claiming space to allow not at least YARA to capitalize on these needs, I have postulated two generative mechanisms which are inherent to the entity SAGCOT and which had eventually substantial effect on the possibility between YARA and the Tanzanian fertilizer market region to strategically couple.

Taken together, abduction and retroduction provide a major meta-methodological guidance for maintaining judgmental rationality. Rather, than deriving an arbitrary claim that any account of knowledge must be accepted as a valid account, a commitment to abduction and retroduction ensures two important aspects. First, it does indeed acknowledge the “epistemic relativity of science, the fact that knowledge is, always historically and socially located, without losing the

ontological dimension.” (Mingers, 2006, p. 22). It does so by encouraging the researcher to work in a spiralling movement between the theoretical and the empirical. Second, and perhaps more importantly, abduction and retroduction additionally provides a rational framework that helps to produce and evaluate still fallible, but not equally fallible positions on theory and knowledge.

In sum, I think that Critical Realism is the best philosophical theory “out there” for grasping the onto-epistemological complexity of the future (Tutton, 2017). Considering the different approaches of making the future existent as they are outlined in the introduction of this chapter (the cultural versus the technical approach), I contend that Critical Realism ensures to emphasize the subjective, relative, and discursive practices of making the future present, but that it simultaneously allows to emphasize the objective, material, and structural conditions that may or may not be affected by their discourse about them. Critical Realism makes studying “the future” possible.

4 Conceptual Background

This chapter reflects on the key concepts that have been used in the three thesis articles. I seek to use these reflections to contextualize the articles as well as to provide further arguments for responding to the thesis' general research objectives. Namely, I firstly introduce the Cultural Political Economy concept of economic and spatial imaginaries. Secondly, I introduce the Economic Geography concepts of GVC and GPN. Finally, I link the frameworks from both literatures to show their value for the analysis of SAGCOT's socio-economic effects on the agro-industrial value chain.

4.1 Spatial Imaginaries

In order to emphasize the spatio-temporality of development corridors, this thesis uses *spatial imaginaries* as a framework (see especially thesis article I). Whereas others have already reasonably proposed to address the rise of African development corridors through a conceptualization as “sociotechnical imaginaries” (Müller-Mahn, 2020), I contend that the cognate framework of spatial imaginaries provides a better theoretical and conceptual fit when addressing the implications of future-making through corridors from an Economic Geography standpoint (e.g. uneven accumulation, economic power, value distribution). This choice is no nitpick, nor is it arbitrary. The spatial imaginaries framework occurs more compatible with (orthodox) Economic Geography for two reasons. *First*, the sociotechnical imaginary framework as developed in the indeed groundbreaking work on future-making by Jasanoff & Kim (2015) is strongly devoted to the “flat ontology” of Actor-Network-Theory (ANT). Further it is oriented towards the disciplinary field of Science and Technology Studies (STS)¹⁹. As I have already established in the prior section with the introduction of the thesis'

¹⁹ It must admittedly and in fairness be raised here that Jasanoff and Kim (2015, p. 3) indeed acknowledge that a certain tendency towards “understanding” rather than “explaining” makes the “why” question difficult in ANT and STS. Moreover, despite raising the ANT premise of a flat ontology, Jasanoff and Kim show some sympathy towards Critical Realism when they claim that the interest of ANT in materiality indeed calls for some form of “speculative realism” (ibid, p.16).

research philosophy, such flat ontology is however inherently at odds with a critical realist ontology. In fact, the critical realist claim of ontological depth is the opposite extreme to ontological flatness. As I will later show, also the GVC/GPN frameworks usually operate along the assumption of ontological realism. Without claiming that one framework is superior to the other, the ontological mismatch between the sociotechnical imaginary framework and Critical Realism simply cannot be ignored at this point. *Second*, and closely related to the former, the spatial imaginaries framework further ensures theoretical coherence as it has indeed been explicitly developed with a critical realist underlabouring. Particularly owed to its origins and prominent use in Cultural Political Economy – a discipline which is explicitly devoted to Critical Realism (Jessop & Oosterlynck, 2008; Sum & Jessop, 2013) – the spatial imaginaries framework is hence more compatible for a conceptual cross-fertilization with more conventional understandings of the GVC/GPN framework²⁰. This second point is perhaps my most important motivation for choosing the spatial imaginaries over the socio-technical imaginaries framework.

The spatial imaginaries framework in particular and major theoretical assumptions made by Cultural Political Economy in general constitute, therefore, this thesis conceptual approach *on* future-making and *towards* an economic geography of future-making. Large parts of my conceptual understanding of spatial imaginaries and especially their inherent generative mechanisms have been described in detail in *thesis article I*. However, I use this chapter to add to this an introduction of Cultural Political Economy and its approach on “the future” in a truly critical realist fashion.

4.1.1 Cultural Political Economy and Economic Imaginaries

Quite similar to some of the major philosophical concerns of Critical Realism, Cultural Political Economy (hereafter CPE) is a discipline which is somehow torn between, on one side, strongly reductionist (orthodox) economic and

²⁰ See also Yeung’s (2019a, 2019b) critical intervention “What kind of theory for what kind of human geography?” and several responses (Hassink, 2019; Hsu, 2019; MacLeavy, 2019; Strauss, 2019) to his call for more critical realist approaches in Economic Geography.

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political geography and, on the other side, increasingly “soft” economic sociologies/geographies which have established under the cultural turn (Sayer, 2001). Just like the ontological and epistemological alternate positioning somewhere “in between”, CPE has been described as an effort to find an alternate positioning also in inter-disciplinary terms. Bob Jessop, the perhaps most important advocate of CPE clarifies this effort together with Stijn Oosterlynck (2008, p. 1155) as follows:

„[CPE] seeks to steer a path between a fetishistic, reified economics that naturalizes economic categories and a soft economic sociology that focuses on the similarities between economic and other socio-cultural activities at the expense of the specificity of the economic.”

To do so, CPE finds theoretical orientation in an explicitly critical realist underlabouring. This underlabouring is seen to be important for CPE to rigorously respond to the cultural turn in the social sciences. In their landmark work *Towards a Cultural Political Economy: Putting Culture in its Place in Political Economy*, Sum & Jessop (2013, p. x) argue in this vein that Critical Realism “nullifies the need for a belated cultural turn” as its philosophical underlabouring provides an important resource to respond to one-sided cultural turns and to effectively “put them in their place” (ibid).

Generally, Sum & Jessop (2013, p. 1) understand of CPE as combining “the analysis of sense- and meaning-making with the analysis of instituted economics and political relations and their political embedding”. This understanding establishes thereby a two-fold logic that understands everyday complexity reduction as a general mechanism for any socio-economic change. They differentiate this complexity reduction to occur, on one side, through *semiosis* (sense- and meaning-making) and, on the other side, through *structuration* (the compossible social relations that restrict semiosis)²¹.

²¹ Others have referred to this also as “lifeworlds” vis-à-vis “systems” (Sayer, 2001).

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Semiosis is a first moment of complexity reduction which simply describes the “contingent epistemic choice between two options” (Jessop & Sum, 2017, p. 345) or also more generally: the indeed social production of meaning (Jessop, 2010). In order to operate in the world – or in a critical realist sense: in a stratified reality – social agents must necessarily reduce the complexity of the “real” to limit it to a set of subjective, but meaningful and manageable aspects of reality. Semiosis considers, therefore, discursive-symbolic or semiotic dimensions of sense- and meaning making, which necessarily decomplexify reality through the evolutionary mechanism of selection. This selective mechanism eventually reduces the complexity and infinity of *possible* and *imaginable* realities (e.g. social relations, organizations, processes, futures) to become their reduced set of *compossible* realities (Belfrage & Hauf, 2016, p. 5).

Structuration (or structure-building) refers to this as it describes a complementary moment of “enforced selection”, or also a moment of setting the limits to compossible elements within time-space specific envelopes (Sum & Jessop, 2013, p. 5). Simply put, structuration acknowledges that not everything that is semiotically possible or imaginable is necessarily compossible within an existing structure. Hence, structuration implies that discursive-symbolic semiosis is naturally put into context with non-discursive and extra-semiotic time-space structures which are actually and objectively in place (e.g. existing economic systems, material matter, etc.)²². Understanding of semiosis and structuration as two complementary moments of complexity reduction, CPE accordingly acknowledges “both the constitutive role of semiosis and the emergent extra-semiotic features of social relations” (Jessop & Oosterlynck, 2008, p. 1157). Moreover, CPE affirms the complexity of the social world and the cognate importance of complexity reduction not only in terms of scientific theory and method, but also more general in terms of how individuals and societies

²² Although Sum and Jessop make no direct reference to it, such interplay of semiosis and extra-semiosis is just as well regarded by the critical realist notion of judgmental rationality as a means of evaluating fallible from less fallible positions.

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necessarily construct discursively-selective *imaginaries* in order to deal with the otherwise overwhelming complexity of reality in everyday life.

CPE is hence invested in explaining how imaginaries – or dominant societal discourses about reality – are constituted through semiosis (discourse and metaphors) and extra-semiosis (structure and matter). Moreover, and owed to its disciplinary embedding in Political Economy, CPE further emphasizes especially how imaginaries become performative and to some extent constitutive with regard to the circuits of capital but also the materiality of production and consumption flows under contemporary capitalism²³. Most popularly, CPE illustrates this interest with the general notion of *economic imaginaries* (Beckert, 2013; Beckert & Bronk, 2018; Birch, 2016; Jessop, 2012; Phelps et al., 2011) Whereas CPE understands the “actually existing economy” as the “chaotic sum of all economic activities”, it understands of the “economy” as an imaginatively narrated subset of these activities as they occur *semiotically* more or less coherent as well as they occur in *structurally* specific spatio-temporal frameworks (Jessop & Oosterlynck, 2008, p. 1157). Accordingly, economic imaginaries are by nature selectively defined for the limited cognitive capacities and the discursive and material biases of economic paradigms or epistemes. They inevitably exclude entities – intentionally, but usually unintentionally – that may nevertheless be vital for economic processes (the intransitive dimension of the real or actually existing economy). To put this in the words of Sum & Jessop (2013, p. 166):

“They [economic imaginaries] identify, privilege and seek to stabilize some economic activities from the totality of economic relations and transform them into objects of observation, calculation and governance. Technologies of economic governance, operating sometimes more semiotically, sometimes more materially, constitute their own objects of governance rather than emerging in order to, or operating with the effect that, they govern already pre-constituted objects (Jessop 1990, 1997b).

²³ This commitment to classical political economy issue is not taken for granted and often an issue of debate (Sayer, 2001). Generally, CPE can contribute to more than to the “core issues” of political economy (Cf. Brinks & Ibert, 2020; Jessop, 2012; Jessop & Sum, 2018; Levy & Spicer, 2013).

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Nonetheless, because they are always selectively defined, what is excluded limits the efficacy of economic forecasting, management, planning, guidance, governance and so on because such practices do not (indeed, cannot) take account of excluded elements and their impact.”

Crises are a particularly important moment considered by CPE when economic imaginaries are addressed. As crises (re-)open political, economic, or also cultural spaces, new imaginaries are most likely to emerge when a crisis occurs (Sum & Jessop, 2013, p. 402ff). The immediate effect of crises is then that they foremost open space for strongly semiotic variation and that this variation is prone to be counterfactual and disconnected from its existent extra-semiotic factors (materiality, structure). In other words: fiction tends to flourish in the moment when crises disrupt the dominant imaginaries that used to be common sense. Manifold imaginaries are then competing in a relatively unresolved and open state (see Figure 2). In this first crisis-induced phase of *variation*, long-established imaginaries become, therefore, re-politicized and a moment of unstructured complexity emerges. Eventually, the phase of semiotic variation transcends however into a phase of more grounded *selection*. As extra-semiotic factors are challenging the otherwise fictional or highly discursive semiosis that emerged early during a crisis, same re-politicized discourse is gradually narrowed down as the complexity of a crisis becomes increasingly structured (more knowledge about crisis, common sense- and meaning making about the “new normal” etc.). In the phase of selection, especially the most unrealistic and unfashionable imaginaries become, therefore, rejected and displaced and those that are most convincing or those that are promoted by the most powerful agents become elevated. Finally, in the phase of *retention* a state of sedimented discourse and structured complexity establishes. In this phase a new imaginary is widely acknowledged and usually perceived as the new normal or common sense.

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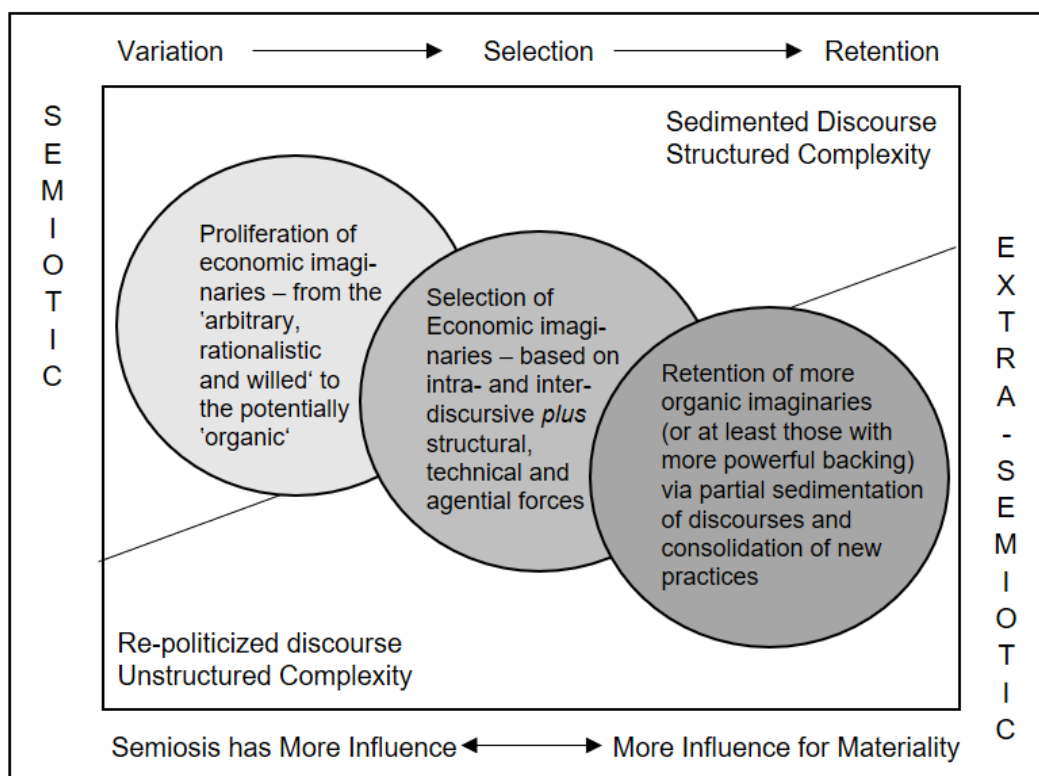


Figure 2: Heuristic schema for semiosis and extra-semiosis of imaginaries

Graphic based on Sum & Jessop (2013, p. 403).

These generative phases of economic imaginaries suggest that economic imaginaries are about much more than the sheer assembly of an imaginary through the reciprocally working complexity reduction mechanisms of semiosis and structuration. It raises additionally, that the constitution of any imaginary can depend on power as well as it can be an instrumental resource of power itself (Cf. Allen, 2008; Allen & Cochrane, 2007). Typically, economic imaginaries are constituted on many sites and scales and under varying spatio-temporal contexts. Jessop & Oosterlynck (2008, p. 1158) contend in this vein, that economic imaginaries inhibit economic, political and intellectual forces that can manipulate power and knowledge to “secure recognition of the boundaries, geometries, temporalities, typical economic agents, tendencies and counter-tendencies, distinctive overall dynamic, and reproduction requirements of different imagined economies”. Accordingly, there is rarely just one economic imaginary “out there”, but usually different imaginaries on mutual or on different scales are competing against one

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another. Contextualizing such competition with contemporary capitalism, economic imaginaries tend, therefore, “to develop new structural and organizational forms that will help to institutionalize these boundaries, geometries, and temporalities in an appropriate spatio-temporal fix that can displace and/or defer capital’s inherent contradictions and crisis-tendencies” (ibid, p. 1158).

In sum, the fundamentals of CPE are hence first of all benefitting from a critical realist underlabouring which supports the ambition of CPE to take disciplinary distance from overtly reductionist, orthodox economics, but specifically also from the “softening” social sciences that avoid any form of reductionism as they tend to seek description rather than explanation. A major tenet of CPE has thereby become a critical realist integration of indeed constructivist elements in form of semiosis. However, CPE acknowledges discursive semiosis only by embedding or confining it through the objective, extra-semiotic consideration of existent structure (or in a critical realist sense: depth ontology). This unique approach has established CPE as an important inter-disciplinary project which can provide thick explanations for how socio-economic relations are (not) emerging and how this can depend on successfully operationalized and institutionalized imaginaries. For CPE, the deconstruction of how, by whom and why imaginaries are assembled and how they have material effect is hence extremely relevant.

4.1.2 General Application of Spatial Imaginaries in the Thesis

Whereas the general emphasis on economic imaginaries circumscribes a foundational pillar for CPE, this thesis uses the subordinated framework of spatial imaginaries. The spatial imaginaries framework is developed by Jessop (2013, p. 10) who explains this conceptual extension of economic imaginaries as follows:

“[I]magined economies (or their equivalents for other systems) are discursively constituted and materially reproduced on many sites and scales, in different spatiotemporal contexts, and over various spatio-temporal horizons. [...] Thus we should study the role of the spatial imaginary and economic narratives and/or discourses in demarcating a

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regional economic space with an imagined community of economic interests from the seamless web of a changing global-regional-national-local nexus.”

Jessop proposes, therefore, to extend CPE’s general notion of economic imaginaries with a spatial component. To do so, he firstly draws from the so-called TPSN framework (territories, places, scales, networks) which he and colleagues developed already earlier for the analysis of socio-spatial change (Jessop, 2006, 2018). Derived from the TPSN framework, Jessop (2013) argues that spatial imaginaries can manipulate and claim manifold one- and two-dimensional spatial configurations. One-dimensional spatial imaginaries include thereby examples such as the *territorialization* of political power in sub-national or supra-national regions, the promotion of *places* as settings for actions (e.g. destinations of foreign direct investments), the regional (re-) *scaling* of instituted social systems (e.g. state power, regional planning), and the building of *networks* that can reinforce spaces of flows within “virtual regions” (e.g. BRIC economies). Two-dimensional examples further include for instance spatial imaginaries that create multi-level governance arrangements when *territory* and *scale* are combined (e.g. public private partnerships), core-periphery relations when asymmetrical relations between *places* are created within a given *territory* (e.g. secession movements), or also cross-border regions when *networked territories* are promoted (e.g. free trade zones). In other words, spatial imaginaries can exist in various configurations along different spatial dimensions. Emphasizing what dimensions are mobilized or transformed can hence help to explain the inherent mechanisms of a spatial imaginary as well as it can help to understand why a certain imaginary becomes mobilized from the onset.

Secondly, Jessop’s conceptualization of spatial imaginaries further draws from David Harvey’s work on spatial and spatio-temporal fixes (Harvey, 1990, 2000, 2003, 2006). Based on a sympathetic critique of Harvey’s tendency to neglect extra-economic dimensions, Jessop (2006) contends that his understanding of spatial imaginaries can both benefit from Harvey’s work as well as it can improve it. He firstly agrees with Harvey, that spatio-temporality generally requires

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more attention in order to explain why and with what outcomes the internal contradictions of capital create constant pressure to find and realize spatio-temporal fixes under global capitalism. Harvey's spatial fix is indeed focused on these internal contradictions of capital and especially on the risks involved with its overaccumulation and subsequent devaluation. To him, this internal risk or contradiction explains capital's inherent crisis tendency as well as the necessity for capital's constant geographical expansion and restructuring (Harvey, 1989, 2006). For Jessop (2006, p. 164), spatio-temporal fixes are however more than just an economic issue that can be explained by a purely value-theoretical analysis. They are:

“[...] inevitably political as well as economic and have a key role in displacing, deferring and defusing crisis-tendencies and contradictions. They are also strategically selective, i.e. some classes, class fractions, social categories or other social forces located within these spatio-temporal boundaries are marginalized, excluded or subject to coercion. “

Jessop's understanding of spatial imaginaries hence offers to move beyond “just economics” as the general conceptualization of economic imaginaries to be constituted by both semiotic and extra-semiotic factors allows to emphasize also the “political character of the capital relation as an articulation of the economic and the extra-economic” (ibid, p. 162).

Taken together, this thesis' research objective of understanding SAGCOT's underpinning mechanisms which explain SAGCOT's spatio-temporality can hence benefit especially from the sub-ordinated spatial imaginaries framework. How this framework is linked to the GVC/GPN literature is explained in the last section of this chapter. Before this section, I will first introduce the fundamentals of the GVC/GPN frameworks.

4.2 Global Value Chains and Global Production Networks

The GVC and GPN frameworks are widely applied in Economic Geography in general and studies on agro-industrial globalization in particular (e.g. Barrientos

et al., 2015; Dannenberg & Nduru, 2015; Ouma, 2010). And although only rarely stated explicitly, much of both frameworks is indeed benefiting from a critical realist philosophical under-labouring (for an exception see: Coe & Yeung, 2015; Yeung, 2019a). In the widest sense, this is due to their ambition of theorizing the causal mechanisms which create the possibility of one chain or production network “outcome” or another (e.g. Coe & Yeung, 2015; Gereffi et al., 2005). As such, the GVC/GPN literature provide important mid-range heuristics for this thesis. As I will show in the following, these heuristics help to maintain the necessary explanatory power but also to achieve judgemental rationality in the analysis and discussion of the socio-economic effects of SAGCOT. Rather than summarizing the whole width of the GVC/GPN literature, this section focusses on two issues. First, I explain the commonalities and differences of the GVC *vis-à-vis* the GPN framework. Second, I introduce what generative mechanisms are typically postulated in the GVC/GPN literature and how these help to explain different effects of global production and trade.

4.2.1 Conceptual Commonalities and Differences

The GVC and the GPN frameworks are closely related and yet they need differentiation. The relationship between both frameworks is constituted by their common interests and their shared conceptual history, but also by their strong intellectual and epistemic rivalry (Bair, 2009a; Ponte et al., 2019a; Sturgeon, 2009). Whereas some of the major scholars behind the GVC/GPN frameworks are quite generous in using both frameworks complementarily, other scholars tend to advocate more or less strictly for using solely one or another approach²⁴. In this thesis, I am using both frameworks in a complementary way.

A common interest of both conceptual framework lies in explaining globalized production and trade as it has shifted since the dawn of a global post-Fordist production regime (Gereffi & Korzeniewicz, 1994). Latest from the 1980s

²⁴ For instance, the introduction of the *Handbook on Global Value Chains* (Ponte et al., 2019a) refers to the GPN framework only with one sentence. Contrasting to that, Coe & Yeung (2015) devote almost a full chapter in their book *Global Production Networks: Theorizing Economic Development in an Interconnected World* to assert how much the GPN framework was inspired by the early chain literature.

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onwards, the spatial disaggregation and increasing internationalization of trade and production was driven by substantial restructurings in major industries. Old and new multinational companies – today typically referred to as lead firms – had shifted their organizational structure from tight vertical integration towards more horizontal and flexible structures (Gereffi, 2001b; Raynolds, 1994). Under this shift, the former model of the multinational firm as vertically occupying all production and marketing steps along a metaphorical chain of economic activities became rapidly replaced by a more horizontal model. Under this model, large parts of a commodity's production and marketing segments became outsourced especially to Southern firms and producers and hence to actors acting formally more independent from the multinational lead firm (Appelbaum et al., 1994; Chen, 1994). Overall, the common interest of both conceptual frameworks is hence far more than a descriptive mapping of the input-output structures and different chain segments of global production and trade. Rather it is about the explanation why multinational lead firms can achieve and maintain substantial power along chains and networks even despite the increasing spatial and functional disaggregation of production and trade. Typically, this common interest is further shared in terms of empirical emphasis. Most of the literature on both frameworks is especially concerned with how Southern production platforms are linked with Northern end markets (Cf. Amanor, 2019; Neilson et al., 2020; Ponte & Sturgeon, 2014; Roy, 2017).

Despite these common interests, substantial differences between both frameworks exist. These differences have their origins in the cognate development of both frameworks. Two decisive phases can be distinguished. The first phase of conceptual development occurred prior to both frameworks and it should be understood as the mutual origin of the GVC and GPN frameworks. In this phase, early chain scholars emphasized the empirical shift towards post-Fordist production and trade with the development of the *Global Commodity Chain* (GCC) framework (Gereffi, 1996, 1999, 2001a, 2001b; Gereffi & Korzeniewicz, 1994). The GCC framework attempted to explain how despite waning degrees of vertical integration, lead firms could nevertheless continue to extract value from externalized production steps. By differentiating different modes of chain

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governance depending on the dominance of a global producer or global buyer, the GCC framework could thereby highlight the rapid rise not only of increasingly disaggregated commodity chains, but also explain the emergence of lead firms which operated increasingly from the buying rather than from the producing end of global production and trade (Gereffi, 1996; Korzeniewicz, 1994). Under this shift from producer-driven towards buyer-driven commodity chains, especially abundant and cheap labour forces in the Global South became increasingly integrated into the global economy. Large producer bases (e.g. farmers, factory workers) have since become a crucial feature of buyer-driven chains in particular and the contemporary global economy more general. While this new global division of labour created, therefore, substantial and highly flexible producer platforms in the South (Gibbon, 2001), especially Northern lead firms could nevertheless maintain control over the same process as they leveraged their exclusive access to Northern end markets, scale economies, technological advantages, and their ownership over global brands and intangible assets (Appelbaum & Gereffi, 1994).

In a second phase, and based on these early conceptualizations and explanations of the post-Fordist production regime, a vibrant community of sociologists and economic geographers gathered around the chain metaphor to proceed the conceptualization of GCCs during several decisive conferences and workshops (Bair, 2009b; Sturgeon, 2009). In this process, the heuristic of a linear chain became however increasingly an object of differentiating rather than unifying scrutiny as two opposing academic factions emerged (Sturgeon, 2009). On one side, scholars insisting on the more linear chain metaphor, moved towards the conceptualization of GVCs and as such towards a stronger focus on the uneven distribution of added value as well as the role of power and governance along value chains in different industrial sectors (Gereffi et al., 2005; Gibbon et al., 2008; Ponte & Sturgeon, 2014). On the other side, scholars problematizing the linearity of the chain metaphor diverted towards a more networked conceptualization by introducing the GPN framework (Coe et al., 2004; Dicken et al., 2001; Henderson et al., 2002). Accordingly, despite common interests and mutual conceptual origins, the early community of chain scholars became henceforth

divided into one community that deepened its focus on the more internal mechanisms and processes of individual chains *vis-à-vis* another community that rather broadened its focus as it aspired to embed and contextualize the workings of a chain into its extra-chain environment (e.g. industrial structure, extra-chain actors such as states or NGOs). These boundaries and emergent disagreements between both frameworks should however neither be overestimated nor underestimated. Overlaps between both frameworks and both academic communities remain plentiful (Cf. Blažek, 2016; Levy, 2008; Neilson et al., 2014)²⁵. Nevertheless, it seems important to be precise what framework is deployed when one or another issue is addressed. In the following, some of the key features of both approaches are summarized.

4.2.1.1 The Global Value Chain Framework

Starting with the conventional understanding of GVCs, a “global value chain” refers to “the full range of activities that firms, farmers and workers carry out to bring a product or service from its conception to its end use, recycling or reuse. These activities include design, production, processing, assembly, distribution, maintenance and repair, disposal/recycling, marketing, finance and consumer services” (Ponte et al., 2019a, p. 1). Importantly, a defining feature of such chain of productive – or value adding – activities is that the different activities for producing and trading a chain’s commodity are usually disaggregated among several firms and several locations. Further, only when one or several lead firms can clearly be identified, one can refer to an actual GVC in its most narrow definition. This is as the existence of lead firms is differentiating value chains from “just markets”. Whereas the orthodox understanding of markets may well entail a chain of transactions between market participants, these do however usually occur on an arms-length basis with no or little power differentials when a respective commodity is produced and traded under market-based conditions. In GVCs however, some form of “explicit coordination” is setting such chain of transactions clearly apart from purely market-based interactions (Ponte et al., 2019b, p.

²⁵ For a more detailed analysis of the genealogy of chain theory see especially Gibbon et al. (2008), Bair (2009), and Ponte et al. (2019a)

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669). Indeed, lead firms typically coordinate large parts of a chain as they operate at the prominent down- or upstream positions of a GVC. This allows them to wield substantial power and governance even over segments of a chain which are not directly integrated into the lead firm (Fold, 2002; Ponte & Sturgeon, 2014). Power differentials along GVCs go, therefore, way beyond the exchange of commodities in a fully transparent and perfect market condition, but they are depending on the inherent characteristics of a commodity as well as on the industrial or sectoral organization around it (Gereffi et al., 2005).

The emergence and some of the major effects of GVCs in the 21st century in this vein can be visualized by a stylized example. Usually referred to as the “smile curve”, Figure 3, compares the Fordist with the post-Fordist production regime and the respective shape of value chains.

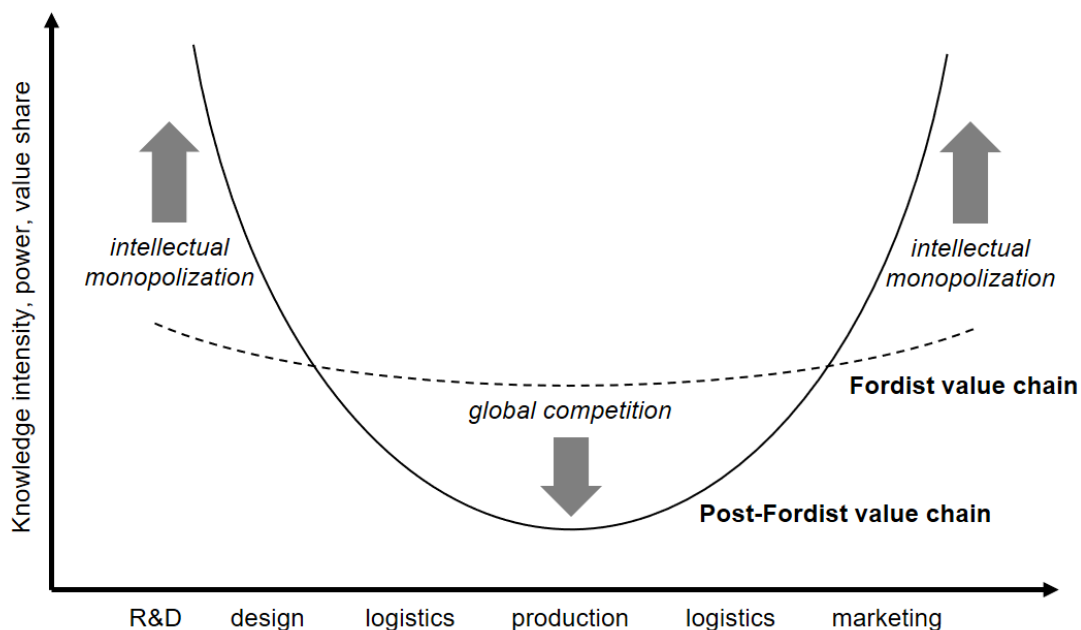


Figure 3: The Smile Curve of GVCs

Graphic based on Shih (1996) and Durand & Milberg (2020)

On the X-axis, a generalized value chain and its sequential segments spanning from R&D (research and development) or also design, over production up to the marketing and branding of a commodity describe the flow of a commodity as well as it describes the upstream (R&D, design), midstream (production) and the

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downstream (marketing and branding) segments of a GVC. On the Y-axis, several indicators and effects relate to the respective value chain segments. First, different degrees of *knowledge intensity* between lead firms and producers are typically assumed (Pietrobelli & Rabellotti, 2011; Saliola & Zanfei, 2009). Whereas the upstream and the downstream of a GVC are typically knowledge intensive and highly confined to a lead firm's intellectual monopolization of intangible assets (e.g. technology, experience, brand-ownership, marketing networks), the mid-segment of a value chain is typically less knowledge- and more labour intensive (Chen et al., 2018; Jaax & Miroudot, 2021). Second, these relative differences in the knowledge intensity of each segment make their externalization or internalization more or less likely which has substantial effects on how *power* is exerted in GVCs (Milberg & Winkler, 2013). Whilst lead firms will typically internalize and monopolize the knowledge and information intensive and more easily scalable and appropriable segments of a value chain, the more tangible and labour intensive production segment is typically out-sourced to places where cheap, abundant and preferably flexible labour is available (usually Southern workforces). What follows from these different rationales of externalization and internalization relative to a chain segment is especially that the steeper the ends and the deeper the mid-segment of a chain, the more likely is a lead firm to occupy a strong position for wielding coercive power along a whole chain. The intellectual monopolization of both chain ends, hence, works in tandem with the global competitive pressures as these are created at the mid-segment between actual and potential producers who either intend to remain or to enter into a value chain (Durand & Milberg, 2020). Third, this inherent power differential has eventually also effect on the distribution of *value* along a chain²⁶. Again, the steeper both ends and the deeper its mid-segment, the more likely is substantial value that is generated by producers appropriable by lead firms and *vice versa* (Chen et al., 2018; Davis et al., 2018; Roy, 2017). Comparing the

²⁶ Despite its explicit reference to “value”, the GVC framework is surprisingly superficial in terms of how value is widely addressed. Usually, little differentiation between use- and exchange value is made as most scholars solely refer to added (exchange) value as it builds up starting from raw material and ending with the retail price. For a more detailed discussion on value in GVCs refer to Roy (2017), Davis et al. (2018) or also Havice & Pickles (2019).

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Fordist with the post-Fordist production regime, quite some evidence indeed suggests a steepening of the general smile curve when the value chains of many industries are compared (Durand & Milberg, 2020; Jaax & Miroudot, 2021). The qualitative changes of the smile curve going hand in hand with the quantitative global spread of value chains speak, therefore, foremost for a growing inequality in the global division of labour as well as in the general distribution of added value with regard how individual chains are internally organized (Bair et al., 2021; Selwyn, 2018; Selwyn & Leyden, 2021). However, it must also be acknowledged that only by the rapid spread of GVCs, and with that the quantitative increase of (Southern) labour being integrated into GVCs, substantial socio-economic upgrading experiences in many regions can today be explained (Giuliani et al., 2005; Humphrey & Schmitz, 2002; Lee et al., 2011; Whitfield et al., 2020).

The crucial understanding of GVCs as being characteristic for a spatial and functional disaggregation and at the same time as being strongly shaped by inherent inequality depending on the power of a chain's lead firm(s) *vis-à-vis* its subordinated chain actors (e.g. producers, suppliers, intermediaries) is perhaps the most fundamental explanation for why many scholars insist on maintaining a tight focus on the linear chain metaphor. Not at least due to its Marxist inspired origins dating back way before the GCC framework (Hopkins & Wallerstein, 1977, 1986), the heuristic of a chain continues to provide a productive way for GVC scholars to dialectically address and assess global inequalities along – and sometimes due to – the spread of GVCs (Kvangraven, 2021; Selwyn, 2016, 2018; Selwyn & Leyden, 2021).

4.2.1.2 The Global Production Networks Framework

Continuing with the cognate and competing GPN framework, a GPN is foremost defined as “the nexus of interconnected functions and operations through which goods and services are produced, distributed and consumed” (Henderson et al., 2002, p. 443). Importantly, the GPN framework has been developed in two major iterations. These are usually referred to as *GPN 1.0* and *GPN 2.0* (Coe & Yeung, 2015, 2019; Henderson et al., 2002). Adding to debates on the internal and linear

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workings of GCC's, both iterations embrace especially the networked nature of intra, inter, as well as extra-firm actors as these are directly or indirectly involved in global production and trade.

GPN 1.0 emerged in the early 2000s and was not only inspired by GCC, but also by Actor–Network Theory (coming from Sociology), and the Varieties of Capitalism literature (coming from Political Economy) (Cf. Coe & Yeung, 2015, p. 13ff). A major motivation among scholars from the so-called “Manchester School” was to use the GPN framework to reterritorialize the rather relational and increasingly sectoral GCC approach by reifying the geographical implications of global production and trade (Henderson et al., 2002). Adding to the analytical categories of *value* and *power* which had already been established with the GCC and latest the GVC framework, the GPN 1.0 literature emphasized, therefore, additionally the social and territorial *embeddedness* of a GPN.

GPN 2.0 became further defined by Coe & Yeung's (2015) seminal book *Global Production Networks: Theorizing Economic Development in an Interconnected World*. Acknowledging that the earlier iteration of GPN 1.0 remained overtly descriptive and under-theorized, Coe & Yeung promote GPN 2.0 for its “enhanced capacity for *causal* explanation of the links between global production network configurations and uneven territorial development within the global economy” (Coe & Yeung, 2019, p. 777). To do so, the second iteration of the framework advances foremost deliberately with a more distinct definition of a GPN compared to its earlier iteration. Here, a GPN is defined “as an organizational arrangement, comprising interconnected economic and non-economic actors, coordinated by a global lead firm, and producing goods or services across multiple geographical locations for worldwide markets” (Coe & Yeung, 2015, p. 2f.). This definition is distinct in so far that it asserts the GPN framework's commitment to two major foci. First, a focus on *actors* and especially on lead firms, aims at explaining the rationales, decisions and practices that constitute the dynamic organization of a GPN. Quite similar to the defining feature of GVCs, the presence of a lead firm as the most prominent actor in a GPN is hence seen as the central and necessary prerequisite for an actual “GPN problem” to

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exist (Cf. Yeung, 2020). Second, a focus on *multiple locations* and how these are bound together by the economic relations of GPN actors asserts the role of the territorial embedding and the territorial footprint of any GPN (Coe & Yeung, 2015, p. 2). Taken together, Coe & Yeung claim that these two distinct foci – actors and multiple locations – set GPN 2.0 even further apart from the GVC framework. Rather than focusing on a particular commodity (as in GCC) or the relational structure of value chains in different industries (as in GVC), the GPN framework claims to provide a theoretically-embedded, mid-range heuristic for explaining dynamic patterns of uneven (regional) development with a far more territorial emphasis (ibid, p. 2).

4.2.1.3 General Application of both Frameworks in the Thesis

The conceptual commonalities and differences of the GVC and the GPN framework highlight two issues which are important for this thesis: *First*, there are outspoken differences between both frameworks in terms of how the effects and ramifications of today's globalized production and trade can be addressed. In order to avoid conceptual conflation between both frameworks, it is important to be precise what framework is used depending on the research problem addressed. This explains why the individual articles of this thesis deploy both frameworks depending on their respective research problem. On the one hand, the GVC framework has its strengths in an arguably narrower analysis of global production and trade along a distinct commodity or industry as it puts emphasis on how a commodity moves from one actor and one place to another. This is why *thesis article II and III* are deliberately leaning more towards the GVC framework in their attempt to explain the emergent intra-chain linkages between smallholder farmers, large-scale commercial farms and global lead firms. On the other hand, the GPN framework excels particularly in explaining why lead firms strategically assemble their territorial footprint to quite literally “touch ground” in one or another regional setting (Cf. Bridge & Bradshaw, 2017; Fuller & Phelps, 2017). Further, it raises to some degree the agency as well as the limitations of regions in their attempts to beneficially integrate into a GPN when they aspire to reap some of the benefits of global integration (Cf. Breul et al., 2018;

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Dawley et al., 2019; MacKinnon et al., 2019). This is why thesis article I is particularly concerned with the GPN framework. Here, the GPN framework helps to explain how SAGCOT served as a tool of soft power for a process by which the Tanzanian market region became effectively integrated into the GPN of a global lead firm. Considering these conceptually different foci and strengths in addressing a respective research problem is hence the first conceptual issue which is important for this thesis.

Second, another issue for this thesis refers to the commonalities between both frameworks. Sharing the common interest of explaining rather than just describing contemporary global production and trade, both frameworks foremost build upon mid-range heuristics or even metaphors (chain and network) to create explanatory potential in their analysis. Such use of metaphors is a common approach presented by the critical realist methods of abduction and retroduction (Archer et al., 2013; Bhaskar, 2013). For critical realists, metaphors can serve as intelligible ways of theorizing and describing the otherwise intransitive dimension of reality – or in the case of the GVC and GPN frameworks: the generative mechanisms that affect global production and trade. Especially scholars leaning more towards the GPN framework have repetitively raised this critical realist underpinning of both frameworks (Hess, 2008; Yeung, 2019a, 2019b; Yeung, 1997). In their introduction of GPN 2.0, Coe and Yeung (2015, p. 116) state accordingly:

“Our approach to theory development is based on a critical realist epistemology that seeks to uncover the necessary and causal mechanisms shaping empirically observable events or patterns such as global production networks. Context and contingency matter in this approach to theory because they provide the relevant condition(s) in which these mechanisms can be efficacious.”

The following sub-chapter will, therefore, discuss what generative mechanisms are typically postulated in the GVC/GPN literature and how these relate to the thesis articles.

4.2.2 Generative Mechanisms and their Effects in GVCs and GPNs

As stated already, both frameworks aim to provide more than a descriptive account on input-output structures, value addition and capture, or more broadly regional development effects. Rather, by maintaining a claim of explanatory power, the GVC and the GPN frameworks move clearly beyond the purely transitive dimension of global production and trade as both frameworks suggest several generative mechanisms, which are mostly intransitive and which can help to explain the dynamic effects and outcomes of GVCs and GPNs alike.

4.2.2.1 Generative Mechanisms in Global Value Chains

Again starting with the GVC framework, perhaps the most fundamental generative mechanisms have been postulated by Gereffi et al. (2005) in their explanation of different governance patterns and outcomes of chain integration in GVCs. By abducting – or theoretically re-describing – the spread of global production and trade with the help of transaction cost theory, Gereffi et al. can retroductively identify and describe two major generative mechanisms which explain not only why multinational firms opted for internalizing or externalizing certain chain activities, but also how even in cases of externalization varying degrees of governance could be maintained. Both relates strongly to the smile curve of value chains.

The first mechanism postulated by this process of retroduction refers to a two-fold generative mechanism which is inherent to the commodity of a respective GVC. Namely, the *complexity* of information and knowledge transfers as well as the extent to which this information and knowledge can be *codified* in order to produce and trade the commodity of interest explain varying possibilities that are inherent to different commodities to be produced and traded in more vertical or more horizontal fashion. Take for instance a very basic commodity such as maize. Maize is a typical staple commodity with relatively little knowledge intensity in terms of its production and marketing methods and it is further easily standardized. It is a highly undifferentiated commodity. This implies that it can be reasonably produced and traded by manifold and highly disaggregated actors

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who consequentially operate along a barely governed, market-driven value chain. Under such conditions, the quasi-market character of a value chain will prevent a lead firm from exerting governance unless it operates under natural monopoly conditions. On the contrary, a more sophisticated commodity, such as a horticultural crop (e.g. fresh beans, avocado) entails a much higher degree of knowledge intensity as usually high process and product standards or also the necessity of proper branding demand for far more sophisticated and differentiated production and marketing practices (Dannenberg & Nduru, 2013; Evers et al., 2014; Ouma, 2010; Whitfield et al., 2020). An inherently higher knowledge and information complexity involved as well as more expansive requirements of codification of a commodity can hence imply that its production and trade is more likely to occur in more vertical forms of organization. This must however not imply that lead firms internalize the whole production and marketing process. Rather, lead firms will seek for methods to alleviate the complexity of information and knowledge required or they will make available new means of codification in order to allow them to externalize the labour-intensive production segment²⁷. More sophisticated commodities are hence characteristic for an inherent mechanism in GVCs which creates the possibility to make production and trade to occur under stricter modes of chain governance. Effectively, this can especially give more power to the side of lead firms *vis-à-vis* sub-ordinated chain actors (Lee et al., 2012; Nadvi, 2008; Ponte & Gibbon, 2005).

A second and interrelated mechanism postulated by Gereffi et al. (2005) is not inherent to the produced and traded commodity of an individual value chain. Rather it is inherent to the *capabilities* of actual and potential producers or suppliers in relation to the requirements described by the commodity (ibid, p. 5). Take again the example of value chains for maize *vis-à-vis* horticultural commodities. Whereas farmers may have the capabilities and experience of producing maize in the required quality, the cultivation of horticultural crops that comply with the strict demands of a more critical customer base, are demanding for

²⁷ See for instance the rise of digital farming tools among Southern farmers (Hartmann et al., 2021b; Krone & Dannenberg, 2017).

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much higher capabilities at the supply base. The more adaptive to the inherent knowledge and information requirements of a chain's commodity, the more likely can farmers integrate into a GVC and the more likely can they wield some degree of bargaining power regarding their terms of integration not only in face of a lead firm, but just as well in competition with other potential producers (Barrientos et al., 2011; Barrientos et al., 2015; Rikap, 2018).

Taken together, Gereffi et al. (2005) have hence postulated two major generative mechanisms which can indeed be understood as necessary conditions for different governance types in GVCs. Depending on their combination (complexity, codification, capabilities), the smile curve of value chain is more or less steep and different types of governance are possible (e.g. market, modular, relational, captive, hierarchical). Approaching the GVC framework from a critical realist standpoint, especially the nature of the commodity (addressed in thesis article III) as well as the nature of the producer base (addressed in thesis article II & III) bare specific attention to understand their workings as generative mechanisms and their varying effects on power and value capture.

4.2.2.2 Generative Mechanisms in Global Production Networks

The GPN framework does just as well postulate some major generative mechanisms to explain the dynamic structures and outcomes of GPNs. Reifying the two-fold focus of GPN 2.0 on actors and multiple locations in a GPN, a first set of generative mechanisms is inherent to the industrial positioning or competitive dynamics under which a GPN's lead firm operates (Coe & Yeung, 2015; Yeung & Coe, 2015). A second generative mechanism is further inherent to the availability and transformability of a region – or more precise: a region's assets (Yeung, 2015, 2016).

On the GPN actor dimension, the competitive nature of any industry contributes greatly to the rationales, decisions and practices in terms of how lead firms dynamically organize their GPN. The competitive dynamics nudging a GPN into one direction or another can be further operationalized by three mechanisms which are inherent to the networked, industrial positioning of any GPN (Coe &

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Yeung, 2015, p. 81ff; Yeung & Coe, 2015, p. 34ff). First, the *cost-capability ratio* of a GPN resonates strongly with the fundamental abductions from transaction cost theory in the GVC framework. Relative to industrial competitors, different cost-capability ratios in the production and trade of a commodity affect how a lead firm and even GPN suppliers are competitively positioned. GPN actors maintaining a low cost-capability ratio through the combination of low costs with high capabilities tend to enjoy the highest competitiveness. Lead firms may then take the position of a so-called industrial leader as they can basically drive whole industries in on or another direction. Vice versa, the higher – and worse – the cost-capability ratio of a lead firm, the more unlikely is its ability to drive and shape an industry. Even its long-term survival is at stake. The slightest changes in the cost-capability ratio of a GPN can hence dynamically affect its industrial competitiveness. Second, the *market imperative* of a GPN refers in the widest sense to the capitalist pressure of constant market expansion. Yeung & Coe (2015, p. 37) contend in this vein, that any GPN is embedded into the constant creation and re-creation of market structures. They highlight that markets are not simply out there, but GPN actors (producers, lead firms) as well as customers are constantly re-configuring markets and with that also the market imperative of GPNs²⁸. On the one hand, GPN actors are necessarily seeking to develop and sustain their market reach and on the long term, they are oriented towards the aim of market domination in order to capture as much value as possible (Rikap, 2021; Selwyn & Leyden, 2021). On the other hand, changing customer pressures in form of new preferences, standards, and even whole new customer groups (e.g. Southern end markets) are responsible for a constant reconfiguration of market demands (Horner & Nadvi, 2018; Horner et al., 2018). GPN actors may hence operate under quite different market imperatives not at least in relation to their respective cost-capability ratio. A high market imperative typically applies when a lead firm operates under strong pressures to identify and realize new organizational, technological or spatial fixes as means of fixing or maintaining its cost-capability ratio (Coe & Yeung, 2015, p. 184). A low market

²⁸ See also the marketization debate among economic geographers to which Coe & Yeung make specific reference (Berndt & Boeckler, 2009; Berndt & Wirth, 2018; Ouma et al., 2013).

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imperative can on the contrary be explained by little incentives to incur the risks of further market expansion or also by lack of liquidity to do so. The market imperative is hence a generative mechanism that is inherent to the complex and fluctuating entity described by GPN actors and their networked relation to their global customer bases. Third and last, the *financial discipline* of a GPN can strongly affect its rationales and strategic organization. Due to the widespread process of financialization among global lead firms, contemporary lead firms are no longer incentivized to solely focus on their “core competencies” of optimizing their cost-capability ratio in tandem with maintaining a high market imperative. Rather, they must increasingly adhere and comply also with the financial discipline which emanates especially from a lead firm’s actual and potential investors and shareholders (Coe & Yeung, 2015, p. 104ff; Purcell, 2018; Yeung & Coe, 2015, p. 39f.).

Whereas aforementioned three generative mechanisms affect the industrial competitiveness as it is inherent to GPN actors and their industrial positioning, a second – to some extent antagonistic – generative mechanisms is typically postulated to be inherent to regions and their regional assets as these *are or aspire to be* integrated into the value chains of a GPN. Here, especially the framework of Strategic Coupling as it had already been indicated in the earlier iteration of GPN 1.0 (Coe et al., 2004; Dicken et al., 2001; Dicken & Malmberg, 2001), but more thoroughly theorized in GPN 2.0 (Coe & Yeung, 2015; Yeung, 2015, 2016) has gained popularity for explaining the territorial impacts when GPNs couple with the regional assets of multiple locations. Generally, Strategic Coupling emphasizes with what outcomes regions and their regional assets become incorporated into GPNs. Yeung (2015, p. 5) foremost define Strategic Coupling thereby as a *process* “through which actors in regional economies co-ordinate, mediate, and arbitrage strategic interests between local actors and their counterparts in global production networks”. However, Yeung (2019a) also contends that Strategic Coupling may just as well be understood as a *mechanism* creating the possibility for regions to yield regional developmental effects when a GPN “touches ground”, or couples, with a regional economy under preferential coupling conditions. One can think of Strategic Coupling, therefore, also as a match-making

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process which is driven by the bargaining and negotiation of regional institutions (governments, NGOs, etc.) *vis-à-vis* GPN actors (especially lead firms). These two actor groups compete over the terms of integration in order to align the strategic needs of a GPN with the availability and transformability of regional assets (e.g. the labour base, resource availability, connectivity) (See Figure 4).

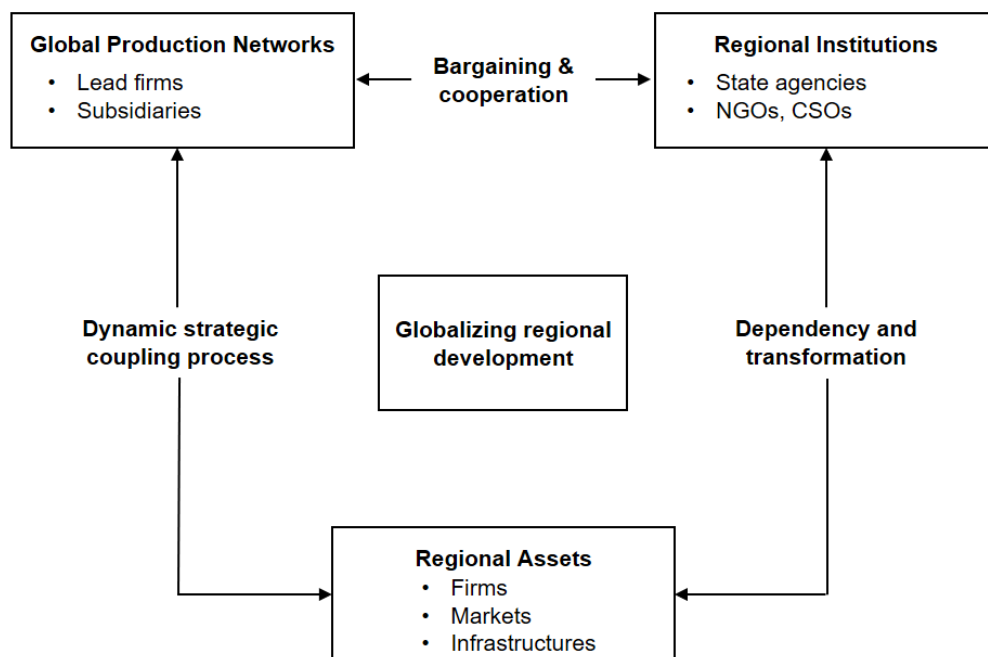


Figure 4: Strategic Coupling between GPNs and regions

Graphic based on Yeung (2015).

Quite similar to the major concerns about power in the GVC framework, also Strategic Coupling is hence a fundamental mechanism which involves agency and power. However, rather than the stark focus on power within a chain; or typically power between producers and lead firms, the GPN/Strategic Coupling framework asserts its commitment to understanding the effects on multiple locations by putting far more analytical emphasis on the agency and power of regions – or more precisely: regional institutions. For GPN scholars, any coupling with a GPN refers therefore especially to the widespread reality of a “globalizing regional development” (Coe & Hess, 2010; Coe et al., 2004). According to this notion of a globalizing regional development, the fate of regions is after all

inevitably dependent on how said region positions itself *vis-à-vis* the global economy or also GPNs.

Both frameworks, GPN and GVC, hence share a general philosophical underlabouring which indeed starkly resonates with some of the major critical realist assumptions. Remarkably, this is not only articulated by the commonalities and differences of both frameworks, but just as well by the pre-dominant methodologies deployed by GVC and GPN scholars alike: Both academic factions are outspokenly oriented towards using qualitative case studies in their analysis of global production and trade.

4.3 Linking Spatial Imaginaries with the GVC/GPN Frameworks

As this thesis aims at developing an economic geography of future-making by bringing together literature from CPE and Economic Geography, this section focusses on clarifying some of my conceptual propositions. These propositions go beyond the rather selective use of frameworks in the individual thesis articles as they are more aligned with the two general research objectives of this thesis. Hence, I will establish how the CPE literature contributes to explaining what generative mechanisms were underpinning SAGCOT's mobilization as well as how these have affected the organization of agro-industrial value chains in Tanzania.

4.3.1 Conceptualizing the Mechanisms of SAGCOT's Mobilization

In order to respond to the first thesis objective (mechanisms of SAGCOT's mobilization), this thesis' framework is directly aligned with the aforementioned introduction of economic imaginaries in general and spatial imaginaries in particular. After all, and just as it is assumed in the CPE literature on economic imaginaries, SAGCOT emerged from a situation of crisis. Driven by, on the one side, the infrastructural push, but especially, on the other side, the looming African food crisis which became sensationalized latest with the 2007/2008 Triple-F crisis (finance, fuel, food), SAGCOT as well as other development corridors along the East African seaboard provided the perfect model for a new and

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disruptive sense- and meaning making as well as for realizing several pressing spatio-temporal fixes of over-accumulated capital. The general semiosis of development corridors allured with grand-scale solutions to ongoing and dawning crises as well as with establishing new imaginaries about Africa's role in the global economy.

But what can CPE contribute to my aim of understanding the mechanisms of SAGCOT's mobilization in relation to future-making precisely? Belfrage & Hauf (2016, p. 6) give perhaps the most direct response to this as they indicate the role of (economic) imaginaries for future-making as follows:

“While the semiotic is of particular importance in relatively open-ended struggles in the moment of variation, the future tends to close as structural tendencies compel capitalism's reproduction through the selection of imaginaries.”

Hence, rather than understanding imaginaries as solely opening – or *making* – future, the CPE understanding of imaginaries is just as well concerned with how future is *unmade* – or in my and others' words: *emptied* (Adam & Groves, 2007; Groves, 2017). This understanding leads me directly to how the general framework of economic imaginaries inspires the use of the spatial imaginaries framework as I have interpreted and applied it in the *thesis' first article*. Directly referring to Jessop (2012, p. 17), I have defined spatial imaginaries as follows:

„Spatial imaginaries create a simplified, necessarily selective ‘mental map’ of a supercomplex reality. Rather than representing an absolute reality, spatial imaginaries help to construct the reality that they purport to a map. This abstracted reality may then guide present and future (non)-decisions and (in)actions in a world pregnant with possibilities“ (Tups & Dannenberg, 2021, p. 24).

This definition foremost affirms CPE's general notion of economic imaginaries. Further, I contend that it helps to conceptualize future-making endeavors such as the development corridor SAGCOT for three reasons.

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Firstly, it makes distinct reference to *spatiality* due to the creation of a simplified and highly selective mental map of an otherwise supercomplex reality. Many others have already discussed this fuzzy, selective and seemingly arbitrary use of cartographic design when large-scale projects are promoted (Cf. Follmann, 2015; Mbembe, 2000; Nathan et al., 2018). The case of SAGCOT coincides starkly with this discussion: arbitrary mapping, a radical neglect of existing structure (administrative boundaries, ecosystems, cultural livelihoods etc.) and a fuzzy design have been integral logics of how SAGCOT established not only its geographical reference and its bordered outsides and insides, but as such also how SAGCOT made a subtle territorial claim over large parts of rural Tanzania. Additionally, also the arcane and fast-tracked origins of SAGCOT from, on the one hand, the multinational lead firm YARA aspiring to integrate the Tanzanian fertilizer market into its production network, and on the other hand, a group of London-based consultants who became later highly invested in some major SAGCOT projects (Palmer, 2010), sheds light on how not only geographical space, but also networked relationships among dominant SAGCOT stakeholders in and beyond Tanzania constituted eventually a networked arena of actors which was rather exclusive and designed to the benefit of few (see thesis article I). Both logics – the territorial and the networked boundary making – have been integral to mobilizing SAGCOT and they raise thereby conceptually how spatial imaginaries *claim space* in territorial and networked form.

Secondly, the definition of spatial imaginaries further accentuates this thesis' concern with *temporality*. It does so as it makes just as well reference to the ability to guide present *and* future by evoking decisions and non-decisions as well as actions and non-actions in a world filled with transitive and intransitive possibilities. Many others have referred to this semiotic and extra-semiotic way of approaching especially the unknowable future already (Oomen et al., 2021; Tutton, 2017). Usually narrow (economic) imaginaries, emerging from a dialectic tension between utopia and dystopia are widespread techniques not only of pragmatically reducing the future from its complexity, but just as well for quite literally “selling the future” to others (Cf. Beckert, 2016; Berg Johansen & De Cock, 2018; Colonomos, 2016; Müller-Mahn, 2020). The case of SAGCOT also

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coincides with this discussion: a clear neglect of existing structure (extra-semiosis), but especially a semiotic representation of the inevitable and necessarily exogenous modernization and globalization of Tanzania's agricultural system at all costs, muted foremost its competing imaginaries. Explicitly discussed (e.g. alternative agricultural paradigms, futures "beyond agriculture" such as industrialization), as well as un-discussed (e.g. the endogenous potential of Tanzanian smallholders and rural people in general) alternative imaginaries became thereby invisible as the dominant imaginary of rapid modernization and globalization under heavy outside intervention was clearly privileged. Therefore, the muting of competing and indeed compossible futures *emptied* the future through an alternative sense- and meaning-making.

Thirdly, above definition further raises more implicitly the thesis' concern with *power*. Whoever designs or controls a spatial imaginary that is successfully communicated and institutionalized in a regional setting (see Sum & Jessop's phase of retention), may after all forge substantial power over space and time. Importantly, and again embedded into a large strand of literature on the power of spatial metaphors in general (Kelly, 2001; Zimmerbauer & Paasi, 2019) and spatial imaginaries in particular (Allen, 2003; Harrison & Gu, 2021; Mbembe, 2000; Wiig & Silver, 2019), the power becoming available when spatial imaginaries are successfully mobilized is usually quite subtle. Although spatial imaginaries indeed have a history of enabling and stabilizing coercive force over space for instance during colonialism (Cf. Anderson, 2006), their role under contemporary capitalism is usually far more silent and yet pervasive. Today, spatial imaginaries have particularly enabled more subtle modes of power in form of persuasion and consent, or also a general agenda setting (Lukes, 2005). Again, also the case of SAGCOT coincides with this final notion related to spatial imaginaries: all of my three thesis articles make distinct reference to why and what forms of power SAGCOT enabled for different agricultural actors. Further, a substantial body of literature has already added similar perspectives with direct reference to SAGCOT (Bergius et al., 2020; Bergius et al., 2018; Bergius & Buseth, 2019; Blache, 2018; Buseth, 2017; Maganga et al., 2016; Martiniello & Nyamsenda,

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2018; Mbilinyi, 2012; Mbunda, 2016; Pissarskoi et al., 2020; Stein & Kalina, 2019; Sulle, 2016a, 2020; Sulle & Hall, 2013; Talleh Nkobou et al., 2021).

In total, especially this thesis' first research objective is hence operationalized through the understanding of SAGCOT as a spatial imaginary. But how can one understand how emptied future and claimed space have effect on Tanzania's agro-industrial value chain?

4.3.2 Conceptualizing SAGCOT's Effects on agro-industrial GVCs/GPNs

In order to explain the effects of SAGCOT's mobilization, I refer deliberately to both cognate and competing frameworks of GVCs and GPNs. I do so as I contend that above conceptualization of SAGCOT as a spatial imaginary leads to two major conceptual implications for GVCs/GPNs.

Firstly, and resonating more with the GPN framework, especially SAGCOT's semiotic characteristic can be generally understood as having an effect for re-scrambling power relations *around* the generalized agro-industrial value chain. In *thesis article I*, my analysis of the coupling between the fertilizer GPN and the Tanzanian fertilizer market shows how SAGCOT had an encapsulating effect on the coupling process (see also figure 5). Despite marginal and unfeasible conditions on the *structural* or *extra-semiotic dimension* between YARA's GPN and the Tanzanian market region, SAGCOT served as an important spatial and temporal signifier which eventually functioned through its *semiotic dimension* as it emptied future and claimed space. This emerged as a necessary condition to allow YARA to invest in an otherwise risky market expansion. Eventually, SAGCOT affected the *power dimension*, therefore, in so far that it allowed the involved coupling actors to proactively transform the coupling conditions to better meet the strategic needs of YARA's GPN and – *vice versa* – the Tanzanian market region. Further, the semiotic dimension of SAGCOT, quickly turned into extra-semiotic transformations as it also allowed to gather substantial public financial (donors) and institutional (Tanzanian state). This support would not have been available to this extent without the existence of the SAGCOT imaginary.

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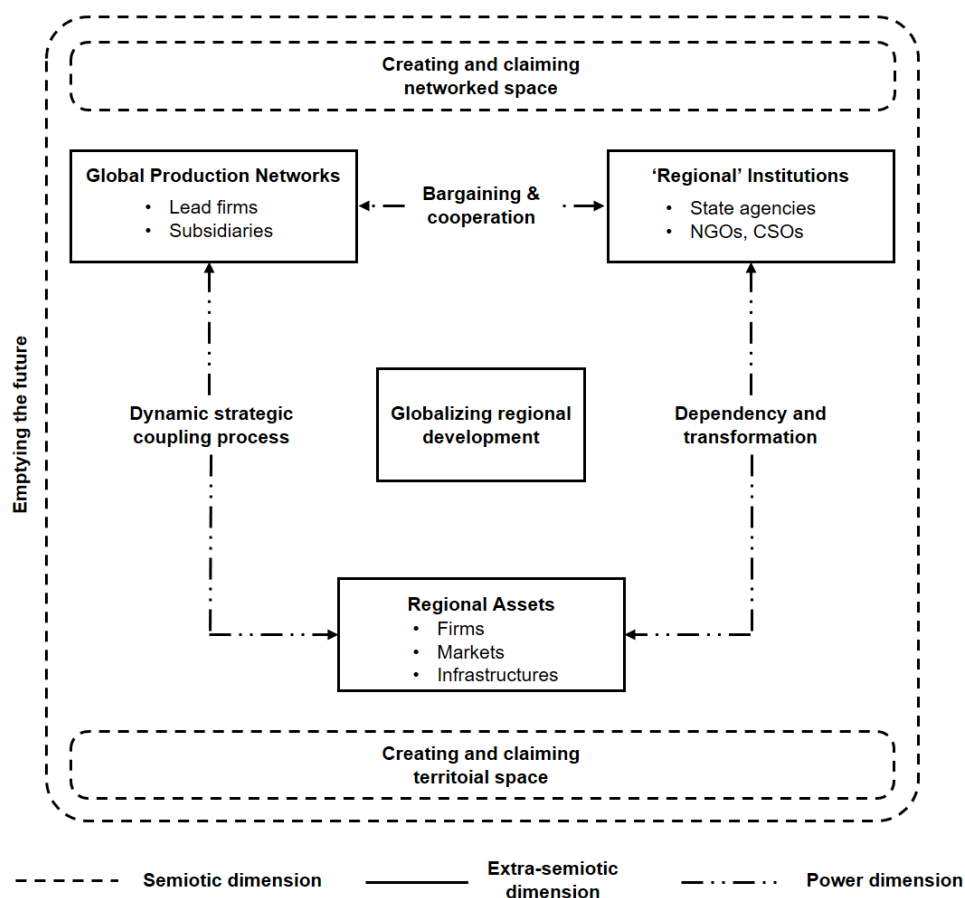


Figure 5: Spatial imaginaries and their effects on power around value chains
Based on thesis article I.

Resonating with this, also *thesis article II* shows how SAGCOT constituted a crucial territorial setting under which unprecedented spatialities of financialization among large-scale farms and smallholder farmers could be justified and maintained. Although the translation of respective investment chains between global investors and large-scale farms could only translate into fragile value chain linkages between large-scale farms and smallholder farmers, SAGCOT clearly made a substantial difference not only to the making of these linkages, but even to the initial investment decision as a whole. These case studies of emergent and scrambled power(s) around Tanzania’s agro-industrial value chain highlight thereby that the distinct and narrow spatio-temporality created by SAGCOT indeed made a difference as it allured to some degree with the prospects of creating an “enabling environment” especially in the time to come.

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Eventually, this novel environment occurred favourable for realizing spatio-temporal fixes among a handful of global agribusiness actors as these saw potential to capitalize on Tanzania’s generalized agro-industrial value chain.

Secondly, and more aligned with the GVC framework, SAGCOT’s extra-semiotic characteristics can also be conceptualized for their effects on power *within* the generalized agro-industrial value chain. These concerns have already partly been raised by Dannenberg et al. (2018) and their stylized model of development corridors in relation to value chains (see Figure 6). Their model is proposing a generalized value chain that spatially extends along, but also beyond a corridor region. Within the corridor region, more basic tasks (production, logistics, processing, export-aggregation) are assumed to occur. For the outside of the corridor, global lead firms operating from the upstream (supplying) and downstream (buying) end of the value chain are operating. According to the model, the established corridor and its geographical and networked insides and outsides, but even the semiotic sense- and meaning making (my emphasis) may eventually direct how the value chain is organized and transformed especially as new lead firms are coupling with the corridor territory.

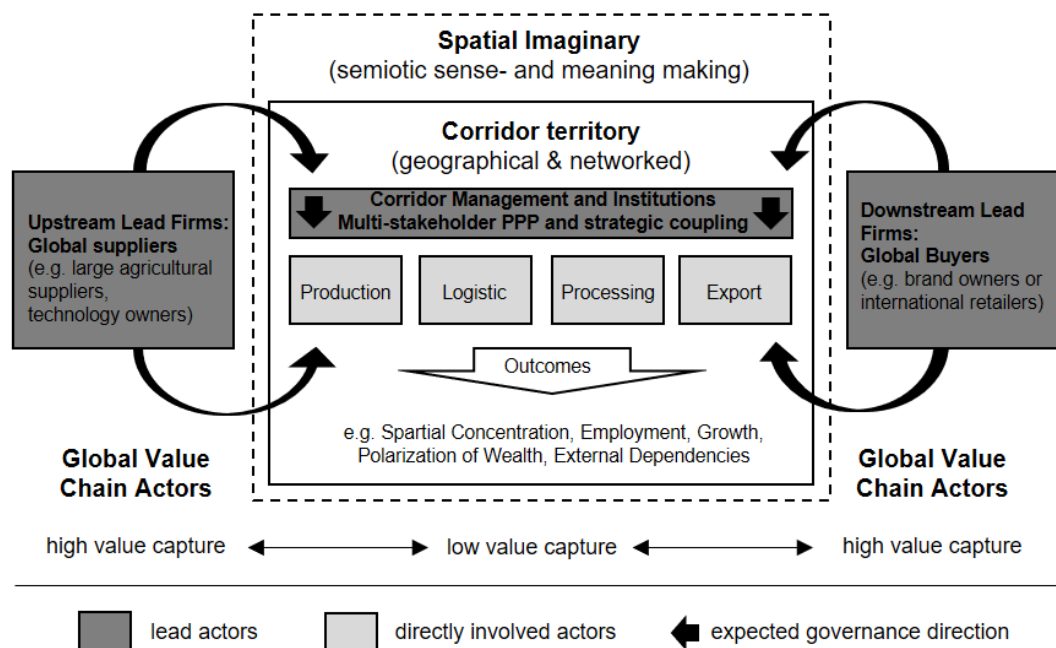


Figure 6: Stylized model of development corridors and effects on value chains
Own and partly changed graphic based on Dannenberg et al. (2018)

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This model is hence already strongly underpinned by concerns over the potential flattening or steepening of the general smile curve of value chains that are affected by a corridor (see also the outcomes in the model). In this thesis, I refer to the resultant concern of how the smile curve has changed, therefore, with the two research questions of the second thesis objective. Firstly, by emphasizing corridor-related dynamics on the chain integration of Tanzanian farmers through global buyers, a potential steepening or flattening at between the downstream and midstream segment of the value chain can be analysed and explained (see thesis article II). On the reversal, an emphasis on the corridor-related dynamics on the integration of Tanzanian farmers into the agro-industrial value chain of global suppliers, can help to explain a potential steepening or flattening between the upstream and the midstream segment of the value chain (see thesis article III). Taken together, these analytical entry points (downstream to midstream segment *vis-à-vis* upstream to midstream) can, therefore, help to conceptualize the effects of a development corridor – or more generally: a spatial imaginary – by the use of established analytical categories and heuristics from the GVC and the GPN framework.

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This chapter contextualizes the thesis' articles empirically through three subsections. Namely, it firstly introduces the historical and contemporary mobilization of development corridors as tools of territorial development in and beyond Africa. This comparison explains the shifting imperatives, involved actors and practices behind development corridors. Secondly, the chapter summarizes the general imperative, involved actors and practices behind SAGCOT's mobilization in order to add more depth to the thesis articles. Finally, the chapter provides a brief historization of agricultural modernization efforts in Tanzania in order to highlight how SAGCOT was far from a novel approach, but rather an excavating and blending of several Tanzanian experiences from the past.

5.1 Mobilizing Development Corridors: A high Road to Development?

Development corridors are today important territorial tools which allure as “dreamscapes of modernity” (Müller-Mahn, 2020). Their ongoing mobilization in many regions of the Global South goes hand in hand with high hopes for rapid development and a disruptive transformation from past dependencies. Whether corridors can contribute to “getting the territory right” (Schindler & Kanai, 2021) or rather to “getting the territory wrong” (Scholvin, 2021) is oftentimes a normative, ideologically underpinned question which starts latest with the stubborn term “development” (Escobar, 2011). Without claiming one or another, I use this section to provide a general introduction of the return of large-scale infrastructures in general and of development corridors in particular. This helps to historize the shifting imperatives, actor constellations and practices under which development corridors have been and are continued to be mobilized (for a summary see Table 5). Finally, this section will use above contextualization to address the history and state of development corridors in Africa.

5.1.1 Development Corridors as Territorial Tools of Development

The most conventional understanding of development corridors is one of linear concepts or “bundles of infrastructure” that enhance the flow of people, goods and information between multiple economic nodes (Priemus & Zonneveld, 2003; Zoomers & Westen, 2011). This understanding is not new but long established. Indeed, already in 1963, French economist Pierre Pottier (1963) proposed perhaps one of the first cohesive conceptualizations of development corridors.²⁹ Inspired by a burgeoning interest in mobilizing corridors in France, Europe and beyond, Pottier raises two major logics going hand in hand with the mobilization of corridors as spatial tool for economic development.

First, corridors share a *connecting logic* as they resemble “arteries that invigorate economic spaces” (p. 123). For Pottier, these arteries unfold their developmental effect as they imply a “victory over the obstacle of distance” (p. 58). In other words, as transport and communication infrastructures are technically accelerating and hence eradicating distance (Pottier’s words), space and time become effectively compressed. Ultimately, this time-space compression should hence make otherwise impossible economic activity possible and eventually have substantial impact on the economic growth not only along the narrow axis of a corridor, but more diffusely within a “set of regions” along the corridor axis. Pottier states accordingly:

“The function of the axis is therefore to serve as a support for interregional and international exchanges. The axis is not, strictly speaking, a line of transport, it is a region, or a set of regions [...]. It is, moreover, a chain of important locations, human agglomerations: regional capitals or industrial centers located in favorable sites along the axis”³⁰ (Pottier 1963, p. 59)

²⁹ Pottier did not directly refer to the term development corridor. However, he introduces transport axes to be “axes de communication et développement économique” (Pottier, 1963, p. 58ff).

³⁰ Original text in French. Direct quotes have been translated into English.

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For Pottier, the first corridor logic of corridors is hence the increase of connectivity which creates the possibility of regional economic growth. This logic was the major motivation for the French state to orchestrate regional development intervention through corridors shortly after the second world war and it has since become an example for similar approaches elsewhere.

Indeed, up until today, Pottier's first corridor logic is widely justifying the mobilization of corridors as spatial planning instruments all over the world. Aimed at fostering regional development along the hubs and nodes of corridor regions as well as along the axes that connect them (Brand et al., 2017; Scholvin et al., 2019; Whebell, 1969) and also aimed at nudging regions into one or another growth trajectory (Breul et al., 2021; see also thesis article I; Kalvelage et al., 2021), corridors have been explicitly promoted and implemented as spatial tools for steering regional development. The territorial materialization of corridors in more than bundles of infrastructures, but rather in form of "micro-regions" (Söderbaum & Taylor, 2003, p. 1), speaks however also for a second logic which has already been raised in Pottier's initial conceptualization. Rather than just sharing a connecting logic, corridors are just as well sharing a *stratifying logic*. Pottier explains:

„The impossibility of equipping all routes equally, because of infrastructure costs, has been a powerful factor in the specialization and hierarchization of communication routes. The routes with the highest traffic intensity or the greatest economic, political, or strategic utility have generally received the facilities that allow the fastest and least expensive travel. But these facilities have only intensified the traffic on these routes, consolidating and reinforcing their superiority over the others.“ (Pottier, 1963, p. 59)

The stratifying logic proposed by Pottier must hence foremost be understood in a purely geographical sense. As the decision for one or for another corridor region of interest necessarily implies the creation of "territorial insides and outsides" (Amin, 2004, p. 40) or "corridor region" and "corridor non-region", the connecting logic of corridors is not available to every region and it may even

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work on the reversal for the case of corridor non-regions. As any demarcation of a distinct corridor region implies at the same time that it necessarily becomes privileged over its (regional) alternatives, excluded regions may easily “fall behind” and become marginalized in relative as well as in absolute terms³¹. For Pottier, this stratifying logic is hence an important mechanism driving regional inequality rather than just regional growth. He addresses this second logic, therefore, as the “political problem of the axes of development” (ibid, p.131) and states that this political problem usually goes far beyond the corridor region itself, but that it can even have an international or continental political dimensions that needs to be considered when one or another corridor is considered and mobilized (ibid, p.131).

Also the second logic and its political underpinning is indeed a concurrent issue of mobilizing corridors up until today. For instance, more recent literature has especially approached development corridors as political tools that may serve the nation state to affirm and orchestrate state power; or in other words: make the state visible (Bussler, 2019; Lesutis, 2021). This state power becomes not only visible when corridors serve to productively incorporate peripheral or economically marginalized regions into national development agendas (the connecting logic), but it also becomes visible more generally when the mobilization of corridors affirms the territorial foot print of centralized state power *vis-à-vis* more regionally embedded governance regimes (the stratifying logic).

The two logics of corridors as simultaneously *connecting* and *stratifying* are a somewhat useful point of departure to better understand how development corridors have historically been mobilized under varying economic and political conditions. Three major periods following Pottier’s early conceptualization can be broadly distinguished.

³¹ See also the example of the European “Blue Banana” raised in thesis article I.

5.1.1.1 Corridors approaching: The post-war and post-liberation Era

Resonating with both corridor logics described by Pottier, the Western post-war “Golden Age of Capitalism”, but quite similarly the Southern post-liberation era of nation-building epitomize eras during which Keynesian statehood (ca. 1950 – 1970/80³²) supported the strategic mobilization of development corridors as well as large-scale public infrastructures in general (Marglin & Schor, 1991; Ramutsindela, 1999, 2010). Often referred to as an era of “spatial Keynesianism” (Martin and Sunley, 2017; Brenner, 2004), the strongly interventionist welfare states of the post-war/post-liberation era leveraged corridors as territorial tools for a state-led (re-)balancing of uneven economic accumulation processes. Whether it is the *Eurocorridor* program being tightly linked to European Union cohesion politics (Witte et al., 2013), the corridor-based *Spatial Development Initiative* in post-apartheid Southern Africa (Dzumbira et al., 2017; Ramutsindela, 2010; Rogerson, 2001), or the promotion of *Economic Corridors* in the Greater Mekong sub-region (Athukorala & Narayanan, 2018; Oehlers, 2006), these development corridor programs had their roots in the early Keynesian goal of alleviating regional inequalities and typically did so on an intra-national level by the means of integrating otherwise “left-behind” regions (Schindler et al., 2018). Adding to this aim of welfare balance and cohesion, they were further seen as important tools to (re-)build national and trans-national identities and to effectively serve as a showcase and assertion of rather juvenile nation states (e.g. Southern post-liberation states) and state pacts (e.g. the European Communities and later the European Union). As such, they have also been an important means of (re-) consolidating (state) power “at a distance” particularly where a relative autonomy of more regional authorities had reigned beforehand (Agnew, 1998, p. 50).

This motivation of mobilizing corridors in the post-war and post-liberation era justifies, therefore, why development corridors were long practiced and just as

³² This periodization is apparently rather coarse as it has been geographically skewed, but it should suffice here as an indication of some major global political economy trends within which different corridor understandings and prioritizations were and continue to be embedded.

well analyzed in a “New Regionalism”-fashion (Keating, 1998; Storper, 1997). This New Regionalism put a strong focus on the enhancement and analysis of endogenous, regional assets and the question how these assets could be valorized not at least through state-led interventions in form of top-down coercion and new forms of hegemonial territoriality (Cf. Agnew, 1998, p. 55).

5.1.1.2 Corridors retreating: The post-Keynesian Era

Facing the “growing routinization of global network practices” (Amin, 2002, p. 365), and an increasingly “globalizing regional development” (Coe et al., 2004, p. 468), the same understanding of development corridors as being merely an endogenous issue and arguably as an endeavor of state-led intra-regional balancing is however in question latest since the withering of the Keynesian welfare state (Cf. Brenner, 2009; Jessop, 2003).

With the advent of accelerated globalization, post-Fordist production, and not much later the rise of early neoliberalism all around the globe, the Keynesian welfare state became gradually rolled-back in the Global North and more rapidly rolled-back in the Global South. Especially in the South, “regional development” as formerly being planned and executed by a strong and intervening nation state was increasingly unfashionable as many of the large infrastructure investments from the prior era had led to devastating failures (Mold, 2012; Wethal, 2019). In the early post-Keynesian era (starting ~ 1970/1980), the mobilization of corridors or any large-scale infrastructure alike became hence increasingly difficult to justify in political as well as in financial terms. Especially, the so-called “lost decades” under the Washington Consensus (ca. 1980 – 1990/2000) were shaped by a widespread disbelief and roll-back of the nation state, by harsh cuts in public spending, and by a strong faith in replacing state power with the power of free markets (Easterly, 2001; Mold, 2012). This withering of the Keynesian post-liberation welfare state and its replacement with austerity policies under the Washington Consensus ridiculed therefore any attempt of initiating further public-driven and large-scale infrastructure projects for quite some time. Regional planning – and the mobilization of new development corridors – was factually dead (Cf. Schindler & Kanai, 2021; Schindler et al., 2018).

5.1.1.3 Corridors returning: The neoliberal Era

Some of the spatial planning strategies from the post-war Keynesian era have however made a surprising comeback (Nugent, 2018; Schindler & Kanai, 2021). At first glance resembling a “reliving of the 1950s” (Easterly, 2006), long unprecedented commitments of large-scale public spending in infrastructures and mega projects alike are back on the political agenda latest since the turn of the millennia. This comeback diverges however greatly from its primal era with regard to two salient features: the *driving imperative* as well as the *actors and practices* involved.

First, today’s *driving imperative* for the mobilization of corridors implies a shift of spatial planning strategies from a rather inward towards a more outward orientation. In other words, the former understanding of corridors in a New Regionalism-fashion is no more. Rather, the prime corridor function as a territorial tool for balancing and nudging endogenous development in one way or another is today replaced by functions which are far more embedded into the ostensible inevitability to strategically and productively position regions *vis-à-vis* the global economy (Dannenberg et al., 2018; Lesutis, 2020, pp., see also thesis article I). Contemporary corridors circumscribe and affect regions, therefore, increasingly by connecting and transforming regional assets to adhere to the conditions of global economic integration rather than to earlier aims of inter-regional, but usually intra-national cohesion. Transforming – or morphing – regions in such way that they can neatly link to global networks of production and trade, contemporary corridor-making occurs, therefore, under what Schindler & Kanai (2021) identify as the emergent imperative of “getting the territory right”. Under this new imperative, old spatial planning practices are indeed rejuvenated (heavy investments in large-scale infrastructures); albeit with the goal to integrate “resource frontiers, agribusiness and production nodes with logistics networks” (ibid: 9). Importantly, this global re-enchantment with large-scale infrastructures is hence far less propelled by former regional interests such as an endogenous regional balancing or efforts of nation-building, but this time it is particularly driven by the imminent threat of, on the regional side, being excluded

from the global economy and, on the global side, of being inaccessible for the circuits of global capital accumulation³³. In other words – and strongly emphasized in all three thesis articles – large scale infrastructures are today increasingly mobilized under the goal of strategically coupling regions and their regional assets with GPN's which usually occurs through their incorporation into GVC's.

Although emerging latest since the turn of the millennia, this shifting imperative of infrastructural investments has become most apparent under the recent slow-down of globalization. Since the 2007/2008 global financial crisis rising pressures to establish new spatial fixes for over-accumulated capital have led to urgent calls for stabilizing the global economy through the creation of new productive destinations for capital. Today, spatial fixes that make these destinations available are required to ensure capital can be invested productively (Carmody et al., 2021; Ougaard, 2018; Thame, 2021). Quite indicatively for this new and perhaps complementary “global” imperative driving today's mobilization of large-scale infrastructures, the World Bank (2020) devoted substantial parts of its 2020 Annual Report *Trading for Development in the Age of Global Value Chains* to the question how new destinations for capital may be made accessible. Recognizing that a three-decades era of rapid globalization is at a crossroads, the World Bank suggests, therefore, that enabling infrastructure is urgently required to refuel the expansion of global trade and production. In this vein, the report raises the necessity of expanding global trade-oriented infrastructures to globally connect regions that have been so far “left out of the GVC revolution” (World Bank, 2020, p. xi). Whereas the Annual Report is mainly about discursive policy and agenda-setting, the roll-out of the Chinese-led *Belt and Road Initiative* (BRI) epitomizes a similar logic, but here the logic is materially practiced and ongoing at great pace. The BRI is widely understood as a policy that taps into “left out” regions and regional assets through an infrastructural push. Whilst parallelly solidifying China's geopolitical and ideological position, both the *Silk Road Economic Belt* and the *Maritime Silk Road* are thereby functioning as strategic

³³ Economic geographers refer to this new imperative often as giving rise to the challenges of a “globalizing regional development” (Coe et al., 2004) under which the prosperity of regions is necessarily related to how regions integrate into the global economy.

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instruments of extraterritorial rather than endogenous corridor-making which has become foundational for finding new capital outlets for over-accumulated capital in a slowed-down Chinese economy (Flint & Zhu, 2019; Huang, 2016; Zajontz, 2020). Connect and transform: or “getting the territory right” – all in the name of global integration: this is hence the new imperative engrained into the resuscitated corridor strategies of today.

Second, the emergent imperative of infrastructure-led development is further accompanied and just as well driven by a *new stakeholder regime* and *new practices* for the making of large-scale infrastructures (Schindler et al., 2019; Schindler & Kanai, 2021). Whereas the post-war and post-liberation infrastructure boom materialized mainly under bilateral or independent, centralized statecraft, contemporary spatial planning occurs under fundamentally broader actor constellations. After a more gradual state rescaling in the North and a more abrupt rescaling – if not dismantling – in the South (Brenner, 2004; Jessop, 2003), regional planning is no longer dead, but reinvigorated in new shape. Moving beyond “just” nation state power, contemporary regional planning is however organized on multiple scales which are today defined by state and extra-state, but just alike national and extra-national actors (Levitt et al., 2019).

This move beyond the hegemony of state power in the planning and implementing of large-scale infrastructures has also affected the mobilization of contemporary corridors. Today, corridors tend to be mobilized through “extrastatecraft arenas” (Easterling, 2014, p. 15). In these arenas, actor constellations of “overlapping, or nested forms of sovereignty” imply the collision of “domestic and transnational jurisdictions” (ibid), often under the guise of complex and arcane regulatory regimes. Epitomized by the surge of *Public Private Partnerships* (PPPs) and *Multistakeholder Initiatives* (MSIs) around corridors and infrastructures in general (Dannenberg et al., 2018; Levitt et al., 2019), this shift means that the former exclusivity over spatial design and coercive force over infrastructural mobilization is just as well no longer an issue of the nation state. Rather, extra-statecraft arenas have created leeway for parastatal organizations (e.g. World Bank, IMF), global capital (multinational businesses, financial investors),

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and benevolent capitalist actors (philanthropists, donors) to compose what is sometimes referred to as “global growth coalitions” around emergent infrastructures (Wachsmuth, 2017). Hence, the new features of contemporary corridor-making mean to some extent a disembedding of state functions and a move beyond former nation-state territoriality when the imperative of “getting the territory right” is at play (Cf. Sassen, 2013). Territory – or the power to define and claim the geographical insides and outsides of a corridor – is then no longer established and maintained by one dominating actor holding power in a centralized way (the nation state), but rather by subtler and networked modes of multi-scalar governance which usually defy the identification of any dominant stakeholder wielding territorial power. These emergent modes of multi-scalar governance rather than “government” imply also in practice that institutionalized, highly bureaucratic, and legislatively embedded planning statutes must no longer necessarily be the high road of spatial design when corridors and alike are planned and implemented (Cf. Allen & Cochrane, 2007; Harrison & Gu, 2021). On the contrary, the newly emergent, subtler nature of corridor-making seems to unfold under a regime of rather ad-hoc rulemaking and fast policies (Peck, 2002; Swyngedouw, 2005) or even “politics without (official) policy-making” (Jessop, 2016). Soft forms of spatial planning and an embracement of extra-statecraft arenas, have – quite literally – made space not only for domestic elites, but also for global capital and parastatals when corridors are designed and implemented today.

To sum up, contemporary corridor-making has foremost quite some resemblance with its primal and inspirational post-war and post-liberation era of large-scale infrastructure investments (See also Table 5). Some of the inherent corridor features of improving connectivity, (re-)balancing regionally uneven accumulation processes, and generally as operating as spatial development vehicle persist at least at first glance. Yet, under the contemporary infrastructural (re-)turn, the mobilization of development corridors has also been adapted to the new conditions of a globalizing economy. The shifting imperative from a more inward towards a more outward orientation and the new stakeholder complexity involved

suggest that the geographical and economical outcomes of corridors might be of a new quality.

Table 2: Shifting imperatives, actors and practices of corridor-making

	Post-war & post-liberation corridor-making	Contemporary corridor-making
Imperative	<ul style="list-style-type: none"> • Spatial Keynesianism • Regional cohesion • State territoriality & legitimacy 	<ul style="list-style-type: none"> • “Getting the territory right” • Coupling to the global economy • Globalized regional development
Dominant actors	<ul style="list-style-type: none"> • Nation-state(s) • (Sub-)national, regional actors 	<ul style="list-style-type: none"> • Global growth coalitions, stakeholder partnerships • Regional, national, and global actors
Practices	<ul style="list-style-type: none"> • “government” • Territory claimed by hegemonial nation-state • Institutionalized planning practices 	<ul style="list-style-type: none"> • “governance” • Territory claimed by multi-scalar network • Spatial imaginaries & soft planning practices

5.1.2 Development Corridors in Africa

The debate over Africa’s large-scale infrastructures in general and development corridors in particular is typically just as well oriented along above historization of major infrastructural eras; each defined by its respective imperatives, actors and practices involved. In this section I focus on contemporary corridor-making in Africa, but a brief summary of the African experience with trade and development corridors must forego this discussion. After all, quite a number of scholars have convincingly raised the persistent coloniality of the contemporary infrastructure push on the continent (Cf. Aalders, 2020; Enns & Bersaglio, 2019; Müller-Mahn, 2020; Stenmanns, 2020; Wethal, 2019).

5.1.2.1 The historical Spread of Corridors in Africa

Already in *pre-colonial* Africa, trade routes such as Trans-Saharan North-South route or also various routes crossing African Savannah landscapes such as for instance the Bagamoyo-Lake Tanganyika route (today Tanzania) or also the Zambezi corridor from Northern Namibia towards the east (Zambia, Zimbabwe, Mozambique) have long predated their European “discovery” and exploitation. In fact, these trade routes were used by African and Arab merchants for the trade

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of rare commodities or also slaves across the whole continent as well as for temporary and permanent modes of migration. Griffiths (1994, p. 166) reminds, therefore, that when the history of African cross-regional infrastructures are considered: “pre-colonial Africa was not an empty continent”.

In *colonial* Africa, and hence during its exploration and exploitation under the Northern quest of “civilizing” the African peripheries, the very same trade and migration routes became fundamentally re-interpreted and sometimes remade in most material terms (Maddox, 1998). As Western pioneers such as David Livingstone mapped, documented and claimed them through their explorations starting from colonial ports and reaching deep into the African interior, Africa’s old trade routes became widely known as “lines of penetration” for emergent colonial interests (Griffiths, 1994, p. 49, see also Figure 7). Some first linear infrastructures were established and usually aligned with the interests in precious minerals (e.g. diamonds under the South African diamond rush) as well as with the more general aim of maintaining “spheres of influence” through a pattern of factually long and narrow colonies (ibid, p. 51). On a critical note, it must be raised here that much of this early interest in the new lines of penetration shares a surprising resemblance at least symbolically with some features of today’s imperative of “getting the territory right”. For instance, while Livingstone noted during his exploration of the Zambezi corridor, that this route may be “God’s highway to the heart of Africa” (ibid, p. 45), the African Development Bank (AfDB) promoted its investments into Tanzanian seaports and corridors only recently as the making of a “Gateway to Growth” (AfDB, 2014). Already in colonial Africa, corridors hence served a distinctively outwards oriented function as they allowed colonial regimes to access and maintain new sites of raw material and labour extraction as well as of control. The major difference to today remains however that this outwards-driven motivation occurred under the brutality and inhumanity of colonial force and coercion rather than today’s clearly market-driven conviction and persuasion.

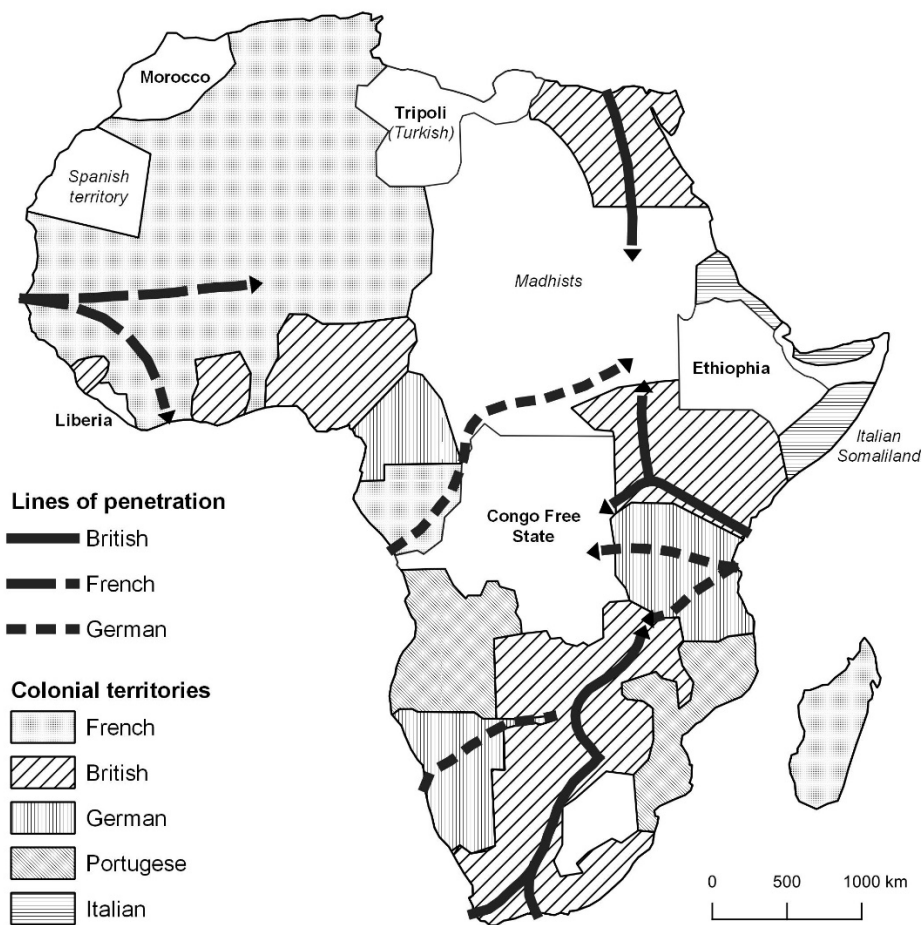


Figure 7: Stylized map of corridors as lines of penetration in the 19th century.

Own graphic inspired by Griffiths (1994, p. 49)

In *post-independence* Africa, corridors – albeit widely maintaining their forms and spatial orientation as they had been forged under colonial rule – became new semiotic meaning and functions. As post-independence Africa remained to be schematically divided and organized into artificial rather than organic nations since the Berlin Conference in 1884 – 1885 (Ramutsindela, 1999, 2010), the continental quest of nation building as well as the rise of Western modernization theory induced what is often dubbed as a first “infrastructural push” all over the continent (Wethal, 2019). Importantly, this push was driven by, on the one hand, Western neoclassical economics and donor agencies and, on the other hand, widely embraced by the early post-independence governments as these were seeking for a post-colonial, Pan-African identity and unity.

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Whereas already the years from 1949 to 1963 are known as “the golden period of World Bank infrastructure spending” (Caufield, 1996, p. 73; see also Wethal, 2019) spending into large-scale infrastructures in Africa peaked slightly later around the 1960s and 1970s. This period was starkly influenced by Western modernization theory. For instance, the “big-push” theory of Rosenstein-Rodan (1943) or also Rostow’s stages-of-growth theory (1960) claimed that massive public spending into infrastructures would push the continent into a self-propelling growth cycle³⁴. Paired with the looming Cold War geo-political rivalry with the Soviet Union over diplomatic partnerships with Africa’s new nations, but also more generally over the primacy of capitalist or socialist ideology, modernization theory became hence affirmed and implemented through massive infrastructure projects (Easterly, 2006). The role of African governments should however not be underestimated for driving the first infrastructure push. Take for instance, Kwame Nkrumah, Ghana’s first president who was fully committed to a political and economic emancipation under the notion that “Africa must Unite”. Nkrumah (1963, p. 138) famously raises that the just liberated nations needed to “guard post-colonial Africa against neo-colonialism and balkanization, both of which would impede unity”. Building new ports, roads and railway lines were only one of many major concerns of Nkrumah and other early post-independence presidents, but they certainly emerged as important matter for driving Africa’s future towards a unifying Pan-Africanism. Nkrumah, reflecting on the colonial infrastructures and their usability for and independent nation-building, states accordingly:

„Just imagine what might have been done by way of development if only part of these gigantic transfers of profit had been retained and used for the benefit of our people. I have already referred to the grim emptiness that faced us on our assumption of independence, the gaps and deficiencies. Behind it all was the refusal to use our wealth for our development.

³⁴ This logic of a vicious growth cycle which would be started as soon as some intermediary, patient capital is invested has later been adopted also within the SAGCOT Blueprint as well as in other publications of some of the key stakeholders who designed SAGCOT (de Cleene, 2014; Palmer, 2010).

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Not only were our natural resources extracted but the benefits of their exploitation came, not to us but to the metropolitan country. This is the answer to those economists who maintain that imperialism should be judged not on what it takes away but on what it leaves behind, as well as to those who parade the heritage of the schools and hospitals and roads that the missionaries and our colonial rulers left to us. They have no case against the actualities that I am describing” (ibid, p. 29).

Not much later, in his book *Neo-colonialism: The Last Stage of Imperialism*, Nkrumah (Nkrumah, 1965) further situates the role of cross-border infrastructures as follows:

„Transport and communications are also sectors where unified planning is needed. Roads, railways, waterways, air-lines must be made to serve Africa's needs, not the requirements of foreign interests. Communications between African States are quite inadequate. In many cases it is still easier to travel from an airport in Africa to Europe or America than to go from one African State to another.”

Hence, rather than just accepting the highly distorted and stratifying infrastructures as they had been left behind by the colonial regimes, the promise of building new infrastructures under an explicitly post-colonial and anti-imperial logic became an important contribution for a new sense- and meaning making of infrastructural development as well as for contributing to Africa's post-colonial and anti-imperial struggle (Griffiths, 1997; Monson, 2006, 2009; Ramutsindela, 1999). However, and contrary to this rhetoric, most of the post-independence infrastructure development became effectively funded by Western donors through international lending agreements and usually also implemented by Western experts. In the 1970s, the Sub-Saharan share of infrastructure funding in total aid accounted to nearly 60 per cent (Wethal, 2019).

Despite quite some mutual interest among Western consultants and development agencies as well among early post-independence governments to achieve a big-push and a rapid unification induced by infrastructures, these strong hopes never

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translated into practice (Mold, 2012; Wethal, 2019). On the technical side, many projects sooner or later turned out to be unfeasible or unsustainable as they had not been sufficiently adapted to the existing socio-economic structure and as much of the infrastructure push occurred without building-up domestic capacities (e.g. maintenance, management). On the economic side, spiraling foreign debt latest since the 1970s jeopardized the funding of many just-built or solely planned projects (Mold, 2012). So-called “white elephants” and hence projects that could never be finished or barely be maintained since epitomized the failure of modernization theory and arguably to some extent also of post-liberation (infrastructural) politics. Latest with the debt-induced structural adjustment programs from the 1980s onwards, Africa’s first infrastructural push was factually history (Nugent, 2018).

5.1.2.2 The contemporary Re-enchantment with Corridors in Africa

Around the turn of the millennia, large-scale infrastructures have made a sudden comeback on the continent. This is at first sight surprising. Two decades of structural adjustment in Africa entailed that harsh austerity policies factually rolled-back the African state whilst rapid economic privatization and deindustrialization measures were imposed (Carmody, 1998; Mkandawire & Soludo, 1999; Schindler et al., 2020). Unsurprisingly, much of the early developmental spirit from the early post-independence period got lost under these sobering experiences. Any form of spatial Keynesianism as a means of creating a Pan-African identity clearly seemed like an elusive quest. With that, also the idea of deploying large-scale infrastructures to serve as the backbone of a post-colonial struggle were rather perceived as a reminder of failure, than anything that could spur widespread support (Easterly, 2001, 2006; Mkandawire & Soludo, 1999).

Despite these historical and structural conditions, the continent experienced nevertheless a second infrastructural push. Already in the period between 2004 and 2012, infrastructure spending in Sub-Saharan Africa tripled as new large-scale infrastructures were planned and built (Gutman & Chattopadhyay, 2015, p. 17; Wethal, 2019). Two major factors have been responsible for this “re-enchantment with big infrastructures” (Nugent, 2018). First, in the period between 2000

and 2012, a global commodity “supercycle” was characterized by sustained high commodity prices³⁵. This supercycle fuelled renewed interest in the extraction of many resource sites that had long been economically unfeasible (Bowman et al., 2021; Geman & Vergel Eleuterio, 2013; Taylor, 2016). Especially in Africa’s peripheries, new and rejuvenated sites of mineral extraction spurred thereby investments for upgrading or building the necessary logistical infrastructures such as ports, railways and highways (Farooki, 2012; Weng et al., 2013). Second, China’s rise has not only indirectly affected the African political economy through rising commodity prices, but also more directly through its novel engagement in infrastructural investments all across Africa. By offering full-fledged infrastructure solutions reaching from funding, design, engineering, construction and maintenance, China’s capacities and commitments to build new infrastructures on the continent are clearly unprecedented (Carmody et al., 2021; Ehizuelen & Abdi, 2018; Goodfellow & Huang, 2020; Zajontz, 2020). Despite this unprecedented rise of Chinese infrastructural interventions, same rise must however also be put in perspective to further actors involved. Western actors, represented mainly by the World Bank, and African actors, represented mainly by the African Development Bank (AfDB) and the African Union (AU), have just as well substantially increased their commitments into funding and building cross-regional infrastructures. While the World Bank has scaled up its regional lending to Africa to reach a whopping share of 80 per cent for infrastructure lending between 2008 and 2011, the AfDB has committed about 60 per cent of its budget to various infrastructure programs. Also the AU devoted large parts of its *Agenda 2063* to promote an infrastructural renaissance which is explicitly aligned with a Pan-African spirit. In doing so, it formulates the vision of world-class infrastructures that should criss-cross the whole continent (AU, 2015, 2020). This widespread interest in deploying cross-border infrastructures has not decreased even despite a slowdown – or even end – of the supercycle. For instance, the second phase of the *Programme for Infrastructure Development in*

³⁵ The 2000s global commodities supercycle was mainly driven by China’s rising demand for raw materials. Price increases in this period had not been seen since the 1960s. The cycle was briefly interrupted by the financial crisis in 2007/2008 and ended around 2012 (Amra et al., 2019; Bowman et al., 2021; Humphreys, 2010).

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Africa (PIDA) was started just in early-2021 and also the just ratified African Continental Free Trade Area (AfCFTA) agreement is strongly reliant on Africa's inter-regional infrastructures (Leshoele, 2020). Considering the involved actors, the contemporary return of large-scale infrastructures is hence accompanied by an at least partially similar geo-political embedding under which the East as well as the West are highly interested to showcase and defend their geo-political position not at least through a stronger engagement in Africa. Simultaneously, African governments are seeking to leverage this renewed interest in the continent to their favour. Some scholars suggest, therefore, that a "new Cold War" with a distinctively infrastructural territorial footprint is underway (Alami & Dixon, 2021; Schindler et al.).

The outlined two factors (the supercycle and the New Cold War) can hence be seen as dominant political economy drivers of the contemporary infrastructural push. Remarkably, some similarities and some differences relative to the sobering experience of the first infrastructural push can further be identified. In terms of general practices or logics involved, Nugent (2018, p. 23ff) remarks critically that:

"It is no exaggeration to say that the notion of a 'big push', which was current in development thinking in the early 1960s, is back in vogue, if not in name. [...] It is striking that investments in big infrastructure – especially in seaports and railways – are back in vogue amongst donors, investors and African governments alike. "

Critical observers of the new infrastructural push are hence concerned with the striking similarities with those practices that have formerly led to "white elephants" all over the continent. However, especially when considering today's actor involvement in the infrastructural push, some clear differences can be pinpointed. Quite contrary to the primacy of state-led interventions driven mainly by Western donors and African post-liberation governments, today's infrastructure push is typically promoted for its distinguishing novelty in terms of including the private sector; both as a means of mobilizing funding as well as of

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implementing infrastructure projects (Wethal, 2019). Nugent (2018, p. 23) acknowledges this difference as follows:

“[T]here is a shift in the consensus towards what is sometimes called ‘neoliberal governance’, in which the boundary between the public and private domains has become blurred.”

Accordingly, although public funds and development lending are today still covering 75 to 80 per cent of total infrastructural funding (Wethal, 2019), much of today’s infrastructural push is underpinned by the premise that by privatizing infrastructural interventions or at least more tightly aligning these with private interests, infrastructures will become more efficient, more economical and after all: more sustainable (Bersaglio et al., 2020). In sum, the second infrastructural push does foremost share surprising similarities with the past-failures and their linkages to modernization theory. However, defendants of today’s second attempt claim that especially less involvement of the public sector and more involvement of the private sector will eventually make the difference which may make the second infrastructural push more successful.

But what are the effects of the described general infrastructural push on development corridors precisely? Clearly not all of the above infrastructural interventions have been devoted to what one could strictly define as a development corridor. Generally, most of the above drivers, persistent practices and changing actor landscapes relate greatly to the rise of corridors which have been promoted as more than roads or also as more than transport corridors. Here, especially Weng et al. (2013) have highlighted important connections between the commodities supercycle, the rising interest in mineral extraction, but also agricultural development which all come together under the notion of “growth” or “development” corridors. The authors map and explain convincingly how especially the rejuvenated axes of resource extraction under the supercycle may have an unexpected and potentially more extensive effect on agriculture. They argue that the expected overhaul of major infrastructures will necessarily unlock new regions for more intensive, market-based and potentially globalized agriculture as these become untapped by the infrastructural expansions devoted to mineral

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extraction. Their argument is surely valid, but it also remains in the widest sense affirmative to the developmental effects of, on the one side, mineral extraction and, on the other side, the modernization of agriculture. A more critical understanding of the described sub-ordinated and more extensive effects of mineral extraction is established by James Ferguson's approach of *Seeing Like an Oil Company* (2005). Ferguson argues that global capital increasingly "hops around Africa" as it brutally differentiates between "usable" and "unusable" Africa. As such, the territorial footprint of global capital is not at all homogenizing or developmental, but rather starkly stratifying. To him, especially the securitized nature of extractive enclaves stands in direct contrast to what he calls "humanitarian governed hinterlands" (ibid, p. 380). To him, these humanitarian hinterlands have little function for the global economy as there is little potential to capitalize on their marginal economies. Nevertheless, their stark contrast to the enclavistic sites of extraction creates immediate pressure to legitimize the continued exploitation of Africa's raw materials. Only as long as donor projects and state interventions provide some "rudimentary governmental and social services" (ibid, p. 380) within the humanitarian hinterlands, the extractive logic can hence be maintained.

Regardless of a more affirmative or a more critical interpretation of the African geography since the supercycle, today's landscape of development corridors, does indeed confirm the general interpretation made by both accounts. Figure 8 shows the major transport routes across the continent, but also explicit development corridors that have been mobilized under the contemporary infrastructural push.

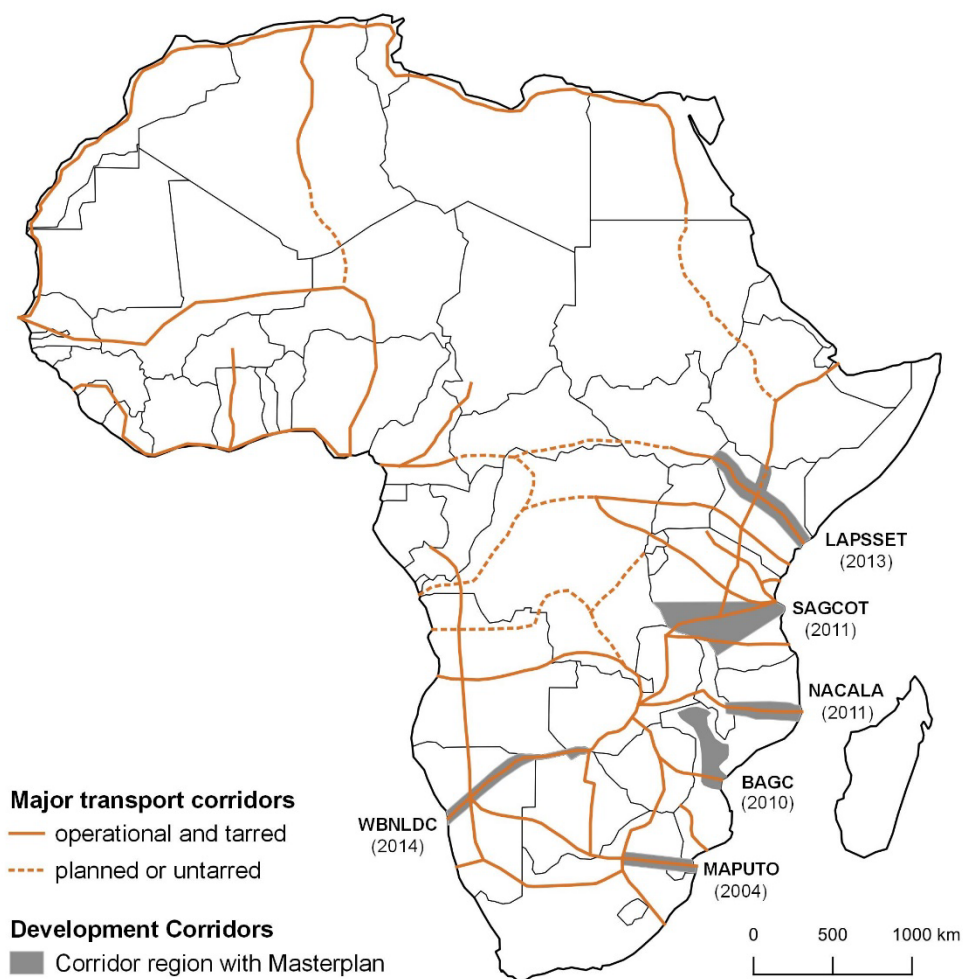


Figure 8: Transport and development corridors in Africa

This map differentiates between transport and development corridors based on the depth of their design and institutionalization. While basic linear infrastructures are classified as transport corridors, corridor project with distinct blueprints or masterplans are classified as development corridors. Sources: (Smalley, 2017; Weng et al., 2013)

Remarkably, all mapped development corridors are aligned with major extraction routes³⁶. The *Walvis Bay-Ndola-Lubumbashi Development Corridor* (WBNLDC), the *Beira Agricultural Growth Corridor* (BAGC), the *NACALA Development Corridor*, and the *SAGCOT* all connect major sea ports with the Copperbelt in northern Zambia and southern Democratic Republic of Congo.

³⁶ This excludes the Maputo Development Corridor. This corridor is an exception in many regards as it has been mainly driven by South Africa’s Spatial Development Initiative rather than by the immediate overhaul of extractive infrastructures (Dzumbira et al., 2017; Nel & Rogerson, 2016; Rogerson, 2001).

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The *Lamu Port-South Sudan-Ethiopia-Transport* (LAPSSET) Corridor links the seaport in Lamu with oil fields in Uganda, Kenya, and South Sudan. At the same time, especially their demarcated geographical regions to the left and right of their linear core infrastructures are further indeed important agricultural regions used for crop cultivation as well as for pastoralism (Bluwstein et al., 2018; Gonçalves, 2020; Hulke et al., 2020; Smalley, 2017). In this sense, Weng et al. (2013) are correct with their argument about a tight relation between mineral extraction and agricultural change. Ferguson's argument is however just as well valid. Indeed, when considering especially the enthusiasm among international donors to financially subsidize both the infrastructural axes of resource extraction and what he calls their lateral "humanitarian hinterlands", he certainly makes an important claim not only about the inherent logic of development corridors to make new *connections*, but just as well about the inherent logic of creating new geographies of *differentiation*.

5.2 SAGCOT in Tanzania

The SAGCOT corridor is perhaps one of the most prominent agriculture-oriented corridors among the corridors that have been mobilized under Africa's second infrastructural push. Launched in 2011, the corridor's Investment Blueprint promises the following outcomes by the year 2030: Firstly, SAGCOT aims at bringing 350,000 hectares of arable land under profitable production. This new production is oriented towards regional, but especially also global markets. Secondly, SAGCOT aims at creating 420,000 new employment opportunities along the general agricultural value chains. Thirdly, SAGCOT aims to elevate more than two million people permanently out of poverty. This goal is further supported by creating annual farming revenues of USD 1.2 billion whilst simultaneously maintaining food security (SAGCOT, 2011; see also figure below).

Empirical Background

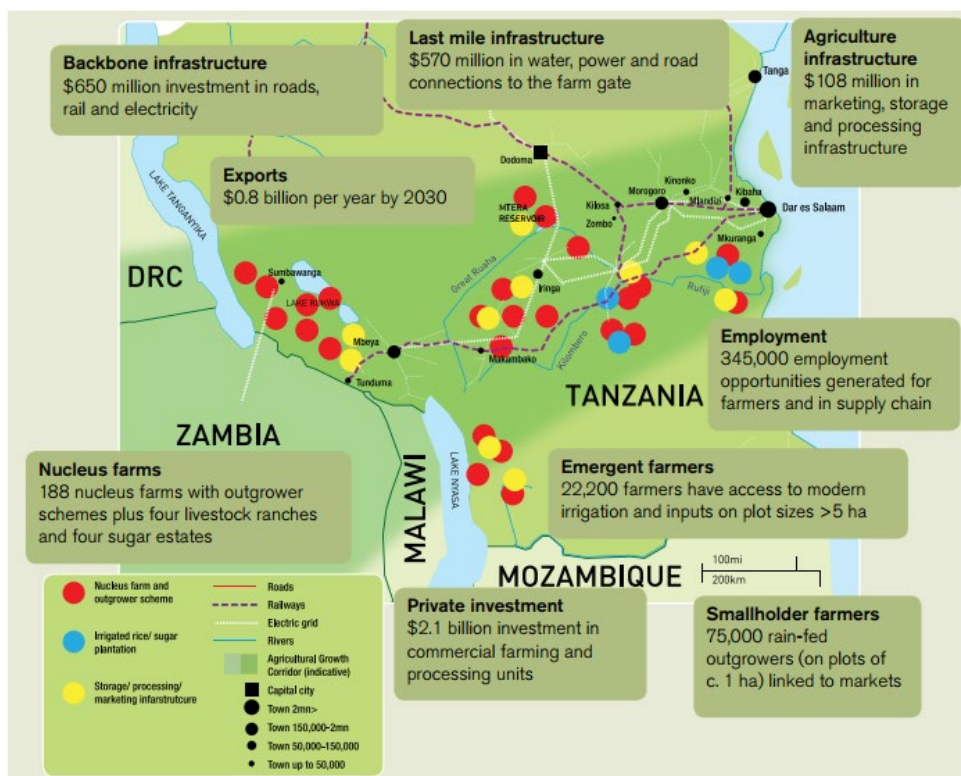


Figure 9: SAGCOT's "vision of success"

Source: Excerpt from the SAGCOT Investment Blueprint (2011, p. 61)

In order to do so, SAGCOT promotes the rapid modernization and globalization of agriculture by emphasizing two major drivers of change. Firstly, large-scale farmland investments in SAGCOT's priority clusters are suggested to allow large-scale farms and smallholder farmers to jointly operate under novel hub and outgrower schemes. These schemes aim at creating better economies of scale for smallholders when accessing farm inputs as well as when selling to regional and global markets. Secondly, SAGCOT intends to attract USD 2.1 billion of private investments and another USD 1.3 billion of public investments in order to drive extensive change along the whole agricultural value chain. The overall investment of USD 3.4 billion is intended to be used for improving backbone infrastructures (23%), last-mile input access (18%), on-farm activities (58%), and storage and marketing (1%). This rough overview over SAGCOT's objectives and measures highlights thereby, how SAGCOT demarcated a distinct geographical territory and how it further narrated a distinct agricultural future of rapid

agricultural modernization and globalization. Adding to SAGCOT's constitutional spatio-temporal underpinning, the role of finance is prominently addressed. To attract domestic and especially foreign capital, SAGCOT suggests a spatially (SAGCOT priority clusters) and functionally (the agricultural value chain) semiotic metaphor or container. SAGCOT is, therefore, sometimes also described as "investment corridors" (Bergius et al., 2018, p. 2) or "territorial tool of agro-industrial development" (Gálvez Nogales & Webber, 2017; see also thesis paper I & II).

This chapter reviews the fundamentals that explain SAGCOT's design in this vein. I will do so by firstly differentiating SAGCOT's origins in the infrastructural push as well as in the African Green Revolution agenda. Secondly, I will explain SAGCOT's territorial and networked geography.

5.2.1 Origins

The SAGCOT corridor is foremost related to the contemporary infrastructural push. Owing to its distinct agricultural focus, it is however further related to emergent calls for implementing a rapid African Green Revolution (AGR) all over the continent latest since 2004 (see thesis article I). Both have eventually put SAGCOT quite literally on the map and both explain how SAGCOT is constituted by its immediate corridor axis, its surrounding hinterland as well as its stakeholder network.

5.2.1.1 SAGCOT's Origins in the African Infrastructural Push

Starting with SAGCOT's more immediate embedding in material and linear infrastructures, it is important to acknowledge that even prior to SAGCOT's mobilization, the so-called Dar es Salaam Corridor – also known as Uhuru Corridor (Swahili for "freedom") – has had a long history of connecting not only Tanzania's Southern Highlands, but also landlocked Zambia and especially the Zambian Copperbelt region with the crucial seaport in Dar es Salaam. Historically, especially the construction of the TAZARA railway line, but also the TANZAM highway have hence constituted the corridor's linear axes (see Figure 10).

Empirical Background

Whereas most parts of the highway have been tarred already by 1969 not at least with substantial financial support by the United States, the construction of the TAZARA railway started only shortly after in 1970 (Gleave, 1992; Monson, 2006, 2009). As Zambia was highly dependent on copper exports and as Zambian exports via southern seaports became jeopardized after Rhodesia's declaration of independence in 1965, the Zambian president Kenneth Kaunda approached the Tanzanian president Julius Nyerere to build the railway. Also Tanzania shared an interest in the railway as it allured with the promise of boosting agricultural productivity in the country's Southern Highlands: the so-called bread basket of Tanzania (Zajontz, 2021). Both presidents envisioned, therefore, that the Dar es Salaam corridor should become expanded by the "Freedom Railway" which "would be based upon regional cooperation rather than colonial dependency" (Monson, 2009, p. 16). Whereas potential funders such as the World Bank and the United Nations rejected the bilateral plan over concerns about its feasibility and stability, Mao Zedong promised a 30-years free loan as well as technical support from China under the aim to forge an anti-imperialist alliance of Sino-African solidarity (Zajontz, 2021). Tracklaying for the TAZARA was finished in 1975 and only one year later, the project was handed over to Tanzania and Zambia (Gleave, 1992).

Just like many large-scale infrastructure projects of the post-independence era, the TAZARA railway could however never deliver to its promises. Already in 1979, freight rates along the just-launched corridor dropped significantly as the political tension on southern routes decreased and Zambian exports became increasingly re-directed to southern seaports. Paired with economic stagnation and a spiralling debt crisis in Zambia and Tanzania, the TAZARA line could never recover from this shifting political economy. Latest with the privatization of the Zambian copper industry, most traffic shifted from railway to highway.

Empirical Background

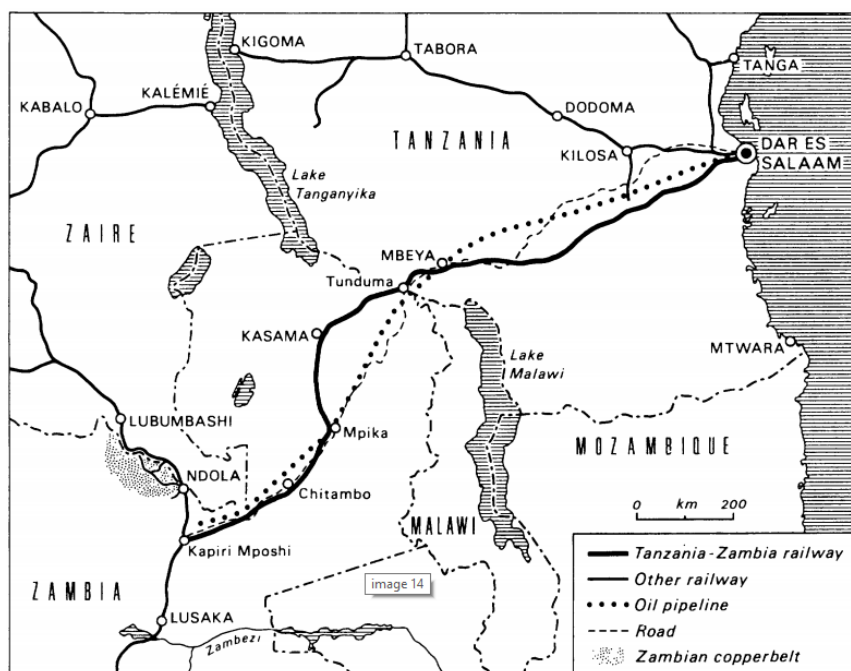


Figure 10: The Dar es Salaam transport corridor

Source: Gleave (1992)

Today, the TAZARA is operating under frugal conditions. Little freight and few passengers are using the unreliable and slow transport option and usually the more reliable, faster and less-costly transport via the TANZAM is preferred over rail-based transport. Despite plans to rehabilitate the railway under a new Sino-African cooperation the TANZAM highway rather than the TAZARA has today far more relevance for Tanzania’s Southern Highlands as well as for Zambia as a whole (Zajontz, 2021).

In fact, the TANZAM highway is perhaps the most important anchor infrastructure for SAGCOT as of today. Already in early-2008, and hence prior to SAGCOT’s launch, the *Danish International Development Agency (DANIDA)* provided USD 155 million bilateral funding to rehabilitate 220 kilometres of the TANZAM highway between Iyovi and Mafinga (today’s SAGCOT Ihemi cluster). This rehabilitation occurred under the goal of “upgrading the main arteries from a gateway to Africa” (BAM, 2013) and it was followed by several similar rehabilitations. As such, TANZAM’s overhaul coincides with the general return of large infrastructure spending in Tanzania (see Figure 11). Whereas almost no

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investments in building new or rehabilitating established road infrastructures occurred in the period between 2002 and 2007, the year 2008 was followed by substantial investments into expanding and overhauling Tanzania’s road network.

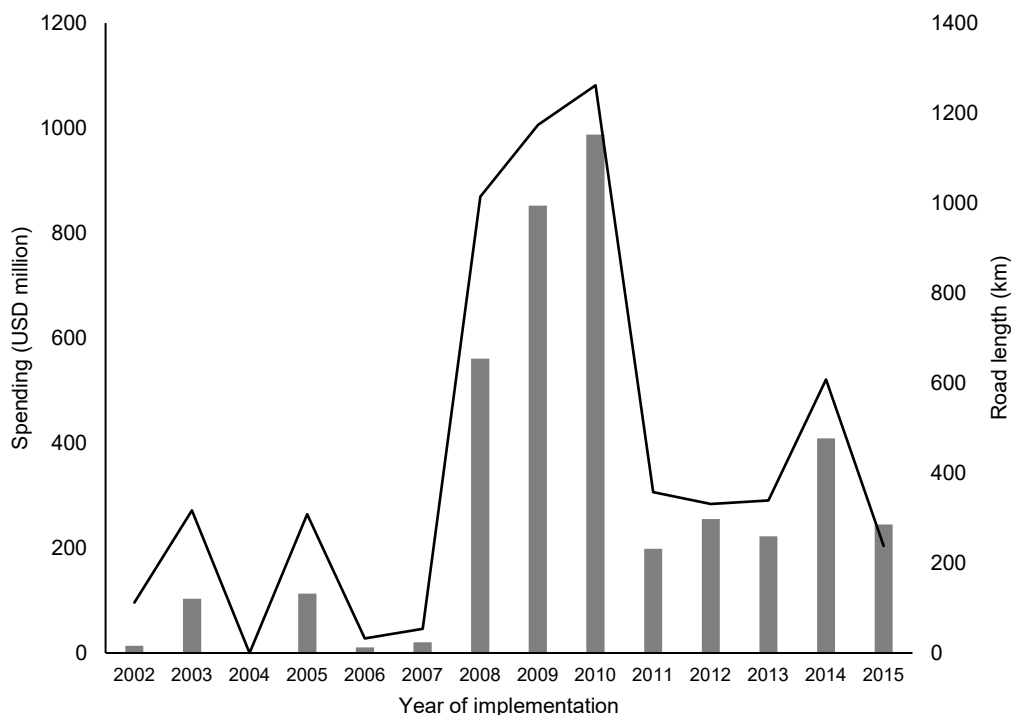


Figure 11: Road building and rehabilitation in Tanzania (2000 - 2015)

Source: URT/TANROADS (2016)

It is important to acknowledge this timing of the return of infrastructural spending in Tanzania. After all, and different from what is often suggested, it highlights how substantial infrastructure improvements occurred already before SAGCOT’s launch in 2011. Focussing on SAGCOT’s immediate embedding into already existent material and linear corridor infrastructures, it must hence be noted, that the corridor axis was well-endowed with a relatively high degree of connectivity even prior to SAGCOT’s launch. In its most extra-semiotic and material terms, SAGCOT did, therefore, not bring connectivity to the corridor region. Rather, SAGCOT became spatially aligned with a region that had experienced substantial connectivity increases already before.

5.2.1.2 SAGCOT's Origins in the African Green Revolution

Adding to the infrastructural pre-conditions which supported and partly encouraged SAGCOT's mobilization, more networked and in the widest sense policy-related pre-conditions must further be regarded to explain SAGCOT's origins. Most of these origins are addressed in the first thesis paper. In this paper, I explain in detail how SAGCOT originated from, on the one side, looming interests especially among Tanzanian elites to capitalize on a rapid transformation of Tanzania's Southern Highlands region and, on the other side, the corporate market expansion strategy of the fertilizer multinational YARA (Cf. Bergius et al., 2018). Adding to this, many studies have addressed SAGCOT's mobilization from more state- and policy-centred perspectives to highlight particularly the complex domestic politics around SAGCOT's mobilization (Aminzade et al., 2018; Bergius et al., 2020; Buseth, 2017; Jenkins, 2012; Mbilinyi, 2012; Mbunda, 2016; Sulle & Hall, 2013).

Figure 12 contributes to this an illustrative diagram of SAGCOT's origins in global policy discourses and corporate strategies and clarifies thereby both its embedding in the AGR as well as the pivotal role of YARA for constituting SAGCOT as a spatial imaginary. In doing so, the diagram starts from major AGR platforms and events which have been established especially on global or continental level and which were usually institutionalized with direct involvement of YARA. These networked relations on global and continental level are further related to projects which have been established again on continental (Africa), but also on national (Tanzania) level. In doing so, the diagram is not about falsely suggesting that YARA was exclusively responsible for the design and implementation of the AGR agenda or also for mobilizing SAGCOT. Certainly, the AGR agenda has grown considerably over the last one and a half decade and it is shaped by a highly diversified actor landscape (Holt-Giménez, 2008; Kumbamu, 2020; Moseley, 2016). Nevertheless, the diagram provides an important addition to various analyses of the AGR agenda as well as of SAGCOT, as it contributes a distinctively firm-oriented perspective that can help to explain YARA's indeed quite influential role.

Empirical Background

Empirical Background

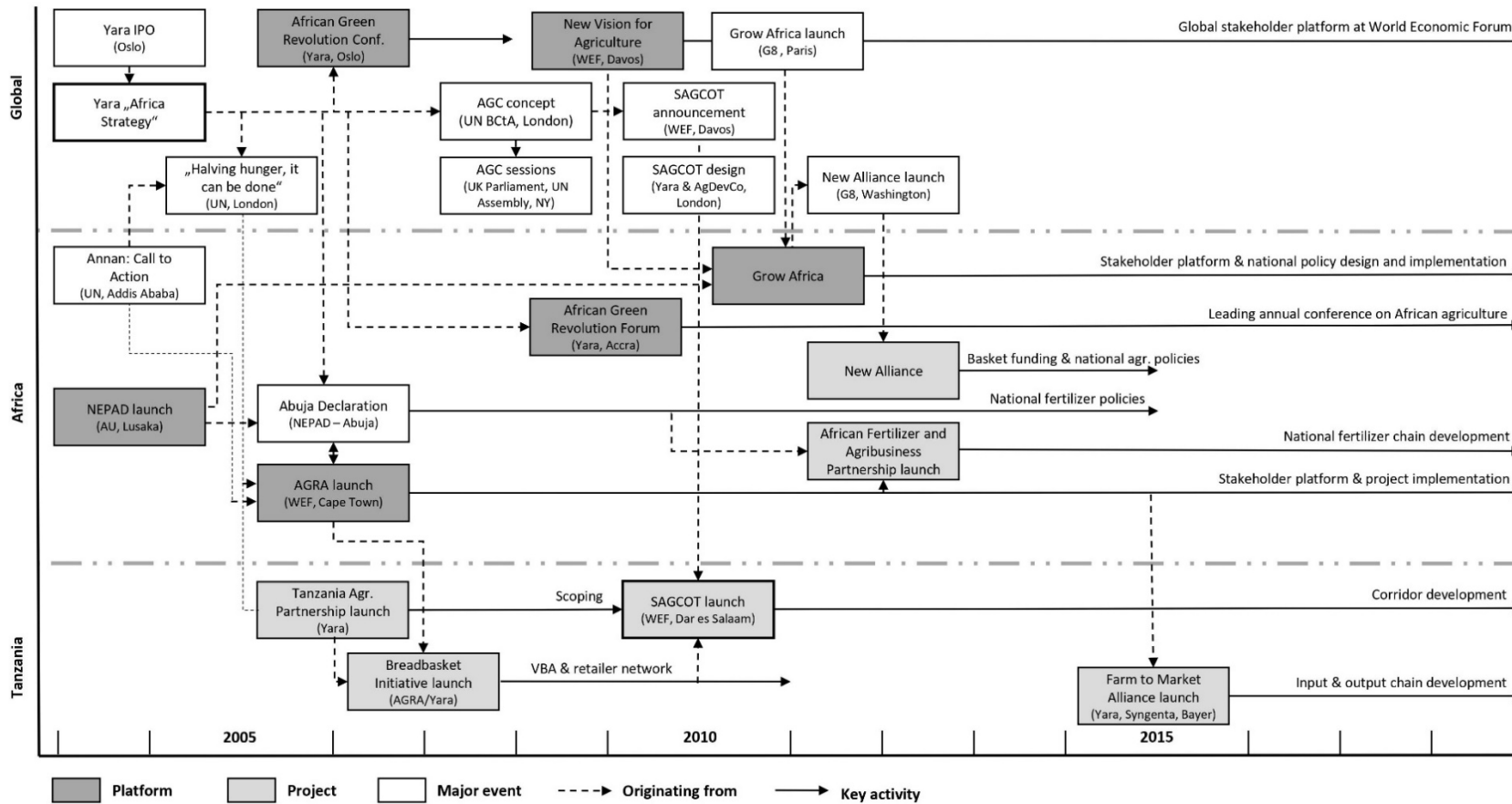


Figure 12: SAGCOT's origins in the AGR agenda

Empirical Background

Taken together, SAGCOT's origins are hence embedded into two major dynamics. On the one side, the second infrastructural push all over the continent as well as in Tanzania allured with the material and technical acceleration of linear infrastructures and especially corridor routes. (Re-)connecting peripheral regions with seaports at the East African seaboard promised with the unlocking of so far rather disconnected markets and production regions (de Cleene, 2014; Smalley, 2017; Weng et al., 2013). On the other side, emergent calls for implementing a rapid AGR put agricultural development back on the agenda. This did not only imply that African governments agreed on rejuvenating a long lost policy focus on the agricultural sector, but it also entailed that international development stakeholders pledged substantial development funds to subsidize the AGR, while multinational agribusinesses showcased their interest of ceasing the new market and production opportunities (Cooksey, 2013; Kumi et al., 2017; McArthur & Sachs, 2019). The connection between overhauled mining infrastructures and a refreshed attention towards intervening in agricultural hinterlands created thereby a reasonable case for the promotion of explicitly agriculture-focused development corridors such as SAGCOT or also for instance the BAGC and the NACALA corridor.

5.2.2 SAGCOT's Geography

I have already outlined the material, extra-semiotic pre-conditions that had been in place regardless of SAGCOT's mobilization. Again, it is important to understand that SAGCOT's mobilization was never intended to generate new connectivities from scratch, but I would contend that it was much more about re-interpreting and partly re-aligning the infrastructural push as it was already on its way. Indeed, there seems to be a widespread misunderstanding in terms of what SAGCOT actually is and even more so what it is not. During my fieldwork, interview partners – regardless of being directly involved in SAGCOT projects or not – had vastly differing understandings about what SAGCOT is and what it does. For instance, SAGCOT staff would typically describe SAGCOT as a “neutral broker” or also “honest broker” between the state and the public sector. This was quite different among institutional actors such as government staff or also

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NGO representatives. These would typically describe SAGCOT as a stakeholder platform organizing events and providing funds for policy design as well as for measures of policy implementation. Lastly, especially agricultural practitioners, such as staff from agro-industrial firms or in rare cases also farmers, would typically associate SAGCOT directly to be the government. What seems important about these different accounts of sense- and meaning making among different actors is not only, that there are apparently fundamental misunderstandings (SAGCOT as actor, platform, and state), but also that the most basic understanding of SAGCOT to be a corridor with a distinct geographical scope was almost never reflected upon. Zooming out from these grounded observations, this section seeks to clarify these multiple understandings by rehearsing SAGCOT's two-fold geography in territorial and networked terms.

5.2.2.1 SAGCOT's territorial Geography

Geographically, SAGCOT's function is foremost explained by, on the one side, the existent infrastructural axis provided by the Dar es Salaam corridor as it has already been described above and, on the other side, the highly potential agro-climatic landscape in Tanzania's Southern Highlands. Whereas the SAGCOT Investment Blueprint argues that the corridor passes through some of the richest farmland in Africa, but that much of this land is "under-developed" and hence available for agricultural modernization and globalization (SAGCOT, 2011, p. 12), independent studies on the corridor region's land uses, land availability, and especially potentials of further agricultural intensification have created much more reserved and sometimes contrary results. Particularly the notion of abundant land available for large-scale agricultural schemes has been critiqued several times for incomplete and inconsistent measurements (Exner et al., 2015; Kadigi et al., 2017) as well as for the risk of rendering local livelihoods invisible (Chung, 2019; Kadigi et al., 2017; Maganga et al., 2016; Sulle, 2016a; Talleh Nkobou et al., 2021; Wineman & Jayne, 2018). Further, the suitability of the seven agricultural clusters targeted by SAGCOT is unresolved. Technical analyses show that the Ihemi and the Mbarali cluster indeed have some potential for further agricultural intensification. Other clusters such as the Sumbawanga, the

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Kilombero, and the Rufiji cluster are however unsuitable for further intensification measures (Nijbroek & Andelman, 2016). In these clusters, conservation areas, vital biological habitats as well as human land uses already in place are setting clear limitations for further intensification (Blache, 2018; Matejcek & Verne, 2021). Remarkably, scenario analyses of yield increase potentials under consideration of various agro-climatic and also socio-economic factors have further shown that the most suitable 350,000 hectares of arable land are not in, but mostly outside of SAGCOT's clusters (Nijbroek & Andelman, 2016).

Regardless of these questionable geographical priorities *within* the SAGCOT region, the general geographical function of SAGCOT is reasonably explainable. Tanzania can be roughly divided into six major farming regions (Central, Coastal, Lake, South, Southern Highlands, and Northern Highlands) (URT, 2017). Whereas for instance the Northern Highlands (Arusha, Kilimanjaro, Manara, Shinyanga, Simiyu) are tightly integrated into regional and global value chains for high value crops (e.g. horticultural products, coffee, beef, dairy), the Southern Highlands (Rukwa, Mbeya, Iringa, Njombe, Ruvuma, Sumbawanga, Morogoro) are iconic for being the bread basket of the country. This entails that most agricultural activities in the Southern Highlands are rarely integrated into value chains beyond those that supply regional crop markets. After several historical “mini-green revolutions” in the Southern Highlands (Coulson, 2013; Isinika et al., 2005; Ponte, 2002), the majority of smallholders is today producing especially maize in both extensive as well as in more intensive ways (Watts, 2018). Supported by regular and sufficient rain patterns, but also restrained by highly acidic soils due to natural soil conditions and the long-term use of nitrogen fertilizer (USAID, 1984), maize is therefore the most popular crop produced in the Southern Highlands (FAO, 2015; URT, 2017). By today, more than a third of Tanzania's maize production occurs in Tanzania's bread basket region (BMGF, 2014).

This unique and ostensibly under-exploited agro-climatic potential of the Southern Highlands is also emphasized in SAGCOT's Investment Blueprint and an important argument for SAGCOT's territorial footprint. The blueprint makes

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however a surprising connection between the SAGCOT region and experiences with a rapid green revolution in the Brazilian Cerrado in the 1970s. The blueprint states, that climatic and soil conditions are broadly comparable and explains that the “Brazilian success story” could be replicated as long as sufficient funding is made available (SAGCOT, 2011, p. 24). For this suggestion of turning the Southern Highlands into an “African Cerrado”, the SAGCOT blueprint raised substantial critique (Cf. MISEREOR, 2015; OXFAM, 2014). Although the blueprint acknowledges that the Brazilian experience went hand in hand with a rapid and often brutal displacement of rural livelihoods and although the blueprint further states that SAGCOT would avoid this scenario by ensuring that both investors as well as smallholders would eventually benefit, the SAGCOT approach became widely associated with potential land grabs, violations of human rights or also the right to food (Martiniello & Nyamsenda, 2018; Mbilinyi, 2012; Mdee et al., 2020). Generally, critics argued, therefore, that SAGCOT would not only be a missed opportunity to sensibly support maize farmers in the Highlands, but rather that it is immediate threat to their livelihoods.

Taken together, SAGCOT’s territorial geography is hence foremost described by what infrastructural axis and especially what agro-climatic region the corridor incorporates. Despite the prospects of further infrastructural improvements paired with the hope and promise of replicating a rapid green revolution in an ostensibly “under-utilized” region as it had earlier occurred in Latin America, SAGCOT’s geographical footprint is however not uncontested.

5.2.2.2 SAGCOT’s networked Geography

Adding to the territorial footprint and its underpinning sense- and meaning-making which rendered the corridor region to become investable, SAGCOT should however also be acknowledged for its relational function, or in other words: for how it constituted tightly and loosely institutionalized stakeholder networks to support its implementation. The first thesis article historicizes and explains in this regard how a small and unassuming PPP among the fertilizer multinational YARA and few Tanzanian public and private stakeholders gradually morphed into the mega project SAGCOT. As such, the first thesis article adds especially

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a “business-perspective” on SAGCOT’s mobilization. Other contributions have provided more detailed analyses of this process of institutionalization especially through policy perspectives (Bergius & Buseth, 2019; Buseth, 2017; Jenkins, 2012).

To clarify SAGCOT’s networked geography it is important to explain how SAGCOT is institutionally organized. Shortly after SAGCOT’s launch, SAGCOT was set up in form of two organizational pillars as clarified by the following quote from a SAGCOT brochure from 2018³⁷:

“The SAGCOT Initiative is the dream, but in order to turn the dream into reality, it needs an action plan and an operational support system to actualize the dream. The dream has been a reality for five years with the operational support system of two arms: the SAGCOT Catalytic Trust Fund and the SAGCOT Centre Ltd.”

The *SAGCOT Centre* is hence the first SAGCOT pillar and it functions indeed as a broker between public and private interests. This brokerage is primarily about coordinating the potential investments and actions towards SAGCOT’s implementation. The Secretariat operates through one head office in Dar es Salaam and two regional offices in the Ihemi and the Mbarali cluster respectively. Although the SAGCOT Centre is primarily donor funded (Steffens et al., 2019), it collects also symbolic fees from its officially registered partners depending on differently-tiered partnerships (e.g. agro-businesses, NGOs) (See Figure 13).

³⁷ Source: SAGCOT 2018 – Information brochure on the Catalytic Trust Fund.

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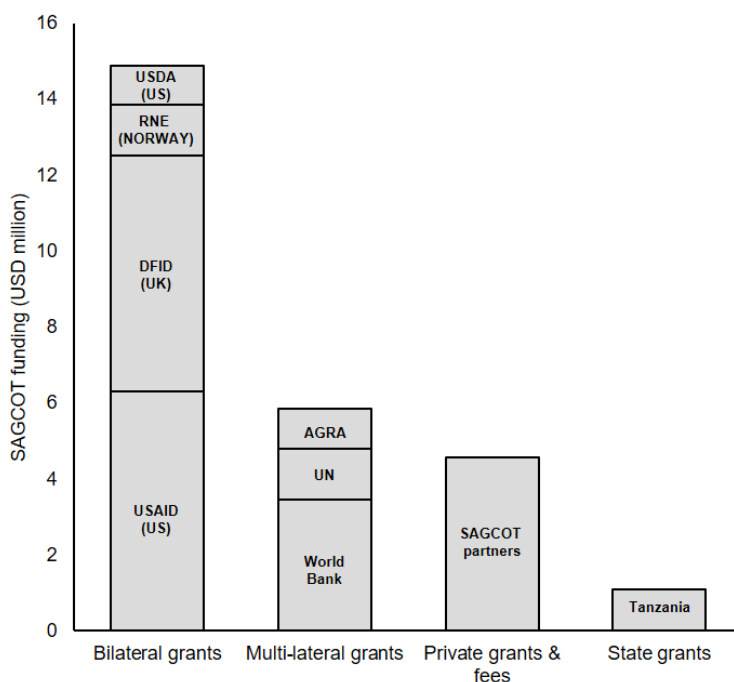


Figure 13: Funding of the SAGCOT Centre (2011 - 2018)

Source: Steffens et al. (2018)

Whereas the SAGCOT Centre fulfills lobbying functions such as promoting the shared SAGCOT vision, distributing general information on the SAGCOT corridor, and mobilizing investments and donor funds, it is important to also explain what the SAGCOT Centre is not doing (Jenkins, 2012). The Centre has no mandate to operate on the ground. Hence, it will neither directly implement programs nor will it provide funding or make direct investments. According to the Centre’s Terms of Reference: “All partners need to understand that the Centre will not do their job for them; rather it will help them do their job better.” (Jenkins, 2012, p. 22). Accordingly, the SAGCOT Centre is mainly involved in soft lobbying and brokerage practices by opening and funding a networked arena within which different SAGCOT stakeholders are connected in order to create an enabling environment for investments along the corridor. This explains not at least why understandings about what SAGCOT is and what it does are so drastically different.

The second SAGCOT pillar is the *SAGCOT Catalytic Trust Fund*. The Catalytic Trust Fund was aimed at providing subsidizing finance to effectively make

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otherwise unfeasible investments feasible. To do so, the fund consisted of a USD 45 million *Matching Grant Fund* provided by the World Bank. Agri-business intending to integrate smallholder farmers into their value chain could apply for grants reaching from USD 250,000 up to USD 1.5 million if they would match the grant with the same amount in private investments. Additionally, the Catalytic Fund consisted also of a USD 20 million *Social Venture Capital Fund*. This fund aimed at subsidizing emergent, less-capitalized agri-businesses in their early growth phase. Remarkably, the *Catalytic Trust Fund* was seen as an integral SAGCOT component from the onset (Jenkins, 2012). Despite this prominence, it took however until late-2016 until the World Bank agreed on providing USD 65 million in grants plus another USD 5 million for hiring a fund manager and creating the required institutional structures. Whereas, the USD 5 million for setting up the fund were disbursed, the trust fund could however never disburse any grants to potential agri-business recipients. In late-2018 the World Bank's implementation and status report on SAGCOT's trust fund stated, therefore, the following:

“With the Project having failed to issue its first grant, and all PDO indicators still being at zero, it has become unlikely that the Project can still reach its Development Objectives. The rating for achieving the PDO is downgraded to Unsatisfactory. In addition, the Mission has observed an apparent lack of consensus within the Government of Tanzania on some fundamental aspects of project design such as grants to the private sector or asset ownership and disposal.”

Hence, after reserved audit reports had already been issued in late-2017 and mid-2018, the World Bank eventually fully withdrew its committed funding from SAGCOT in late-2018 (Africa Confidential, 2019; World Bank, 2019).

The cancellation of SAGCOT's second institutional pillar has certainly been a major blow to SAGCOT as a whole. Shortly after the World Bank's withdrawal public media in Tanzania and beyond discussed SAGCOT to have eventually

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failed due to its non-performance³⁸. However, it should not be forgotten that even despite the failure of the Catalytic Trust Fund, SAGCOT had already earlier attracted substantial public investments in more indirect ways. Table 6 summarizes the major agriculture-oriented donor spending since SAGCOT's launch. It highlights, thereby, how the first few years after SAGCOT's launch substantial donor funds which were explicitly linked to SAGCOT could indeed be channeled into the SAGCOT region. In total, almost half a billion USD were committed and roughly USD 390 were factually disbursed. Although it is often claimed that SAGCOT is invisible or that SAGCOT has achieved nothing, the pivotal role of SAGCOT as tying the required relational links to international donors and philanthropic organization alike should not be underestimated for the wave of public funds which have been invested in the corridor region of the last decade.

³⁸ For instance, Tanzania's largest newspaper *The Citizen* announced that SAGCOT had been shelved and explained that SAGCOT's shelving occurred on the demand of the Tanzanian government. While the World Bank's withdrawal was certainly a major set-back, further media reports stating in a similar tone that SAGCOT had fully failed (Africa Confidential, 2019), were however exaggerated as the SAGCOT Centre continued its operations regardless of the implosion of its second institutional pillar.

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Table 3: Public funds committed and disbursed under SAGCOT

Funding partner	Project	Period	Disbursement in SAGCOT region (%)	Committed (USD million)	Disbursed (USD million)
USAID	Feed the Future Initiative	2012 - 2015	80%	315.0	326.0
World Bank	SAGCOT Catalytic Fund	2015 – 2021*	100%	70.0	6.9
DFID	SAGCOT New Growth Program	2013 - 2019	100%	56.2	53.4
EU	SAGCOT Support Program	2011 - 2015	100%	36.5	(36.5)
DFID	AgDevCo (KPL Limited)	2013 - 2023	100%	12.5	6.7
FAO	Southern Highlands Food Security Program	2013 - 2015	100%	5.3	2.0
USAID, DFID, NORAD, AGRA, UNDP, World Bank, URT	Funding for SAGCOT Centre Ltd.	2013 - 2018	100%	(22.0)	22.0
Total (in SAGCOT)				495.5	388.3

Source: Various donor data bases

In sum, only some of SAGCOT’s geographical and networked features have been raised in this section. Generally, I think that this coarse summary does however already sufficiently support my main point: By claiming territorial as well as networked space (see thesis article I) SAGCOT might have indeed made more impact than often suggested by critics claiming that SAGCOT had no impact at all. SAGCOT was especially a necessary condition for the unprecedented public grants which became eventually channeled into agricultural modernization projects along the corridor. Admittedly, the subsequent mushrooming of donor-projects was however never followed by the promised private investments. The few large-scale farms which became implemented or re-instated as hub farms under SAGCOT were just as well highly subsidized by public funds and patient capital provided by philanthropic foundations (see thesis article II). A more immediate – and still under-performing – impact on private investments can rather be found in SAGCOT-related investments at the upstream end of the general agricultural

value chain (see thesis article I & II). Considering the success of mobilizing substantial public subsidies, but the failure to translate these into lasting private investments, the last empirical introduction section reflects, therefore, on the *longue durée* of similar (failed) modernization attempts in the country.

5.3 Tanzanian agriculture in perspective: Modernization at all costs?

This chapter provides a selective overview of Tanzanian agriculture. In doing so, it will first introduce a selective history of Tanzanian agriculture with a strong focus on past modernization attempts. This historization will then serve to contextualize the state of Tanzanian agriculture today.

5.3.1 The *longue durée* of modernization attempts in Tanzanian agriculture

Tanzanian agriculture has a long history of being the “backbone” of the nation’s economy (e.g. Kimaro & Hieronimo, 2014). Consensus over the necessity of its rapid transformation and modernization as means for raising the general prosperity of the country is widespread. And at first sight this is rightly so when some of the basic structures and dynamics of Tanzania’s agricultural sector and the livelihoods attached to it are considered (Gebrekidan et al., 2020; Wineman et al., 2020).

However, the privileged role of a rapid agricultural modernization for raising Tanzania’s national welfare is not supported by everyone. Some, see a dead end in agriculture as a developmental focus on the primary sector may prevent more high-tiered industrialization efforts due to the potential lock-in of labour, capital and political interest³⁹ (Mufuruki et al., 2017; Wuyts & Kilama, 2015). Others,

³⁹ Especially the book *Tanzania’s Industrialisation Journey, 2016 – 2056* (Mufuruki et al. 2017) can be viewed as a remarkable showcase or even as an informal blueprint for a new and quite skeptical assessment of the role of agriculture-led development. Most of its arguments are strongly reflected in Tanzanian policies since the presidential term of John Magufuli. Among other topics, Mufuruki and co-authoring Tanzanian entrepreneurial elites use the book to critically assess foreign-driven interventions aimed at nudging the Tanzanian economy on an agriculture-oriented developmental path. Inspired by the East Asian experience, the book claims that

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further confront hasty calls for agricultural transformation and modernization with the risks and brutal consequences such as the displacement of rural livelihoods including peasant farming and agro-pastoralism (Bluwstein & Lund, 2018; Bluwstein et al., 2018; Djurfeldt et al., 2019; Maghimbi et al., 2011; Snyder et al., 2019; Sulle, 2016a, 2016b; Watts, 2018). Finally, the risks of deteriorating environmental ecosystems remain important considerations especially when modernization efforts are narrowly defined along productivity targets (Djurfeldt et al., 2020; Höllermann et al., 2021; Kadigi et al., 2017; Proswitz et al., 2021). Less problematizing dominant modernization efforts, but rather promoting agricultural alternatives, some practitioners and peasant-oriented activists (e.g. *Sustainable Agriculture Tanzania* (SAT), the *Tanzania Organic Agriculture Movement* (TOAM), the *Swiss Aid*, or *Mtandao wa Vikundi vya Wakulima Tanzania* (MWIVATA)) as well as academics (Cf. Kansanga et al., 2020; Kerr et al., 2019; Mbunda, 2016; Mdee et al., 2020; Mdee et al., 2019) have only recently started to practice, debate and evaluate agro-ecological approaches and their viability to create a long neglected pathway for Tanzania's rural future. In short, the role of Tanzanian agriculture in general as well as the different aspired and feared type(s) of agriculture are a sensitive and contested issue which is open to various regimes of sense- and meaning making as well as to individual prioritizations; all leading to different recommendations and actions not only in the sphere of grand visions and policies, but just alike in what every day agrarian practices entrench one alternative or another (Cf. Aminzade et al., 2018; Mbunda, 2016; Pissarskoi et al., 2020). Moreover, these visions and their derived anticipatory actions have substantial effect beyond "just" agriculture. It is no surprise that the perhaps most comprehensive history and analysis of Tanzania's agricultural sector – *Tanzania: A Political Economy* – by Andrew Coulson (1982, 2013) claims to be just as well a history and analysis of Tanzania's political economy as a whole⁴⁰.

an overt focus on agriculture undermines far more important and promising ambitions. Tanzania should rather aim at leapfrogging a stage of agricultural development and turn all attention on making a rapid push towards industrialization.

⁴⁰ In the first edition of his book (1982), Coulson traces the *longue durée* of agricultural development until the 1980s. His second edition (2013) adds to this some updated reflections and a

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In this section, I introduce the fundamentals that have made and continue to make the modernization of Tanzanian agriculture such a contentious and highly impactful issue – often beyond the scope of just agriculture. I do not intend to give a full picture here, but I rather establish some of the key structures and dynamics to explain and contextualize why the mobilization of SAGCOT was more than an apolitical, friction-free issue of shaping and potentially disruptively transforming the future as it has been initially suggested by its blueprint. Rather, it was the privileging of one distinct type of agricultural model to the detriment of various others; even despite the fact that these are just as well widely envisioned and practically applied.

In order to focus on more contemporary structures and dynamics; and for the sake of maintaining parsimony in this mainly descriptive section, I will eschew from a recap of what Coulson and others have already well established and discussed in great detail through various historical analyses; all of them with different emphases on agricultural development (Cf. Chachage, 2018; Grawert, 2009; Kimambo & Maddox, 2019; Lofchie, 2014). Namely, I will not contextualize the complexities of Tanzania's⁴¹ colonial history under German (1885 – 1918) and British rule (until 1961) nor will I historicize Tanzania's hopeful departure into early independence and towards an African socialism (“Ujamaa”) under Julius Nyerere in a first period of his presidency from 1961 to roughly 1970. Further, I will not detail the dreadful decline of Nyerere's authoritarian socialism from 1970 onwards, nor will I discuss the ensuing and disillusioned process of surrendering African socialist ideology to the perceived inevitability of economic liberalisation and increasingly also globalisation under the

rich introduction into contemporary Tanzania. Formerly working with Nyerere as an economist in the planning unit of the Ministry of Agriculture, Food and Cooperatives in Dar es Salaam (1967-1972), Coulson's work draws from rich and unique material. His main book is further complemented by several commentating (e.g. Coulson, 2015) and empirical writings (e.g. Coulson, 2008).

⁴¹ For simplicity, I use “Tanzania” even when I refer to historical periods during which the country was named “German East Africa” (1885-1918), “Tanganyika Territory” (1916-1961), “Tanganyika” (1961-1963), “United Republic of Tanganyika and Zanzibar” (1964), or “United Republic of Tanzania” (since 1964).

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International Monetary Fund's structural adjustment program⁴². Although these historical struggles certainly constitute Tanzania's unruly (agrarian) history and although some of these extractive and colonial, authoritarian and socialist, but also ignominious and (neo-)liberal struggles remain contingent and omnipresent in Tanzania's contemporary society, I agree with Ahearne (2016, p. 78) that a crude periodization of Tanzania's history in a division of the *presocialist*, *socialist*, and *postsocialist* eras bares the risk of amplifying "teleological versions of the past." Such hermetic periodization would ignore that especially "those who have lived through these times tend not to carve up the past in such a manner" (ibid). Surprising parallels and contingencies – or simply overlaps – between one period and another tend to defy such crude differentiation. Therefore, I will rather selectively highlight some major Tanzanian experiences and learnings from what I understand as past future-making endeavours in and around agriculture regardless of their strict periodization. I am hence much more concerned with some of the major processes and narratives which explain Tanzania's contemporary state of agriculture and thereby contextualize the mobilization and especially the underwhelming outcomes of SAGCOT.

To begin, it seems noteworthy that the general notion of "modernizing agriculture" – and especially a narrow focus on raising even more narrow productivity indicators (quantity produced by area cultivated) – has a far longer history in the country than is often suggested when rapid modernization is heralded for its disruptiveness and novelty today. To understand why there is reasonable doubt over any attempt of fast-tracking agricultural modernization for the purpose of economic progress in Tanzania as a whole an even more so for better lives among the rural peasantry, two historical-materialist vignettes of rapid modernization efforts should suffice to establish my point. While the example of the *East African Groundnut Scheme* is especially illustrative for many similar failures of

42 After failed collectivization attempts (Ibhawoh & Dibua, 2003; Scott, 1998), the 1978-79 Uganda-Tanzania war (Roberts, 2014) and the harsh backlash of a global financial crisis during the 1973 and 1979 oil and debt crises, Tanzania – and many allied post-colonial states – were eventually forced to liberalize their economies under the International Monetary Fund's Structural Adjustment Program (Havnevik et al., 2007; Havnevik, 1993; Hyden & Karlstrom, 1993).

transforming Tanzanian agriculture through large-scale schemes, the example of maize farming in *Ismani* is more illustrative for long nurtured hopes and their sobering failures in terms of transforming peasant-based agriculture towards more capital-intensive forms of agricultural production.

5.3.1.1 Modernization through Large Farms: The East African Groundnut Scheme

Especially during and after the second World War, the British colonial government focussed on planning several development projects that were aimed at promoting agricultural modernization through large-scale plantations in Tanzania's hinterlands (Coulson, 2013, p. 79f; Maghimbi et al., 2011, p. 26ff). While plantations were foremost devoted to capitalizing on rural labour forces and while cultivated crops were chosen along the aims of maintaining the empire's sovereignty over strategic commodities (e.g. sisal, rubber, wheat, groundnuts), Scott (1998, p. 226) argues further that:

“The point of departure for colonial policy was a complete faith in what officials took for “scientific agriculture” on one hand and a nearly total skepticism about the actual agricultural practices of Africans on the other [...]. In keeping with the planning ideology of the time, the experts were inclined to propose elaborate projects – a “total development scheme,” a “comprehensive land usage scheme.” But there were enormous obstacles to imposing a complicated and draconian set of regulations on a population of cultivators well aware of environmental constraints and convinced of the logic of their own farming practices.”

Already under colonial rule, a high-modernist ideological underpinning was hence shaped by the privileging of science and technology whilst rendering local context, knowledge, and experience marginal or even inexistent. As such, it legitimized grand visions of developmental schemes and did so with often dramatic consequences.

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A high-modernist underpinning to modernizing agriculture certainly applies to the *East African Groundnut Scheme*. Although the scheme was one of the biggest investment schemes in post-war colonial Africa, it is today known for being “the most dramatic and most cited failure of the ambitions of British late colonial developmentalism” (Rizzo, 2006, p. 205).

The scheme has its origins in the end of the second World War. A global shortage for edible oils and fats and British dependence on imports spurred interests to set up a ground nut scheme in Tanzania. Frank Samuel, managing director of *Unilever's*⁴³ subsidiary *United Africa Company* negotiated between the British government in London and Tanganyika's Director of Agriculture to implement the “epic plan” of making ~1,000,000 hectares of land arable for groundnut production (Rizzo, 2006, p. 208). After some back and forth between the British Parliament in London and the colonial government in Tanganyika, a public and corporate partnership mission comprising of representatives from the colonial government and the plantation department from the United Africa Company started surveying land for the scheme. It only took four weeks of airborne surveying to eventually recommend ~1,300,000 hectares of land for potential cultivation. The majority of this land was identified in Kongwa, Urambo (Central Tanzania) and Nachingwea (Southern Tanzania) as these sites were deemed feasible for a strongly mechanized implementation including the de-bushing, soil preparation, planting and harvesting of groundnuts with the help of machinery rather than manual labour force (ibid, p. 208). Already in 1946, the British government finally approved the plan and the United Africa Company took lead in fast-tracking the project. Initially, £24 million of costs were expected, but promises of saving the British population an annual £10 million due to a reduced import reliance could easily justify the unprecedented costs (ibid, p. 208).

The scheme's failure materialized almost just as fast as its design had been sketched. Already in 1951, and hence only four years after its launch, the

⁴³ The pivotal role of a Unilever subsidiary is quite remarkable when considering that Unilever became also one of the first multi-national agribusinesses to publicly back the SAGCOT draft. It highlights how corporate interests of capitalizing on Tanzania's hinterlands have a long history which is often rooted in colonial extraction (Cf. Coulson, 2015) and questions at the same time why more recent endeavors are not learning from past failures to adapt their approaches more fundamentally.

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Groundnut Scheme was abandoned and its defeat publicly admitted. On its balance sheet, the scheme had imported more seeds to plant the crop into Tanganyika than it ever produced (Ahearne, 2016). While the goal for the first season (1947-48) was to clear 60,000 hectares of land, only 3,000 hectares could actually be cleared. While a harvest of 56,920 tons of groundnuts was promised, the first season's harvest of 1,600 tons barely sufficed to collect sufficient seeds for the next season (Hogendorn & Scott, 1981, p. 88). Quickly, the original plans of annually clearing and planting 65,000 hectares were replaced by plans to achieve a more modest 25,000 hectares, whilst raising investments to a whopping £48 million in total (ibid). Regardless of this down-scaling and simultaneous increase of investments, the scheme's total land used (cleared and cultivated) never exceeded 34,000 hectares. It could hence only achieve less than 10 per cent of what was originally promised. Coulson (2013, p. 80f) summarizes six reasons for the scheme's failure:

- Overestimated rainfall. Vague measurements and optimistic estimates ignored that rainfalls in the actually cleared sites were insufficient to cultivate ground nuts at all.
- Lack of soil knowledge. Despite having tests for bio-chemical soil conditions, a mechanical analysis, which would have highlighted a high clay content, was not made. Due to the high clay content, the soil was compacting the land in dry periods and making mechanized cultivation almost impossible in wet periods.
- Overestimation of mechanical equipment. Despite the use of bulldozers and even modified tanks, especially the removal of roots was slow and costly.
- High machinery wear-off. Machinery was quickly wearing off under the harsh conditions. Spare parts were however barely available as congested ports in Dar es Salaam and Mombasa hindered their importation.
- Plant diseases. The few actually planted nuts (in Urambo and Nachingewa) were infested by rosette diseases with no resistant varieties available.

Empirical Background

- Low adaptability. Faced by the quick disillusionment of highly mechanized preparation and production, the adaptation towards a more labour-based approach was impossible as the scheme's headquarters were built in places without sufficient water supplies for hosting a larger labour force.

Adding to this list, there are many more reasons of technical and managerial failure discussed in the literature. While the colonial authorities blamed especially an “inherent laziness” among the local workers for the scheme's failure (Ahearne, 2016, p. 88), much of the later literature agrees on the roots of failure being a lack of expertise, a (Western) ignorance towards local experience, as well as over-excitement over the scheme's potential benefits in terms of its scale economies as well as the general effectiveness of invested capital (Cf. Bourbonniere, 2013; Hogendorn & Scott, 1981; Westcott, 2020). In his recent book review of Nicholas Westcott's detailed analysis of the Groundnut Scheme's failure, Jackson (2021, p. 41f) summarizes the devastating experience accordingly as follows:

“The history of the Groundnut Scheme is so overwhelming farcical that the entire episode could easily be fabricated satire. [...] The most worrying realisation from reading the book is how little has changed. Although it is hoped that at the very least, the lesson of ‘do not plant seeds where it doesn't rain’ has been largely learned.”

At this point, one might ask why the failure of a large scale plantation in the 1950s is of interest for this thesis. After all, contemporary conditions in Tanzanian agriculture have changed substantially and colonial rule is no more. Nevertheless, the experience of failure as it is epitomized by the case of the Groundnut Scheme is not an exception. Rather, it enqueues in a long line of similar experiences with large-scale farming endeavours aiming to modernize agriculture throughout the colonial and post-colonial, but also the more recent history of Tanzania (See also: Coulson, 2015). Take for instance the failed attempt of transferring wheat farming schemes from Canada to Tanzania under the *Basotu Wheat Development Project* in the 1970s (Coulson, 2013; Freeman, 1982) or take also the slow

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but steady “dying” of sisal plantations in the same period (Sabea, 2011). Further, and more recently, take the boom of biofuel plantations from 2005 to 2008 and their sudden and often conflict-ridden bust since 2009⁴⁴ (Bergius et al., 2018; Chung, 2021; Maghimbi et al., 2011, p. 49ff; Sulle & Nelson, 2009, 2013). Or, finally – and directly related to SAGCOT – take the abrupt and arcane abandoning of the large-scale maize scheme *Clinton Development Farm* (see thesis article II) and shortly after the phase-out of the large-scale rice scheme *Kilombero Plantations Limited*⁴⁵ (Africa Confidential, 2019). With them, two of perhaps the most prominent early success stories for the Ithemi and the Kilombero cluster had to be abandoned just few years after their launch; even despite heavy donor and state support.

Looking at the long succession of surprisingly similar failures, it is hence no surprise that there is some form of Tanzanian collective memory which is rightfully sceptical when faced by top-down, fast-tracked, and foreign-informed modernization attempts in form of large-scale schemes. Coulson (2013, p. 18) gets this experience to the point when he states that: “The large farms have yet to prove themselves.”

⁴⁴ For instance, an international arbitration case between Swedish *Agro EcoEnergy* and the Tanzanian state is pending since 2017. After accusations of land grabs, the Tanzanian Parliament halted the development of 20,000 hectares near Bagamoyo for sugarcane and ethanol production. After the parliament revoked a 99-year land lease, *Agro EcoEnergy* appealed at the Investor-State Dispute Settlement (ISDS) tribunal to receive compensation payments of roughly USD 50 million (See also: Engström & Hajdu, 2018).

⁴⁵ The Kilombero rice scheme – also known as Mngeta farm – has experienced more than one failure. Already in 1986, and in close cooperation with North Korean *Korea Tanzania Agricultural Company* (KOTACO), the scheme was erected under formidable promises in terms of scale and impact, but it could only produce meagre – if not harmful – outcomes such as for instance the dispossession of land among local residents or also the environmental pollution of surrounding farms and aquatic systems due to the misuse of agro-chemicals (Chachage, 2010; FIVAS, 2016). The more recent re-investments in the farm starting in 2008 and amplified after SAGCOT’s launch around 2010, came to a sudden end, when the farm was abandoned by its management in 2018/2019 under vaguely communicated circumstances (Africa Confidential, 2019). Shortly after its phase-out, Norwegian development financier *NORFUND*, US investment firm *Capricorn Investments*, and DFID-funded development investor *AgDevCo* declared their intentions to fully divest from the project (OI, 2019). Whether operation of KPL will continue under new investors remains undecided.

5.3.1.2 Modernization through Small Farms: Ismani's Rise and Fall as Tanzania's Bread Basket

Peasant-targeted interventions aimed at modernizing agriculture by raising productivity among small-scale farmers are often discussed to resemble some sort of an antipode to large-scale interventions (Cf. Coulson, 2015). Indeed, there is quite some evidence for Tanzanian successes at the small-scale level in the last two decades or so (Cf. Brockington & Noe, 2021; Snyder et al., 2019). Even in cases of public and donor funds being used inefficiently, some of these funds tend to at least temporarily support smallholder farmers before they disperse into higher-tiered circulations of capital elsewhere. Nevertheless, despite the generally laudable tendency of targeting interventions at a broader and arguably normatively more justifiable level, the directions and distributed risks of such interventions are just as well contested when different possible futures of agriculture as well as different paces of transformation among the peasantry are discussed (Cf. Djurfeldt et al., 2019; Djurfeldt et al., 2020; Kuyper & Struik, 2014; Kweka & Ouma, 2020; Rasmussen et al., 2018; Smith et al., 2017). In order to illustrate why a focus on simply raising the productivity at small-scale level cannot suffice to “fix” the notorious issues underpinning agricultural modernization, the evolution of maize production in Ismani provides a useful illustration.

Ismani is a farming region in the Southern Highlands and a sub-division of Iringa District. Accordingly, it is located in one of today's priority clusters of SAGCOT: The Ihemi cluster. Historically, Ismani's favourable agro-climatic conditions and large tracts of cultivable land allowed for a rapid expansion of maize farming latest from the 1950s onwards (Awiti, 1973; Chuhila, 2019; Nindi, 2019). A growing demand for food due to population growth, the construction of a cereal mill in urban Iringa (Figure 15), and an emerging trade regime for staple crops, incentivized the cultivation of maize in Ismani under most basic agricultural technology (Awiti, 1973). Peasants typically cleared land from scrubs and bushes, hired some complementary casual labour if necessary, and eventually consumed or sold their produce to an emergent regime of Arab and Asian middlemen and traders. In the first period (1950-1962), peasants achieved

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maize yields of about 3,400 kilograms per hectare and they could make a living as they balanced their trade incomes with their expenses for labour and other external inputs (Nindi, 2019, p. 161ff). In other words, “Ismani was a prolific maize production area by this time and there were no signs of crop failure. [Maize] served the dual purpose of produce for both food and market” (Chuhila, 2019, p. 8).

In a second phase, rising land scarcity and creeping capital accumulation allowed however especially the wealthier farmers to mechanize maize cultivation as well as it meant the end of Isamni’s peasantry. Wealthier farmers acquired more and more land from the less wealthy. Simultaneously, they drew from a growing labour-base of widely impoverished agropastoralists or former peasants who had earlier surrendered their land in Ismani or elsewhere. In consequence, a gradual process of social differentiation gained pace (Coulson, 2013, p. 86). Mechanized production with support of oxen and tractors fuelled however not only the differentiation into a “landed and a labouring class” (Nindi, 2019, p. 165), but it went also hand in hand with a decline of soil fertility. Maize monocultures quickly deteriorated the natural soil nutrient reserves as little measures to replenish nutrients were in place. Under Ismani’s emergence of a capitalist farming class from 1962 onwards, first frictions in social and environmental terms became evident and increasingly a problem (Cf. Chuhila, 2019, p. 9ff). In the second period, the emergence of a capitalist class of “entrepreneurial” farmers *vis-à-vis* a rural class of land-less casual labourers gradually threatened the social cohesion within Tanzania’s bread basket. Further, as yields were declining to about 2,200 kilograms per hectare, farming could only be maintained as salaries remained sufficiently low (Nindi, 2019, p.164).

In a third period, agricultural change in Ismani became most dramatic. Under Nyerere’s *ujamaa* policies, private ownership of large land tracts was prohibited, hence functioning as a means of traversing into a class-less Tanzanian society. Large farms were consequentially redistributed and so-called *ujamaa* villages established. In Ismani, the *ujamaa* policy has most effect as it subsidized a rapid agricultural modernization particularly by providing public capital in form of a maize credit scheme. By offering subsidies to farmers, the socialist government

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aimed at equipping farmers with more capital to invest on a seasonal basis (Chuhila, 2019, p. 13), Ismani's agricultural landscape became since flooded with improved inputs such as seeds, fertilizer and insecticides in order to modernize agriculture no longer through scale economies, land accumulation and class differentiation, but rather through targeted intensification measures among small-scale farmers who now cultivated both privately and communally held plots. Although the Ministry of Agriculture heavily promoted improved farming techniques to be adopted by all farmers in Ismani to stop the long trend of productivity declines, agricultural extension failed however to incorporate the place-based and variegated risks and barriers which were associated with said input-based modernization efforts. Reflecting on the experience in Ismani, Nindi notes (2019, p. 169):

„Most of the advice, however, fails to take into account the risk and uncertainty that the innovation involves, the costs that it may incur not only in terms of purchased inputs but also of balances in the whole farm economy, and the differences in farming scale that make advice relevant or feasible for some farmers while not for others.”

Despite substantial efforts targeted at raising production per unit of land and despite the high expenses made by the Tanzanian socialist state to support a more input-intensive agriculture, soil fertility continued to decline to about 1,200 kilograms per hectare (Nindi, 2019, p.164). As a consequence, the marketing of crops plummeted just as well, hence putting even more financial stress on the whole farming region. It is important to note here, that the state-organized subsidy program for farm inputs was not unique for Ismani, but probed all over Southern Highlands region and often with far more success where agro-climatic conditions were more favourable (Cf. Coulson, 2015; Isinika et al., 2005; Ponte, 2002). Nevertheless, in Ismani even the most modern inputs and subsidized support could simply not maintain an intensive, maize-based cultivation system. The increasingly risky, but uneconomic mono-cropping of maize arrived not only quickly at its agro-biological limits (especially soil erosion and nutrient mining), but it also accrued for substantial social costs as farmers incurred the risks of

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input-intensive farming practices under increasingly unstable agro-climatic and economic conditions.

As a consequence of this succession of failed modernization attempts through different early capitalist (the second period) and socialist (the third period) approaches, the Ismani region is today shaped by food shortage and grave environmental deterioration (See Figure 14). Food insecurity among Ismani resident has become a widespread issue and crop production can today no longer reliably sustain the livelihood of local farmers (Chuhila, 2019). While Ismani used to be popular for being Tanzania's "breadbasket" (Nindi, 2019, p. 161), it is today a notorious discussion point within the Tanzanian Parliament when food relief measures must be deployed in order to avert actual hunger crises in the region (Chuhila, 2019, p. 17).



Figure 14: Rural poverty and soil degradation in Ismani

Environmental degradation due to decades of intensive farming (especially soil degradation) and changing micro-climatic conditions (especially rain patterns) have impoverished Tanzania's former bread basket. In 2019, most farmers in Ismani suffered from huge harvest losses (Pictures: Tups, 2019).

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Figure 15: Grain mill in urban Iringa

After agricultural liberalization, milling activities in Iringa (left side) have been suspended for about two decades. Only in 2016, the Cereals and Other Produce Board of Tanzania has restarted the mill's operation to underline Tanzania's industrialization policies initiated under President Magufuli. While the mill was already built in the 1950s by cereal trader Unga Limited, the grain granary (right side) was built in 1976 under President Nyerere's Ujamaa policies and with financial support from the Swedish development agency SIDA (Pictures: Tups, 2019).

Both vignettes – one of large-scale focused interventions and one of more small-scale interventions – highlight the *longue durée* of fast-paced approaches to modernize agriculture under reoccurring assumptions and motivations such as a strong focus on technologically-driven productivity increases or also different degrees of top-down intervention and coercive disciplining. Importantly, quite some similarity can be found in such endeavors regardless of historical period, authority in place and ideology established. Firstly, especially the alienation of the peasantry from its vital function for the Tanzanian food system is a reoccurring issue spanning across any historical period. Regardless of *presocialist*, *socialist*, and *postsocialist* era and irrespective of ruling regime (colonial regime, socialist regime), calls for transforming agriculture typically started from the stand-point that the peasantry was and remains to be archaic, backwards, traditional, or stubborn. In its totality, peasants became hence rendered as an impeding barrier not only to rural, but also to national prosperity (Cf. Brockington et al., 2018; Mbunda, 2016). Secondly, and tightly interrelated, the devalorization of the peasantry went hand in hand with an almost religious belief in the ability of technology, scientific expert knowledge, and – depending on era – authority (colonial and socialist coercion). In few cases, said elevation of technology, knowledge and authority may have indeed led to temporal successes either in

form of economically viable large scale schemes or also regional “mini green revolutions” among peasant farmers (Isinika et al., 2005), but when one recapitulates the succession of failed modernization attempts, quite some fantasy would be required to find convincing explanations for these failures in a stubborn and backward-oriented peasantry. After all, whereas most of the aforementioned modernization attempts were backed by institutionalized and strongly capacitated authoritarian (quasi-) state apparatuses, it were rarely the immediate outcomes of modernization interventions (large-scale schemes, input subsidy programs) which have endured the test of time. Rather, it was a resilient and adaptive peasantry which has fed the country before and after its independence. Mdee et al. (2019, p. 223) remark accordingly:

“Tanzanian agricultural history is littered with examples of failed “modernization,” and yet the small-scale farmer has continued to feed the nation.”

Summarizing the long succession of failed agricultural modernization attempts in Tanzania, it can hence foremost be pinpointed that popular calls and immediate actions for fast-tracking agricultural transformations are rarely as novel and disruptive as they claim to be. Although their spectacularization may well be integral – or even conditional – in order to nudge Tanzania’s agricultural future in one way or another, quite some skepticism and pragmatism “on the ground” is typical for how the rural population has anticipated the various endeavors promoting a distinctively narrow agricultural future.

5.3.2 Tanzanian Agriculture Today: An (always incomplete) Stock-taking

Against the disenchanting experience of various small- and large-scale interventions to modernize agriculture in a fast paced manner, the last two decades have nevertheless been shaped by rather silent and often neglected agricultural successes that have materialized especially among the Tanzanian peasantry. These silent transformations defy the widespread notion of a reactionary, backwards-oriented peasantry as well as they question the associated calls for the necessity

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of narrow modernization interventions and disciplining measures “from above” (Cf. Snyder et al., 2019). In this section I will summarize some of the more contemporary dynamics that have occurred during periods of agricultural liberalisation (with the structural adjustment policies) and the more recent agricultural neo-liberalisation (with the return of agricultural subsidies). Contrary to enduring calls for more efficient top-down interventions, these successes stand however for a rather endogenous processes of change. This process can be thought of as a more modest agricultural modernization process which was not only about quantitative productivity increases. Further, it was mainly driven by an indeed creative and open-minded peasantry which has gradually improved the livelihood of many Tanzanians.

In their recent book *Prosperity in Rural Africa* (Brockington & Noe, 2021), 18 authors with long-term research experience in rural Tanzania, provide an expansive longitudinal study on this silent success story. They conclude their in-depth case studies which have covered a period of about two decades and mainly focussed geographically on the Southern Highlands as follows (p. 364):

“Farmers have made investments on agricultural and non-agricultural assets that have driven significant changes in rural livelihoods over the past twenty years. But in another respect one of the most salient points across these different case studies is their diversity. The proximate driver of rural transformation, and its timing, has varied in every single location. [...] If there is a story to tell in all of this, it is only, perhaps, that there is no one story. (p. 364) [...] These achievements are not widely recognized. Critics on the left maintain that Tanzanian farmers endure persistent poverty. Critics on the right insist that farming must be transformed. The one argue that rural development policies are misguided, the other that they are not being fulfilled. Both miss the mark. Tanzanian smallholders have been better able to prosper, according to their own measures, than either side admits.” (p.371)

Remarkably, the longitudinal studies highlight thereby that the “possibility of rural prosperity in Tanzania from small-scale agriculture” (ibid, p. 368) cannot

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be affiliated to one or another top-down modernization attempt *per se*. The reader is reminded that especially agricultural policy continues to misrecognise the role of rural farmers and their multi-fold and often surprising practices of raising their asset base, their ability to make careful agriculture-directed capital investments, their openness to interact with rural markets, and their will to endogenously adopt and adapt new farming technologies from within as well as from outside. In their lucid analysis of Tanzania's agrarian question, Maghimbi et al. (2011, p. 59) confirm this observation in similar words:

“Nevertheless, it is the peasant who is creative, able to hire labour, find good markets, invest in technology, access credit and accumulates land and other resources such as animals, who will move up socially and economically.”

Brockington & Noe (2021) understand these modest improvements (e.g. better housing conditions, better educational status, more profits from farming), and hence the possibility of incremental rather than revolutionary change, therefore as being driven by the “nature of their [smallholders] activities and especially investments in assets [which] are imbedded in everyday life experience of the rural environment.” (ibid, 369). On the one hand, the outcome of a long period of liberalisation (ca. 1985 – 2000) and a similarly long period of neo-liberalisation (2000 onwards) is hence outspokenly mentioned for having “coincided with the growing asset base of rural Tanzanians” (ibid, 370). Despite warning voices over “neoliberal economic policies and reforms which have swept through Tanzania” (ibid, 370), it can hence at least be confirmed that these reforms have not pushed the peasantry into deeper poverty or dependence as it is often explicitly or implicitly claimed by critical food scholars (Cf. Martiniello & Nyamsenda, 2018; Mbunda, 2016; Watts, 2018). On the other hand, the book's authors highlight however just as well that the coincidence with (neo-)liberal reforms in Tanzania and especially a wave of donor funds since about 2005 should not be mistaken for an explanation of the observed rural improvements. In fact, the authors criticize that the notion that “subsistence agriculture” is endemic to poverty in rural Tanzania has been integral also to the most recent market-oriented

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interventions. The authors summarize some of the most recent agricultural soft and hard policies such as *the National Strategy for Growth and Reduction of Poverty* (NSGRP) I (2005-10) and II (2010-15), the signing of the NEPAD's *Comprehensive African Agriculture Development Program* (CAADP) in 2010, the *Tanzania's Agricultural and Food Security Investment Plan* (TAFSIP) in 2011, and eventually the *Kilimo Kwanza* policy and the affiliated launch of SAGCOT. This summary serves them to raise that the contemporary circulation of agricultural policies marginalized the actual possibility of change among the peasantry just like it did in the colonial and socialist era rather than embracing it. They reflect on the role of (neo-)liberal reform for growing the overall prosperity, therefore, as follows:

“These policies can only be understood as part of an international agenda for agricultural modernization that has gained local support from policy-makers and some local academics who equate peasants with backwardness [...] and large-scale farming with modernity.”
(Brockington & Noe, 2021, p. 372)

„Without donor funds, farmers have moved from growing traditional maize for food to carrots and potatoes or using fertilizers that have not been used in the past. [...] In the light of the history of agricultural development policy in Tanzania that we have summarized here, a change in direction in agricultural policy which recognized the vigour of the smallholder sector would indeed be radical. But it would not be revolutionary.“ (Brockington & Noe, 2021, p. 373)

In sum, recent evidence on the state of Tanzanian agriculture points, therefore, towards a gradual improvement of rural livelihoods. Remarkably, this improvement is indeed related to an endogenous process of agricultural transformation. Considering the unruly and often brutal historical experiences with top-down modernization attempts in Tanzania and linking these experiences with the longitudinal studies presented above, the reserved reception of SAGCOT as well outright critique towards it is unsurprising.

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6 Research Methodology

Just as this thesis research philosophy is guided by Critical Realism, so is its methodology. Although Critical Realism is oftentimes critiqued for the lack of a method *sui generis* and although only few studies make distinct reference to using a critical realist methodology (Cf. Fletcher, 2017; Lawani, 2021; Sorrell, 2018), Critical Realism provides clear guidance for better or worse methods and methodologies.

As Critical Realism promotes a spiralling movement between *abduction* (re-theorizing an observed event) and *retroduction* (postulating mechanisms which can explain the event), critical realist research most generally tends to involve two intertwined activities: firstly, a description of empirical things, events and observations and, secondly, an iterative analysis of theorizing and postulating the mechanisms that generate the observed events (O'Mahoney & Vincent, 2014). Research informed by Critical Realism is hence outspokenly iterative and it can also be eclectic as it dynamically considers both the transitive dimension of reality (everything that can be observed, described, measured) and the intransitive dimension of reality (actual events, generative mechanisms, and structure). The perhaps most comprehensive guidelines for critical realist methodology have been established in Sayer's (1992) contribution *Method in Social Science: A Realist Approach*, but also in his related works that are more explicitly directed at (human) geographers (Sayer, 1982, 2001, 2015). In this chapter, I am using especially Sayer's contributions to do three things. Firstly, I will clarify my choice of research design. Secondly, I will provide an overview over the deployed methodology. Thirdly, I will present an overview over the collected research data as well as a discussion on its limitations.

6.1 Research Design

Directly referring to critical realist ontology and epistemology, Sayer's work on methods in the social sciences distinguishes especially between two general types of research designs: namely the *intensive* and the *extensive* research design

(see Table 2). This differentiation has been already made by Rom Harré in *The Philosophies of Science* (1972), but Sayer expands Harré's differentiation further as he explains it from a critical realist standpoint.

The *intensive* research design is primarily concerned with which and how casual mechanisms function in a particular case or in a rather restricted number of cases. It is strongly oriented towards explanation and does so through the study of agents, objects, and structures which share a distinct causal context. It is hence intensive as it demands from the researcher to delve deep into the causal context, to involve in interactive interviews and observations, and usually to work with a strongly qualitative background. Whereas the strength of the intensive research design lies, therefore, in its ability to identify especially generative mechanisms which naturally veiled from purely empirical approaches due to the intransitive dimension of reality, its weakness lies in a lack of outright generalizability. As causality rather than regularity guide the research process, the results of an intensive research design are not necessarily representative.

The *extensive* research design is, therefore, primarily concerned with discovering common patterns and regularities among a population as a whole or also within a certain geographical container. It is hence strongly oriented towards identifying common patterns and distinguishing features of a larger population and it attempts to explain how certain characteristics or process are distributed. Rather than focussing on a limited set of agents, objects, and structures which are causally related, the extensive approach focusses on building and representing taxonomic groups of agents, objects, and processes to effectively create a descriptive generalization of an observed pattern. Typically, extensive research designs are, therefore, relying on large-scale surveys and a representative sample of a population or geographical container. Whereas the strength of an extensive research design lies in its ability to create a representative and partly reproducible account of knowledge on a whole population, extensive research designs typically lack explanatory power. Despite their strength of documenting patterns and regularities, causalities or generative mechanisms inherent to agents, objects, and structures can only be addressed superficially or not at all.

Table 4: Intensive and extensive research designs

	Intensive	Extensive
Research question	How does a process work in a particular case or small number of cases? What produces a certain change? What did the agents actually do?	What are the regularities common patterns, distinguishing features of a population? How widely are certain characteristics or processes distributed or represented?
Type of groups studied	Causal groups	Taxonomic Groups
Type of knowledge produced	Causal explanation of the production of certain objects or events, though not necessarily representative ones.	Descriptive 'representative generalizations, lacking in explanatory penetration
Typical methods	Study of individual agents in their causal contexts, interactive interviews, ethnography. Qualitative analysis	Large-scale survey of population or representative sample, formal questionnaires, standardized interviews. Statistical analysis
Limitations	Actual concrete patterns and contingent relations are unlikely to be 'representative', 'average' or generalizable. Necessary relations discovered will exist wherever their relata are present, e.g. causal powers of objects are generalizable to other contexts as they are necessary features of these objects.	Although representative of a whole population, they are unlikely to be generalizable to other populations at different times and places Problem of ecological fallacy in making inferences about individuals. Limited explanatory power.

Table based on Sayer (1992, p. 163f.)

Among most critical realists, the intensive research design is clearly preferred (O'Mahoney & Vincent, 2014; Vincent & O'Mahoney, 2017). Although quantitative and more extensive approaches have been successfully applied for critical realist interventions in (orthodox) economics (Lawson, 1997, 2012), most critical realist-informed research is leaning towards qualitative, explanatory, and hence intensive approaches.

Especially in Economic Geography, advocates of Critical Realism have repetitively highlighted the relevance of in-depth case studies for identifying the

generative mechanisms that explain uneven economic geographies (Barnes, 2001; Barnes & Christophers, 2018; Bathelt & Glückler, 2003). Notably, also leading GVC/GPN scholars have used several occasions to promote preferably qualitative, critical realist-informed case studies as a way forward for explaining the spread of global lead firms under contemporary capitalism (Hsu, 2019; Yeung, 2003, 2019a, 2019b; Yeung, 1997). Indeed, the most impactful GVC and GPN studies have used intensive and qualitative case study approaches; typically by focussing on one industry, lead firm, or also region that becomes integrated into the global economy (Breul et al., 2018; Dorn & Huber, 2020; Fuller & Phelps, 2017; Grabs & Ponte, 2019; Neilson et al., 2020; Neilson et al., 2018). This focus on an intensive research design is unsurprising. It can be explained by the GVC/GPN frameworks. After all, both heuristics are distinctively referring to the causally related networks of actors, objects, and even structures such as power and hierarchy within a GVC/GPN, but they are less interested in their generalizable regularities or taxonomies⁴⁶.

Intensive research designs are however not only preferred in Economic Geography, but perhaps even more so in the CPE literature on spatial imaginaries. Due to its distinct focus on semiosis (discursive sense- and meaning making) and extra-semiosis (limiting structures to semiosis), an intensive research design is often inevitable to bring together discursive and non-discursive knowledge accounts. When addressing semiosis, a nuanced discourse analysis can be an important basis for theorizing and analysing which spatial imaginary becomes selected and retained and why this is happening (Edozie, 2017; Fletcher, 2017; Harrison & Gu, 2021). Further, when addressing extra-semiosis, causally related, rather than taxonomically organized structures are usually considered as impeding or enabling any discursive semiotic practice. Here, especially historical materialist informed approaches on socio-economic structures will usually go way beyond what can be measured by its regularity (Belfrage & Hauf, 2016;

⁴⁶ Such approach to GVCs is more typical for analyses in comparative international economics and other cognate economic disciplines. Here, global input-output matrices are used to quantify the integration of countries or their sub-regions into GVCs. These quantitative measures are then used to create taxonomies of GVC integration (Laget et al., 2020; Mouanda-Mouanda, 2019; World Bank, 2020).

Thame, 2021). For instance, and again referring to major concerns of GVC/GPN scholars, the evolutionary and non-linear path dependency of institutional change in a region, or *vice versa*, the intra-organizational or industrial evolution of structures, hierarchies and power differentials within a GPN usually defy any pattern that could be sufficiently grasped by an extensive approach (Breul et al., 2021; Dawley et al., 2019; Mackinnon, 2020; MacKinnon et al., 2019). Rather, in order to understand the structural conditions that may impede and encourage that regions and GPN strategically couple, both antagonistic entities (regions and GPNs) must usually be methodologically addressed and theoretically interpreted under consideration of their causal grouping, but clearly not of their strict taxonomy.

Considering the preference of intensive approaches within both disciplines, this thesis research design is opting for an intensive research design. Some of the above conceptual arguments make this partly self-explanatory, but some empirical explanations should further justify this choice of research design. Empirically, the connection between the spatial imaginary SAGCOT and its effects on agro-industrial GVCs/GPNs is not as simple as it seems. At first sight, one could indeed contend, that an extensive research design could best describe the patterns and regularities of these effects simply by measuring the regularities within the corridor region. However, my and many other research contributions addressing similar concerns along the SAGCOT corridor clearly share one common insight: There is simply no single story and even less so any repetitive pattern of effects which could be associated with SAGCOT's mobilization (Bergius et al., 2018; Brüntrup, 2019; Brüntrup et al., 2018; Gebrekidan et al., 2020; Höllermann et al., 2021; Kadigi et al., 2017; Matejcek & Verne, 2021; Sulle, 2020; West & Haug, 2017).

Take for instance, some indeed extensive data that has been collected by the CRC228 in form of a household survey and that provides a representative sample of two of SAGCOT's main clusters (Ihemi and Kilombero cluster) (Gebrekidan et al., 2021). This data can highlight that already at the discursive or semiotic level SAGCOT has made no impact that could be described by its regularity at

all. In fact, the CRC228's survey data highlights that out of 871 interviewed smallholder farmers only seven (7) – or less than one per cent of all respondents – have ever heard about SAGCOT. Hence, despite SAGCOT's claim to include and affect millions of smallholder farmers, almost none of these farmers is today's aware of living in a focus region of the corridor. Remarkably, this is the case roughly 10 years after its launch.

Above empirical argument about the limitations of an extensive research design is further supported by more qualitative observations that I made during my first research phase in late-2018. Struggling to find empirical access for explaining the effects of SAGCOT, I reflected from the onset on the seemingly illusive quest to find SAGCOT. In a blog post titled "*The Quest to Find SAGCOT: Erratic Space(s) and Fragments of Interpretation*" (Hartmann, 2018), I introduce my first explorative research phase as follows⁴⁷:

"How to find a corridor? Or to be precise: Where and how can a corridor project like the Southern Agricultural Growth Corridor of Tanzania (SAGCOT) become empirically accessible? This question carried me during my first explorative research phase of two months in Tanzania. [...] Working through the extensive piles of literature, presentations, and news on the mega-project, a fictional image of the corridor had built-up during my desk research. This expectation was especially grounded on a regional, almost territorial understanding of the corridor itself. Corridor or non-corridor, cluster or non-cluster, implemented, abandoned or scheduled: these categories resembled my cognitive system of ordering thoughts and expectations about a region covering roughly a third of Tanzania."

Launching the explorative phase of the research, I had hence initially planned to approach SAGCOT as a vehicle of future-making by associating it with a strongly geographical understanding in Euclidean fashion (e.g. corridor-inside –

⁴⁷ I thank Julia Verne (University Bonn) for reviewing the quoted blog post at the CRC228 website.

corridor outside, corridor-related effect – corridor-unrelated effect). These taxonomic and stringent categories were derived from expansive desk research prior to the first research stay. Generally, they were aimed at empirically “filling” my research project as well as my prepared theoretical framework through documenting and measuring the implementation of the corridor preferably in its totality. In hindsight a naïve assumption. I outline this already in the discussion of my explorative research phase:

“Traveling along the corridor on its longitudinal axis – which is basically the highway reaching from Dar es Salaam towards the Zambian border – I quickly realized that my reductionist approach of facing the corridor was far from viable. Maps and plans apparently have engaged with complex realities on the ground in a project that is now in its eighth year of implementation. A map – and thus my rather classical, spatial understanding of the corridor – became increasingly irrelevant, if not misleading. [...] Shifting from deduction to interaction, I started to engage with those who must know best where and how SAGCOT is to be found. Strikingly, however even when blatantly confronting people with the question of whether they know SAGCOT or not, the corridor remained shallow. Almost no one I talked to knew about his or her state of living in a corridor region. Whether it was taxi drivers, farmers, input traders, scholars, even local political representatives: The project was rarely known to the ‘ordinary’ people.

Thus, in the quest to find SAGCOT, I went back to the extracts of the initially confusing piles of literature, presentations, and news. If a project is to be found, it will be with its official partners engaging with SAGCOT. And finally, by the virtue of visiting those partners, and thus a shift of perspective – from an overemphasized spatial lens towards a relational understanding of the corridor’s actors and practices that link them –, the corridor became ‘visible’. The complex landscape of SAGCOT partners consisting of donors, agricultural projects, philanthropists’ ventures, and public institutions emerged as the most practical, while arguably bi-ased lens to find and understand SAGCOT.”

In other words, while I initially started with the naïve assumption that I could categorically measure the corridors effects through an extensive study along the corridor, I was quickly faced with the messy, irregular and stratified reality of SAGCOT. I was further reminded of the dawning limitations of my rather empiricist and positivist predispositions. A certain disillusionment and pragmatism hence led me to choose a far more inductive and flexible approach to eventually find SAGCOT. Not only did I abolish my neatly prepared matrices, data sheets, and geo-databases waiting to be filled, I also took a substantial step backwards in terms of my theoretical assumptions (in hindsight this reflects an intuitive moment of abduction). Contrary to my previous search for immediate and preferably explicitly visible and measurable effects of SAGCOT, I focussed on more general, almost ontological questions such as: What makes SAGCOT a corridor? What are the mechanisms that underpin the “thing” SAGCOT? And what processes do these mechanisms elicit?

These empirical and epistemological concerns constitute, therefore, an important argument for my choice of an intensive research design. As SAGCOT has never translated into any widespread, pattern-like and potentially un-discriminatory effect(s) on Tanzania’s agricultural landscape, a far more relational approach oriented towards identifying causal groups (e.g. SAGCOT stakeholders, lead firms that have explicitly benefitted from SAGCOT) became inevitable and far more promising. This choice of research design also guides the research methodology of this thesis.

6.2 Research Methodology

As stated already, Critical Realism stands for no research method *sui generis*. Rather, critical realists are typically advised to embrace a certain openness and flexibility towards different methods and methodologies. Usually, critical realist research is hence choosing methodologies which are composed of classical mixed-method approaches (Mader et al., 2017; Sayer, 1992). Whereas the plurality of mixed-methods bares the risk of arbitrary treatment of methodology or even no (explicit) methodology at all, this thesis’ underlabouring by Critical

Realism and especially also CPE has however benefitted from a more distinct methodological approach. Namely, it uses the methods of Critical Grounded Theory (CGT) as it has been developed by Belfrage & Hauf (2016).

6.2.1 Introduction to Critical Grounded Theory as Methodology

CGT – also referred to as “The Gentle Art of Retroduction” (ibid, p. 1) – aims to link a systematic array of methods and theoretical predispositions in order to create a coherent methodology (Cf. Hadley, 2019; Hu, 2018). As such, it is both an abductive and retroductive methodology that systematically constructs small-scale to mid-range social theories based on empirical data (Hadley, 2019). CGT is foremost contributing to the CPE aim of studying capitalist (re-)organization in terms of its semiotic and structural dimensions. It does so by acknowledging the productive and performative power of agents, discourses and metaphors *vis-à-vis* the objects and their structured materiality which may either affirm or restrain the former (Belfrage & Hauf, 2016). Accordingly, whereas *classical* grounded theory is outspokenly interpretivist, conflating epistemology for ontology and further often critiqued for being un-systematic, CGT aspires to bring together a realist ontology without denying the relevance of discourse and metaphors (Belfrage & Hauf, 2016, p. 9f.).

The research process according to CGT is iterative and reflexive to comply with the critical realist notion of a spiralling research process. This iterative process can be organized into different research phases (See Figure 16).

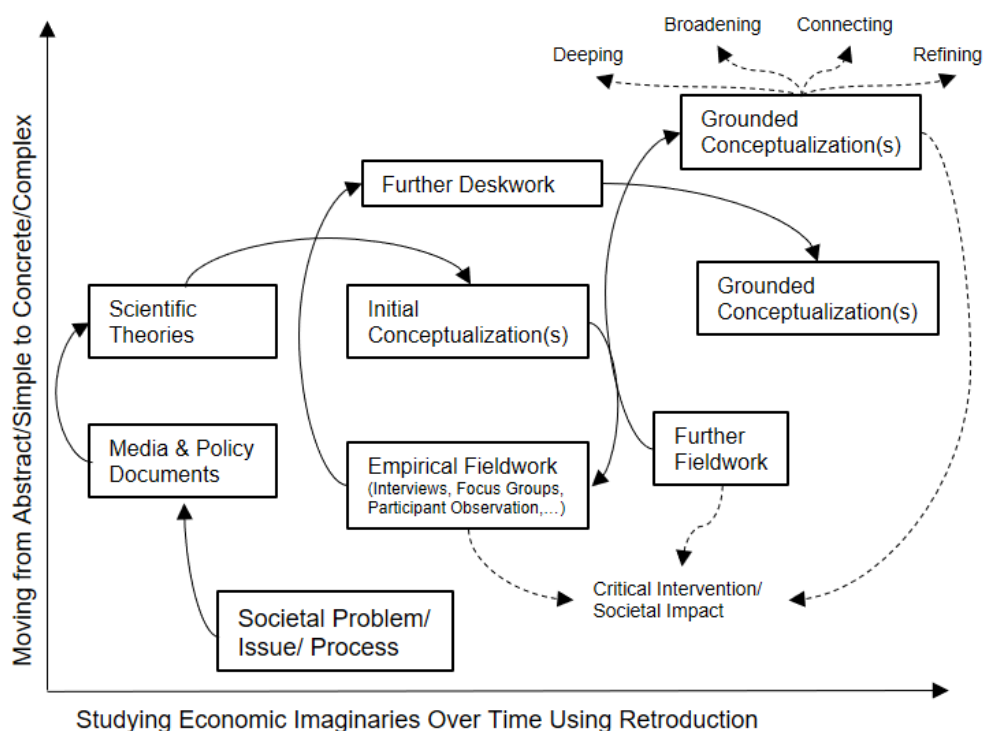


Figure 16: The retroductive research process of Critical Grounded Theory
 Author's graphic based on Belfrage and Hauf (2016, p. 11)

The *first phase* typically starts with the critical observation or also the direct experience of a social problem or an issue that needs explanation. Quite often, the identification of such social problem is not at least driven by the emancipatory recognition for social change⁴⁸. It is hence necessarily subjected to the normative evaluation by the researcher about what issues need further explanation. The identification of a social problem can for instance be based on prominent discourses in the public media, it can be based on motivations to feed into a topic that is *en vogue* among academics, but it can just as well be driven by personal often intimate experience made by researchers themselves. Already the identification of a research problem is hence necessarily underpinned and nudged in one direction or another due to the inherently social character of science.

⁴⁸ This is again a direct reference to Bhaskar's Critical Realism as Bhaskar positions his science oh philosophy as being distinctively emancipatory

After identification of a social problem, CGT promotes a *second* phase which is usually an initial phase of deskwork. Again referring especially to circulating public discourses, but also making first efforts to link the respective research problem to established scientific theories, the researcher will identify and formulate initial *proto-theories* (Collier, 1994, p. 165f.). Proto-theories can be understood as ideological theories about society or also the everyday theories that make sense to most people (Belfrage & Hauf, 2016). They are, therefore, the existent transitive account of knowledge; or also the existent raw material of science including both empirical data or public knowledge as well as established theory (as such, proto-theories are directly referring to the social character of science). Since proto-theories can impossibly be blended out by any researcher, the task is not to ignore them, but rather to attempt to transform a proto-theory into a scientific theory, or in critical realist language: identifying the accounts of knowledge and theory which are *less* fallible. This transformation from proto-theory towards scientific theory may then eventually explain the social problem and possibly contradict its own initial empirical and theoretical raw material (Collier 1994, p. 165). According to CGT, a first step of transforming a proto-theory is indeed grounded in a discourse-sensitive analysis of the existing raw material (e.g. media reports, blue prints, public speeches, but also quantitative data). This initial analysis aims at asking how the identified social problem is discursively construed and represented not at least by considering what hegemonic discourses are at play (Belfrage & Hauf, 2016; Levy, 2008; Levy & Spicer, 2013). Again grounded in the interest of CPE in economic- or also spatial imaginaries, the initial deskwork will hence already assess what semiotic and extra-semiotic conditions constitute a respective imaginary. Further, by considering discursive practices (semiotic) and structural restrictions (extra-semiotic) first theories about possible *variations* (what imaginaries are thinkable), practices of *selection* (what imaginary is eventually presented) and *retention* (what imaginary becomes stabilized or adopted) can be developed in order to produce tentative conceptualizations or also explanations. These are however necessarily incomplete, fallible and provisional.

After the initial phase of deskwork and abductive (re-)theorizing, tentative conceptualizations and explanations should in an optimal sense “gently” (Belfrage & Hauf, 2016, p. 9) guide the researcher into a subsequent *third* phase of long-term and highly involved ethnographic fieldwork. This fieldwork should occur without ignoring the possibility of surprise and hence constantly acknowledge that the prior proto-theories are fallible and provisional. Most typically, unstructured and semi-structured interviews, focus group discussions or also participant observations can guide this intensive research phase. In this phase, first *demi-regularities* (Lawson, 1997) will typically challenge or entrench the previous proto-theories and extend the method of abduction, but gradually move also towards retroduction. Consequentially, the third research phase demands for constant reflexivity not only in terms of considered theory, but also the deployed methodology or even the demarcation of the identified social problem.

The *fourth* research phase is effectively a second phase of deskwork. By quite literally going back to the “drawing board”, the researcher can, on the one hand, structure and preliminarily interpret the collected data and, on the other hand, critically reflect on the initial proto-theories to eventually reject or refine them. In this movement, first grounded conceptualizations can be made. In consideration of epistemic relativism and judgemental rationality, this fourth phase is, therefore, important for describing and postulating first generative mechanisms which must necessarily be in place to explain the observed phenomena. Accordingly, the return to deskwork is then supported by the breadth and depth of collected data and experience. This allows specifically to fully devote the fourth phase to the method of retroduction.

Finally, the *fifth* research phase should then aim at probing the grounded conceptualization and initial postulation of generative mechanisms. By following up with a second fieldwork phase, the grounded conceptualization achieved in the prior deskwork phase can serve to interactively reflect on the postulated generative mechanisms. As these mechanisms usually refer to the intransitive dimension of reality, even the people directly affected may not be aware of them precisely. Indeed, “it is sometimes the case that research informants are unaware of

the critical concerns affecting them” (Hadley, 2019, p. 580). The researcher should hence be involved in a more active role by distinctively re-visiting the places and agents that seem most promising to provide a reasonable assessment of the postulated mechanisms. Hence, in order to achieve a state in which the researcher jointly reflects on the identified social problem with the researcher’s informants, the fifth research phase can benefit from methods such as stakeholder workshops, but also from more confrontative interview techniques when informants are re-visited.

In total, the CGT methodology requires, therefore, an iterative engagement with the identified social problem. This iterative process is often also referred by Critical Realists as a spiralling rather than an outward linear movement. By progressing gradually from abduction towards retroduction, the researcher will also move from rather abstract and simple (proto-theories and demi-regularities) towards concrete and complex (causal explanations and generative mechanisms) accounts of knowledge and theory.

6.2.2 Application of Critical Grounded Theory

The theoretical and empirical work providing the fundament of this thesis is in the widest sense aligned with above approach of the CGT methodology. Only slight adoptions to the phases of desk- and fieldwork phases have been made. Namely, this thesis’ fieldwork phases occurred in a three-fold iterative process. Accordingly, a first phase of problem identification, a second phase of abduction, two subsequent phases or retroduction and a synthesis phase best describe the research methodology for this thesis. Table 4 summarizes the research phases and explains the use of different methods depending on the respective phase.

Table 5: Thesis research methodology

Research phase	Aims	Methods / Activities	Time frame
Problem identification	<ul style="list-style-type: none"> • Clarify research object • Align research aims with research project (CRC228 & sub-project C01) 	<ul style="list-style-type: none"> • Project meetings • First literature update and analysis based on research proposal 	<p>Deskwork</p> <p>03/2018 – 04/2018</p>
Abduction	<ul style="list-style-type: none"> • Discursive analysis of SAGCOT • Contextualization with secondary data (e.g. state of agriculture in Tanzania) • Observation of demi-regularities (materializations of SAGCOT) • Reflexive abduction (e.g. relational perspective with distinct GVC focus) 	<ul style="list-style-type: none"> • Media and policy document analysis • First theoretical and conceptual reflections (proto-theory) • Familiarization with the field (SAGCOT corridor) • Identification of major research sites (Ihemi cluster) and causal entities (large-scale farms & fertilizer value chain) • First semi-structured interviews • Collection of secondary data and grey literature 	<p>Deskwork</p> <p>04/2018 – 09/2018</p> <p>Fieldwork</p> <p>09/2018 – 11/2018</p>
Retroduction I	<ul style="list-style-type: none"> • Revise initial proto-theory • Postulate first generative mechanisms (spatiality of financialization, spatial-temporality of spatial imaginaries) • Probe and enrich the postulated generative mechanisms 	<ul style="list-style-type: none"> • Transcribing and coding of interviews • Second literature & media analysis • Draft & submission of first thesis article (thesis article II) • Semi-structured interviews with new informants and informants from the first fieldwork phase • Ethnography along agricultural value chain • (Quantitative household survey) 	<p>Deskwork</p> <p>12/2018 – 02/2019</p> <p>Fieldwork</p> <p>03/2019 – 07/2019</p>
Retroduction II	<ul style="list-style-type: none"> • Revise first postulated generative mechanisms • Present and debate postulated mechanisms • Enrich CTG with final empirical observations 	<ul style="list-style-type: none"> • Draft of second thesis article (thesis article I) • Project-internal presentation of preliminary results • Presentation of preliminary results at several workshops and conferences • Focussed expert interviews • Presentation of preliminary results • Participatory observation (stakeholder meetings) 	<p>Deskwork</p> <p>07/2019 – 12/2019</p> <p>Fieldwork</p> <p>01/2020 – 02/2020</p>
Synthesis	<ul style="list-style-type: none"> • Synthesis of research results & theory • Continued retroduction 	<ul style="list-style-type: none"> • Draft third thesis article (thesis article III) • Stakeholder workshops & conferences • Public dissemination of results 	<p>Deskwork</p> <p>03/2020 – 11/2021</p>

- Develop thesis framework
-

6.3 Research Site

The SAGCOT corridor covers roughly a third of Tanzania's landmass. Further, SAGCOT is divided into seven clusters of different priorities. Accordingly, the choice of appropriate research site needed reflection. During the abductive research phase and the first fieldwork stay, site visits in the three most advanced clusters were made (Ihemi, Kilombero, Mbarali). Eventually, I opted to strongly focus on the Ihemi cluster. This is explained as follows. Firstly, SAGCOT staff confirmed that the Ihemi cluster was the most implemented so far. Indeed, various agriculture-related donor projects had shifted their activities to the Ihemi cluster after SAGCOT's launch. If substantial impacts on the agricultural value chain were to be found, I consequentially expected them to have occurred in the Ihemi cluster. Secondly, the existing literature on SAGCOT was clearly biased towards case studies from the Kilombero cluster. After communication with some of the study authors, the Ihemi cluster promised to allow insights that move beyond the Kilombero cluster. This seemed also important as SAGCOT has never officially started operating in Kilombero. Even by today, the SAGCOT Centre is yet running preliminary studies and stakeholder workshops to officially set-up a regional office and launch the cluster as SAGCOT's "Green Cluster".

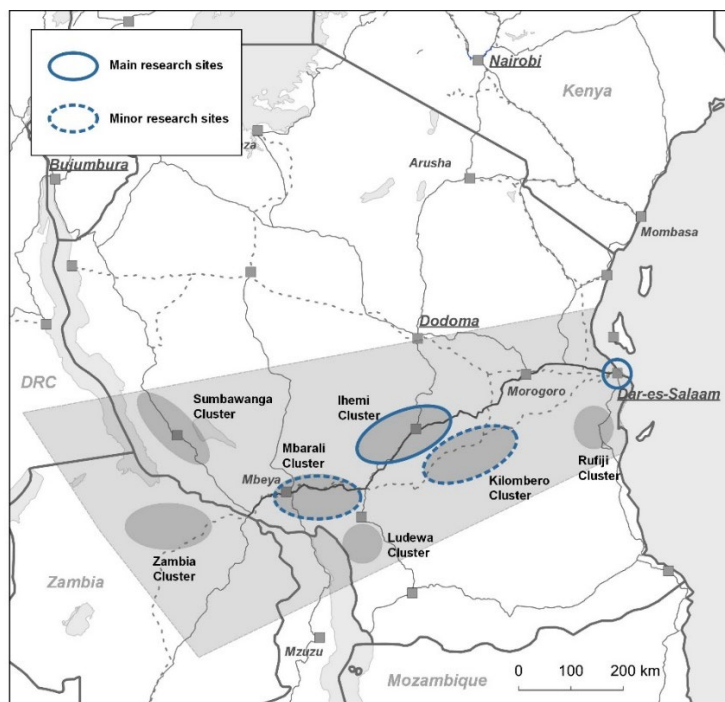


Figure 17: Thesis research sites along the SAGCOT corridor

6.4 Research Data

Owed to the intensive research design, most of the data collected for this thesis is qualitative data. It is important to note, that no strict divide between data collection and data analysis phase exists. This is due to the thesis’ core of three self-standing articles which have been written at different stages of the research process. Further, this is particularly due to the naturally iterative research process of several deskwork and fieldwork phases.

6.4.1 Semi-structured Interviews

The most important dataset for this thesis consists of the collected interviews with stakeholders *from* and *around* Tanzanian and global agro-industries (see also Appendix 1 & 4). In total, a majority of the thesis’ 99 semi-structured interviews were collected during the fieldwork phases. Only few digitally-mediated interviews with actors from agro-industrial multinationals have been collected also during the deskwork phases. The interviewed actors cover a broad range of functions along the generalized agricultural value chain. The largest group of

interviewed actors can be in the widest sense classified as stakeholders from agro-industries. In total, 55 interviewed actors were either smallholder farmers, large-scale farmers & farmland investors, managing staff from off-taking companies (large crop buyers), operational or managerial staff from input industries, or also agricultural extension worker. The second largest group of interviewed actors consist of 23 institutional stakeholders. Here, government staff as well as representatives from Tanzanian NGOs (e.g. SAGCOT, ANSAF, AFAP, ACT, TAP) and CSOs (e.g. TOAM, AFSA) were considered. The next largest group of actors is that of representatives or staff from international development agencies. In total, 14 interview actors from major donor organizations (e.g. USAID, SwissAid, UK Aid) or from individual donor projects (e.g. CARE, NAFKA, RUDI, One Acre Fund) were interviewed. Finally, six interviews with Tanzanian academics (e.g. SUA, UDSM) who have been involved more or less strongly in SAGOCT's early mobilization finalize the dataset of semi-structured interviews.

Although all interviews have been rigorously documented at best will, a substantial share (n=38) of interviews could not be recorded and transcribed word by word. For these interviews only written notes and post-scripts could be documented. This is mainly explained by the tense political condition during the research process. Under increasingly authoritarian conditions in Tanzania and strong intimidation of the media, academia, and the public sphere in general, many interview partners preferred not to be recorded. In some cases, I chose deliberately not to ask for a recording in order to keep the interview processes as open and unbiased as possible. Regardless of this major limitation the aggregate length of recorded and transcribed interviews amounts to 66 hours and four minutes.

6.4.2 Grey Literature and Secondary Data

Another crucial dataset consists of grey literature which has been collected to analyze especially the semiotic and extra-semiotic conditions of SAGCOT's mobilization. These documents were collected in a fairly unstructured, but intensive and consistent way throughout the whole research process. In total, 762

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documents of varying length and quality were collected. Figure 18 differentiates the collected documents by document type. Most importantly, media (print and online) were collected. Further, especially company (annual reports, financial reports, CSR reports), organization (e.g. donor reports, NGO reports), and event reports (e.g. conferences, public policy platforms) served to understand for instance the institutionalization of SAGCOT. Finally, policy documents and transcribed public speeches were an important data source for contextualizing discourses and the policy context around SAGCOT's mobilization. Figure 19, further highlights the temporal allocation of the collected documents. The collected data covers the period before SAGCOT's launch and peaks naturally in 2018 and 2019 as these years coincided with the main research phases.

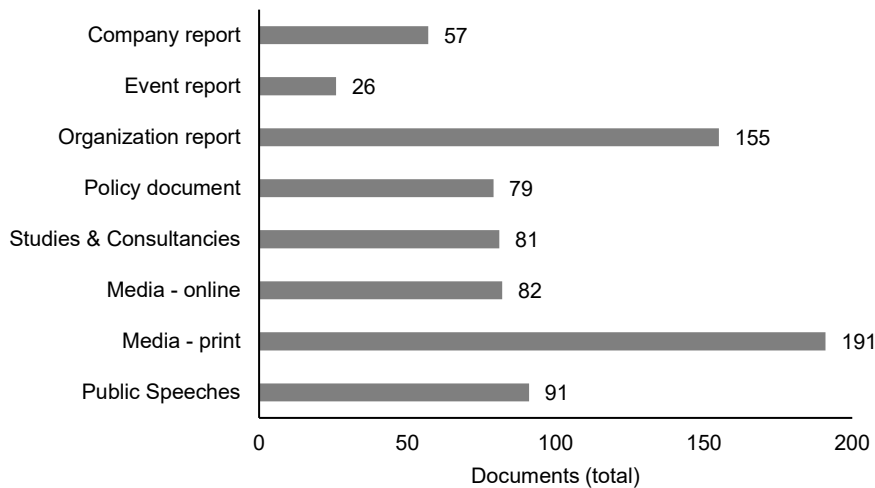


Figure 18: Analyzed documents by document type

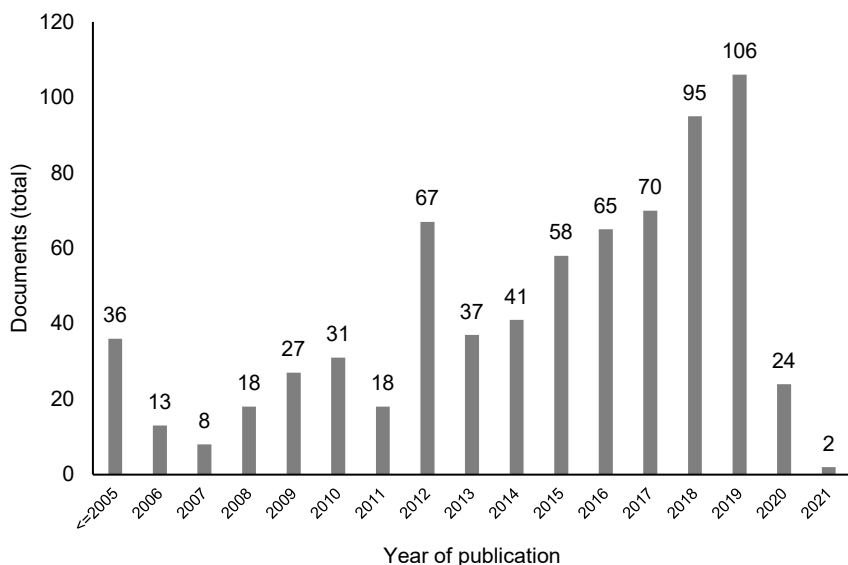


Figure 19: Analyzed documents by year of publication

Both, the collected interviews and the collected grey literature, have been coded with the qualitative content analysis software MAXQDA throughout the research process. Codings were individually designed and adapted depending on the respective thesis article and their individual research questions. Generally, the coding process followed the critical realist approach as itz has been proposed by Fletcher (2017). This coding process is a “directed” (ibid, p. 186) process as it is foremost deductive and yet flexible due to the consideration of abduction and retroduction. Codes that have been initially derived from the literature have accordingly gradually developed and changed during the abductive and the two retroductive research phases (e.g. framework-derived categories such as power, governance and value chain upgrading, but also theory-derived categories such as events, processes and mechanisms). Depending on respective thesis article, these codes were hence gradually refined by adaption, elimination and re-categorization.

6.4.3 Stakeholder Events

Throughout the research process, but especially in the two phases of retroduction (second and third desk- and fieldwork phase), I have participated in 27

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stakeholder events which either directly addressed the Tanzanian agro-industry or more generally also the African food system as a whole (see Appendix 2). A total of 15 digitally-mediated webinars (during the Covid-19 pandemic), six policy workshops, four conferences and two exhibitions in and outside of Tanzania have served not only as important platforms for establishing contacts to potential interview partners, but they should also be understood as data themselves. Although most of the digital stakeholder events could be recorded, especially the analogue events were usually documented by hand-written notes (*in situ*) and summarizing reflections (*ex post*).

Taken together, this thesis can hence draw from intensive, qualitative data which has been collected and reflexively analyzed throughout the research process.

7 Thesis Article I

Emptying the Future, Claiming Space: The Southern Agricultural Growth Corridor of Tanzania as a Spatial Imaginary for Strategic Coupling Processes

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7.1 Abstract

This article contributes an economic geography perspective on the envisioning and implementing of mega-infrastructure projects in Africa. Focusing on development corridors and their implicit spatio-temporality of “global integration,” we conceptualize corridors as spatial imaginaries for strategic coupling processes. We distinguish between emptying the future and claiming space as two fundamental mechanisms of spatial imaginaries. Together, these mechanisms can render crucial territorial and relational “insides” and “outsides” available for coupling processes. Spatial imaginaries are then sources of power in the coupling between corridor regions and global production networks.

Empirically, we focus on the Southern Agricultural Growth Corridor of Tanzania (SAGCOT) in relation to the coupling process between global fertilizer manufacturer YARA International and the Tanzanian agricultural market. Facing unfavourable coupling conditions with Tanzania’s fertilizer sector, the early mobilization of SAGCOT served to promote a narrow imaginary of Tanzania’s agrarian future, thereby making a soft claim to territorial (through the corridor) and networked space (through a network of corridor stakeholders). Although YARA and Tanzanian counterparts initially capitalized on SAGCOT’s mobilization due to its promise to transform Tanzanian agriculture, a gradual disenchantment with SAGCOT’s vision and its subsequent disintegration jeopardizes these coupling process today.

Approaching corridors as spatial imaginaries reveals therefore their instrumental but fragile power in coupling processes. Such power is not about blunt domination or coercion, but rather builds on persuasion and consent. Only when spatial imaginaries succeed in maintaining persuasive arguments about the future, is their function of initiating and stabilizing otherwise unfavourable coupling processes available.

Keywords: Spatial Imaginaries; Strategic Coupling; Power; Futures; Development Corridors; Tanzania

7.2 Introduction

A recent wave of infrastructure megaprojects across Africa, and particularly the widespread embrace of infrastructural corridors, is not only rearranging African geographies, but raising the pivotal question of how and for whom African futures are imagined (Enns, 2018; Ouma et al., 2020). Dubbing corridors as development- or growth-oriented suggests how corridors emerge as alluring dreamscapes of capitalist modernity, and how they disclose distinct spatial and temporal imaginaries (Müller-Mahn, 2020). The mobilization of development corridors evokes, therefore, geographical imaginaries about “Africa” as a continent ready for integration into the spatial fixes of global capitalism, as well as it evokes temporal imaginaries of the African future waiting to inevitably catch up with economies of the Global North (Lesutis, 2020; Zajontz, 2020). As such, contemporary development corridors recapitulate a decades-old and widespread teleology about African futures, where questions about *what* the future of Africa *should be* are often supplanted by the question of *how* Africa can reach a future (perfect) already defined by deeper capitalist integration (Hammar, 2016; Obeng-Odoom, 2015).

Although the return of corridors is embedded in a *longue durée* of infrastructure projects on the continent (Enns & Bersaglio, 2019; Ramutsindela, 1999), their most distinguishing feature *vis-à-vis* preceding (pre-)colonial and post-colonial projects is their underlying imperative toward integration with the global

economy (Lesutis, 2020). Designed around the conviction of a rising Africa, and arising from the need for spatial fixes in ever-globalizing capitalist expansion (Carmody et al., 2021), contemporary development corridors are widely seen as conduits for unlocking and transforming African territories, rendering them compatible for coupling with global networks of production and trade (Chome et al., 2020; Dannenberg et al., 2018). Connect and transform, or, as Schindler & Kanai (2021) argue, “getting the territory right.” This imperative is ingrained in the deployment of development corridors today.

With our contribution, we examine the discursive underpinnings of this spatio-temporal imperative, and we seek to account for their material ramifications. Toward this end, we conceptualize development corridors as spatial imaginaries that help us distinguish between two fundamental mechanisms. First, spatial imaginaries function by *emptying the future*, as they privilege a distinct future while obscuring manifold alternatives (Adam & Groves, 2007; Groves, 2017). Second, spatial imaginaries function through *claiming space*, as they demarcate and claim “insides” and “outsides” in territorial (e.g., via corridor regions) as well as networked terms (e.g. via corridor stakeholder alliances). To account for the potentially pernicious onto-epistemological status of spatial imaginaries, as an “entanglement of matter and meaning” (Tutton, 2017), we conceptualize the material ramifications of development corridors by further drawing on literature concerned with the tangible experience of a “globalizing regional development” (Coe et al., 2004). Literature on global production networks (GPN) (Coe & Yeung, 2015), and especially the mid-range heuristic of “strategic coupling” (Yeung, 2016), help us to explain why the mechanisms underpinning spatial imaginaries can affect the outcomes of coupling processes. Rather than by authority or coercion, spatial imaginaries unfold their power through persuasive agendas and ideologies, which may result in both compliance and consent, but not necessarily observable conflict. We contend that these quiet and soft forms of power can ultimately affect processes and outcomes of strategic coupling.

To illustrate our theoretical point, we focus on the *Southern Agricultural Growth Corridor of Tanzania* (SAGCOT). SAGCOT has been broadly critiqued for

envisioning a future that mainly benefits multinational agribusiness corporations and farmland investors (Bergius et al., 2018; Buseth, 2017), while fostering the de-peasantization of smallholders (Martiniello & Nyamsenda, 2018; Mbunda, 2016) and the alienation of pastoral livelihoods (Bergius et al., 2020; Bluwstein et al., 2018). Generally, these studies agree that SAGCOT attracted widespread political and financial support, but was unable to deliver on utopian visions of rapid agricultural transformation and the promised gains from inclusive global integration.

Our conceptual cross-fertilization allows for an important empirical contribution to this literature. Based on qualitative research within the fertilizer industry, we historicize how an initially modest public–private partnership (PPP) between the Norwegian fertilizer manufacturer, *YARA International*, together with international development agencies, and Tanzanian government actors elaborated the full-fledged spatial imaginary informing the SAGCOT mega corridor. As coupling conditions between YARA’s global production network (GPN) for fertilizer and the Tanzanian regional market had long been unfavourable, SAGCOT promised to transform some of the most fundamental coupling conditions within the corridor. Although SAGCOT’s performance as a whole was underwhelming, the corridor served as an important territorial and political tool for demarcating a functional territory (the corridor region) and networked space (state-capital alliance) for the coupling that occurred between YARA’s fertilizer GPN and the Tanzanian market region. SAGCOT made a substantial difference, as it allowed for the transformation of regional assets so that they aligned with structural conditions necessary for the mutual coupling process. Whereas YARA and its Tanzanian counterparts initially capitalized on their strategic partnership, the corridor’s recent disintegration, due to gradual disenchantment with SAGCOT, jeopardizes the very same coupling process today. Both stages, including SAGCOT’s early mobilization and its gradual disintegration, help to clarify empirically how development corridors can have an effect on coupling processes.

Our contribution thus responds to recent calls by economic geographers to consider the manifold alternative possibilities for (re-)imagining African futures

(Ouma et al., 2020). Rather than directly contributing to such re-envisioning, we address these calls by theorizing some of the mechanisms involved as powerful actors advance persuasive and persistent teleologies about ostensibly "narrow" African futures.

In what follows, we begin with a theoretical overview on spatial imaginaries and introduce the two fundamental mechanisms of emptying the future and claiming space. We link these ideas with the strategic coupling framework to discuss how spatial imaginaries resemble resources of power in coupling processes. To illustrate our argument, we present our case study. Finally, we conclude with a brief reflection on our empirical and conceptual contributions.

7.3 Spatial Imaginaries: Emptying the Future, and Claiming Space

Corridors are more than materialized and “highly developed ‘bundles’ of transport routes” (Whebell, 1969, p. 4). For example, when the French geographer Brunet famously mapped the Blue Banana in 1989, his sketch brought into being the fuzzy metaphor of a corridor crossing European core territory, from Liverpool to Milan. Considering the curious fruit moniker, and its blatant superimposition over national boundaries, the banana might have raised little attention but certainly not actually affected Europe’s geographies. Nevertheless, as Brenner shows (2004, p. 190), the drawing’s simple message highlighting the dawning future of an economically peripheralized Paris, paired with its radical cartographical simplifications, had a remarkable impact on how the banana space was seen and transformed ever since. Retrospectively, and contrary to Brunet’s intention of warning the French government (Hospers, 2003), his banana metaphor fostered the assumption that this core European territory was “ideally suited for the activities of transnational corporations” (Brenner, 2004, p. 190). What was supposed to be a dystopian future from the French perspective eventually became a popularized utopian metaphor for those geographical spaces where accumulation processes were deemed most promising (Hospers, 2003). As such, the Blue Banana illustrates how corridors are more than just tangible bundles of material infrastructures. Corridors are also informed by spatial imaginaries,

which may intentionally and unintentionally prescribe futures for corridor spaces that are imagined and acted upon.

To acknowledge this spatio-temporal underpinning of corridors, we conceptualize corridors as spatial imaginaries. We draw on Jessop's (2012, p. 17) understanding of spatial imaginaries as creating a "simplified, necessarily selective 'mental map' of a supercomplex reality." Rather than representing an absolute reality, spatial imaginaries "help to construct the reality that they purport to a map." This abstracted reality may then "guide present and future (non)-decisions and (in)actions in a world pregnant with possibilities" (ibid). Jessop's conceptualization is helpful as it distinguishes two fundamental mechanisms that explain how spatial imaginaries become sources of power over time and space. First, spatial imaginaries *empty the future*, as their representational strength lays in privileging a confined and abstracted future imaginary, while simultaneously marginalizing manifold alternatives. Second, spatial imaginaries *claim space*, for when an emptied future is represented convincingly, it can pre-emptively shape where spatial futures become anticipated and which futures become legitimized. We address both mechanisms in detail in the following section.

7.3.1 Emptying the Future

When Anderson (2010) remarks that geographers underestimate the presence of the future, he refers to the tendency to disregard the "seemingly paradoxical process whereby a future becomes cause and justification for some forms of action in here and now" (ibid, p. 778). Seminal works such as Said's *Orientalism* (1978), Agnew's *Geopolitics* (1998), or Massey's *For Space* (2005), all widely inspired by Lefebvre's theorizations on the production of space, remind us that only when time and space are treated as intricately related rather than as separate affairs, can we visualize the performative and profoundly political practices of naturalizing those futures that are imagined – or not. Famous *meta*-imaginaries, like *the West* and *the East* (Said, 1978), *modern* and *backwards* world regions (Agnew, 1998), or the inevitable move from *provincialization* to *globalization* (Massey, 2005), work in precisely this way: they simultaneously make and

unmake futures that are imagined by ordering and privileging futures toward which the world is – or ought to be – heading.

Some scholars understand this ordering and privileging as, therefore, involving an “emptying of the future” (Adam and Groves, 2007, Groves, 2017). The future is emptied when the “supercomplex reality” (Jessop, 2012, p. 17) of possible futures is de-complexified by reducing the breadth of uncountable alternatives, eventually elevating one dominant imaginary. Hence, what is often perceived as “the” future is rather the residue of an eliminative mechanism, which gradually unmakes most possible futures, rendering them unimaginable imaginaries. Approaching “the future” as something that remains from such an emptying mechanism, rather than from a generative mechanism of producing futures, thus highlights the political nature of how future imaginaries are socially constituted, negotiated, and contested.

This standpoint on spatial imaginaries as socially negotiated suggests that the underpinning mechanism of emptying the future is about much more than mathematical attempts to extrapolate history into the future (Kurniawan & Kundurpi, 2019). When Lefebvre (1991, p. 38) suggests that “spatial practice must have a certain cohesiveness, but this does not imply that it is coherent,” the same applies to how futurity becomes emptied. Emptied future does not necessarily inhibit factual “truth,” but functions as an abstraction of what is deemed most probable and ideologically legitimate. As such, emptying the future necessarily entails tacit intersubjective practices, which derive from social norms, values, and ideologies (Adam & Groves, 2007). And the normative negotiation over what are presumably right or wrong futures becomes particularly important when distinct imaginaries become sensationalized causes of widespread public concern (Colonomos, 2016; Jasanoff & Kim, 2015). When imaginaries are communicated through polarized narratives that juxtapose utopia and dystopia, such communication can serve as the basis for the compliance and consent involved in privileging one imaginary over its alternatives. On the one hand, polarized narratives of utopia and dystopia can, thus, help in “holding the future together” (Brown et al., 2012) by guiding a collectively held consensus (Jasanoff & Kim,

2015). On the other hand, they can also have a radicalizing effect. A state of urgency and anxiety can encourage narrow imaginaries, which bypass collective consent, either by force and coercion, or the persuasive argument that “there is no alternative” (Harvey, 2000, p. 154).

In sum, emptying the future is an inherently normative mechanism, which explains how certain imaginaries become privileged over others. Only once the future is emptied, through the simultaneous making and unmaking of its manifold possibilities, does the future become actionable. The full complexity and unknowability of the future would otherwise simply be paralyzing. Nevertheless, while such emptying can serve to holding the future together by forming a mutually shared consensus, it can just as well be deployed to narrow the range of imaginaries, such that “the” future seems to occur without alternative. Emptying the future is thus far more than an objective act of imagining a world to come, but more importantly “a method through which this claim can be made” (Colonomos, 2016, p. 6).

7.3.2 Claiming Space

If emptying the future is a method of claim-making, then how does this emptying play out in space? Or to put it in Harvey’s (2000, p. 177) words: “[W]hat happens when the utopianism of process comes geographically to earth?” Once again, when we refrain from treating space and time as separate affairs, the spatio-temporality of any emptied future stresses that, whatever fiction it communicates, its underlying spatial signifiers resemble some claim to space for the same fiction. We can think of such claims in a two-fold but interrelated manner, as affecting territorial space as well as networked space.

First, emptied future can create and claim territorial space by constituting new “insides” and “outsides” of geographically-bounded territories. Take again the example of Brunet’s Blue Banana, or any spatial imaginary such as mega-regions, industrial clusters, or development corridors (Aalders et al., 2021; Wiig & Silver, 2019). All of these are persuasive owed to their underlying visions of high modernity, connectivity, innovation, or economic development. But they

would be meaningless if they were without spatial reference. Accordingly, maps, plans, and sketches resemble the most visual spatial practice for how spatial imaginaries create territorial space and claim distinct functions for it (Marshall, 2014). Importantly, however, spatial imaginaries are not dependent on Cartesian rigour and detail. The representational logics of spatial imaginaries can be more emotive than mathematical and persuasive storytelling can complement or even replace the need for detailed mapping (Mäntysalo et al., 2019). As such, by defying the rules of conventional cartography, spatial imaginaries are characteristic of making rather fuzzy (in terms of geographic reference) and thereby subtle (in terms of representational explicitness) claims to territorial space.

This fuzzy and subtle nature of claiming space is not a general weakness but it can have a purpose. Take, for instance, Mbembe's (2000) critique of conservation zones in Africa, which he defines as informed by Western spatial imaginaries. For the sake of safeguarding rare species, "whole territories are now outside state authority" and "these territories have a de facto extraterritorial status" (ibid, 283). Mbembe reminds us, therefore, that spatial imaginaries are particularly important for creating and claiming spaces, even if the actors involved have no direct mandate to do so. However, recent debates about an increasingly "globalizing regional development" (Coe et al., 2004), and the rise of business-orchestrated territorial design (Harrison et al., 2020), suggest that spatial imaginaries can operate in far more gentle and yet pervasive ways. Most apparent with the rise of neoliberalism, spatial imaginaries have become a means to an end in the shift from state-led, bureaucratic, and hierarchically organized *regional planning* towards more networked and pervious logics of *planning regional futures* (Harrison et al., 2020, p. 6). Under this shift, spatial imaginaries can serve a double function. Not only can they replace the regional planning logic of developing a vision or plan for a given space, but they can also work in reverse by disclosing and developing a space suitable for a given vision (Harrison & Gu, 2021).

Second an emptied future can also be the basis for creating and claiming networked space. As summarized by Allen (2011, p. 286), the rise of neoliberal ideology also requires us to understand territories as "an arena through which

particular geographies of fear, threat and division are played out.” Thinking of such arenas of fears and threats, but also arenas of desire and hope (cf. Müller-Mahn, 2020), thus allows us to account for the fact that, although the lack of a rigorous cartography may obfuscate the *de jure* conflicts that exist within established territories, spatial imaginaries are powerful in identifying those who should be involved in the *de facto* governance of such spaces. Importantly, and different from what Mbembe’s example of the extraterritorial conservation zones suggests, the diffusion of governance does not necessarily imply the outright abandoning of nation-state territorial sovereignty. Rather, spatial imaginaries can be pre-emptive signifiers for networked spaces to become constructed by or around the nation-state, while simultaneously allowing for the entry of additional actors (Boudreau, 2007; Easterling, 2014). By blurring the ostensibly hard lines between state and extra-state actors, as well as between territorial and extra-territorial actors, spatial imaginaries can, thus, serve as encapsulating political mediums through which new and yet pre-defined insides and outsides (included and excluded actors), as well as quasi-institutional structures (how included actors relate to another), arise.

In sum, spatial imaginaries are not only re-imagining future(s), but they are also normative vehicles with distinct implications for territories and networks. Approaching them through the mechanisms of emptying the future and claiming space allows us to account for the political and mobilizing nature of spatial imaginaries. While spatial imaginaries surely render some futures more certain than others, the same making of future is accompanied by what is usually the more tacit unmaking of alternative futures.

7.4 Strategic Coupling and the Difference that Spatial Imaginaries can make

From an economic geography perspective, the questions of how spatial imaginaries empty the future, and what spaces they claim, are far from trivial. After all, as Harvey (1989, p. 226) reminds us, the “command over spaces and times is a crucial element in any search for profit.” To understand why, and in favor of

whom, spatial imaginaries may be deployed to certain ends, such as to secure the search for new profits, we suggest that the strategic coupling framework can add explanatory value.

The strategic coupling framework emphasizes with what outcomes regions and their regional assets become incorporated into GPNs. By definition, strategic coupling is above all understood as a *process* “through which actors in regional economies co-ordinate, mediate, and arbitrage strategic interests between local actors and their counterparts in global production networks” (Yeung, 2015, p. 5). Considering such bargaining and negotiation over regional versus global interests, strategic coupling is further described as a *mechanism* for yielding regional outcomes within globalizing regional developments, as soon as GPNs “touch ground” in regional economies (Coe et al., 2004; Coe & Yeung, 2019). Both understandings of strategic coupling, as a process and mechanism, thus suggest that the concept is applicable when the truly global organization of a GPN creates explicit causal links with variegated regional outcomes as a result of being “plugged” into a GPN (Yeung, 2020). Unlike Harvey’s concept of a spatio(-temporal) fix, and his theory of the uneven accumulation of capital in general (Harvey, 2003, 2006), GPN theory is limited to mid-range explanations of uneven accumulation when lead firms and their GPNs are explicitly involved. Despite criticism of firm-centrism and the neglect of more macro-scale questions (Werner, 2018), the strategic coupling framework has been widely adopted to explain how dynamic bargaining occurs between GPN actors (lead firms, subsidiaries) and regional institutions (governments, NGOs, etc.), resulting in dynamic coupling outcomes (Horner, 2014; MacKinnon, 2011). Along these lines, we suggest that when the spatio-temporal underpinnings for a spatial imaginary are explicitly raised, thereby creating a “GPN problem” (Yeung, 2020), the strategic coupling framework can explain some of the material ramifications of spatial imaginaries.

7.4.1 Strategic Coupling and the Power of Spatial Imaginaries

To theorize the connections between spatial imaginaries and coupling processes, it is important to attend to the workings of power in coupling processes. In the GPN literature, power is typically defined as “the capacity of an actor to exercise and achieve control over a particular strategic outcome” (Coe & Yeung, 2015, p. 66). This implies that power is seen both as structural, as the actor’s capacity to exert power depends on their resources and structural positionality, as well as relational, as power must be actively exerted so as to unfold topologically among actors within and across spaces (Coe et al., 2004, Coe and Yeung, 2015). Although any coupling process depends above all on the existence and transformability of structural coupling conditions, which allow for a match between territorial dynamics (regional institutions and available assets) and network dynamics (the strategic needs of a GPN), the realization and dynamic outcomes of couplings ultimately depend on the mobilization of power to elicit a match-making process between both territorial and network dynamics.

The mobilization of power in such coupling processes does not, however, occur as a zero-sum game between regional and GPN actors (Yeung, 2015). Although the heuristic of antagonistic bargaining between regional and global counterparts suggests that power is principally exerted by one coupling counterpart over the other, the empirical reality is usually far more dynamic and multi-scalar. For instance, while Dicken and Malmberg suggest that the substantial power of GPN lead firms generally stems from their ability to manipulate space and “use territory as an intrinsic part of their competitive strategies” (2001, p. 359), recent literature on strategic coupling highlights how regional actors also leverage their territorial sovereignty in competitive ways. For instance, control over territory, is not only used in antagonistic relation to GPN actors, but also when regions compete among each other to become privileged coupling destinations (Breul et al., 2018; Dawley et al., 2019; Jaffee, 2019). Along similar lines, but focusing more on the creation of networked spaces, the deployment of temporary coalitions between regional actors (Dawley et al., 2019), as well as fully-fledged global assemblages including both regional and global actors (Dodge, 2020),

epitomizes the creation of relational arenas and their relevance for coupling processes. Within these arenas, the presumably rigid dialectic of power between regions and GPNs is usually transcended and involves far more than merely acting antagonistically. In this sense, power in coupling processes does not exclusively unfold in the dialectic relationships of regional *vis-à-vis* GPN actors. More generally, power arises through the ability of actors to manipulate the dialectic of territorial and networked spaces, and the admission that such manipulation can potentially originate from any combination of coupling actors.

Understanding power as unfolding through the manipulation and leverage of territorial and networked spaces, rather than through capacities attributed to specific actors, is fundamental for approaching the power of spatial imaginaries in coupling processes. First – and in line with the general definition of power in GPNs – it allows us to re-affirm the Foucauldian claim that power must be exercised rather than possessed, which goes hand in hand with the understanding of spatial imaginaries as socially negotiated and underpinned by claim-making practices. Second, it considers the power of spatial imaginaries as the general ability to “make a difference in a radically contingent world” (Allen, 2008, p. 1613), but rejects notions of power that are only limited to practices of coercion, or “power over others” (ibid, 1615). As we stated earlier, spatial imaginaries are not about blunt force or coercion. The power of spatial imaginaries lies in their underlying spatio-temporal assumptions, which can secure compliance and consent.

How spatial imaginaries unfold their power by securing compliance and consent can be approached through the three dimensions of power, which have been famously defined by Lukes (2005). Whereas one-dimensional views on power indeed reflect practices of coercion, as become observable in decision making and conflict, Lukes’ second and third dimensions of power address much subtler registers of power that may be equally if not more important (Allen, 2003). The second dimension of power refers particularly to intentional practices of agenda setting. Agenda setting implies that power is not exerted through intentional decision making, but just as well through intentional non-decision making. Here,

authority and manipulation can constitute a “mobilization of bias” (ibid, p. 20), which Lukes sees as an inherent characteristic to any networked arena. Power is then no longer expressed by observable conflict, but it can just as well lead to more or less silent compliance. With regard to coupling processes, such a two-dimensional view on power as agenda setting has been used by more pluralist accounts of the relational exercise of power in GPNs (López, 2021). Two-dimensional views can particularly help to explain how the ostensibly conflict-free compliance with the “dark sides” (Phelps et al., 2018) of coupling processes can prevail, even when coupling conditions are biased to favor either regions or GPNs. To better understand the power of spatial imaginaries in relation to coupling processes, two-dimensional views thus greatly resonate with our conceptualization of spatial imaginaries. The mechanisms of emptying the future and creating and claiming space may indeed constitute a “mobilization of bias” in favor of one or the other coupling process and outcome and as such secure compliance. After all, as suggested by Allen & Cochrane (2007, p. 1168), spatial imaginaries are usually “mobilized unproblematically to produce apparently shared agendas, masking the possibility of significant conflict over alternative visions of change.”

The third dimension adds “ideological power” (2005, p. 145) to the notion of agenda-setting power. Inspired by the Marxist concept of ideology, and particularly Gramsci’s analyses of hegemony, ideological power accounts for the unintentional dimensions of decision making (as being unaware over whom or over what alternatives power is exerted), but especially unintentional non-decision making (as being unaware that power is exerted over oneself). In this vein, even when neither visual conflict nor quiet compliance are evident, power may be exercised nonetheless. The premise for the unfolding of ideological power in Lukes’ sense is that, while ideology is generally constituted by norms, beliefs, and values, hegemony persuades subordinate actors to tacitly believe in the normative conditions that explain their unconscious subordination. The analytical value, therefore, lies in the claim that “power is at its most effective when least observable” (Lukes, 2005, p. 1). With regard to its effects on coupling processes, the third dimension of power is least accentuated in the coupling literature.

Although neo-Gramscian contributions have added political economy perspectives on how coupling processes are inherently embedded into global hegemonies (Levy, 2008), and although more recent studies have shown how particularly lead firms in contested industries forge ideological power to secure compliance (Kleibert et al., 2020), the relevance of ideological power tends to be adumbrated rather than clearly conceptualized. Considering the normative element of emptying the future, any understanding of power in relation to spatial imaginaries must incorporate this third dimension by emphasizing the unintentional workings of ideological power.

7.4.2 Operationalizing the Power of Spatial Imaginaries in Strategic Coupling

To operationalize the connection between spatial imaginaries and coupling processes, we first propose a theoretical approximation and add a more practical approach for analytical application. Figure 20 provides a theoretical approximation for the connections discussed above between spatial imaginaries and coupling processes. Whereas the framework's core (continuous lines) replicates the general strategic coupling framework (Coe et al., 2004, Yeung, 2015), its outer shell refers to our conceptualization of spatial imaginaries, including mechanisms for emptying the future and claiming space (dashed lines). Emptying the future is, first of all, an important general pre-condition for discursively creating and claiming both territorial and networked spaces, when coupling processes are mediated by spatial imaginaries. Whereas the discursive creation and claim of territorial space (lower part of Fig. 1) may suggest what geographical region(s) will actually be considered, as well as what regional assets may eventually be transformed to match the strategic needs of GPNs, the creation and claim of networked space (upper part of Figure 20) may encapsulate the GPN actors and regional institutions that are eventually involved in negotiating and bargaining a coupling process.

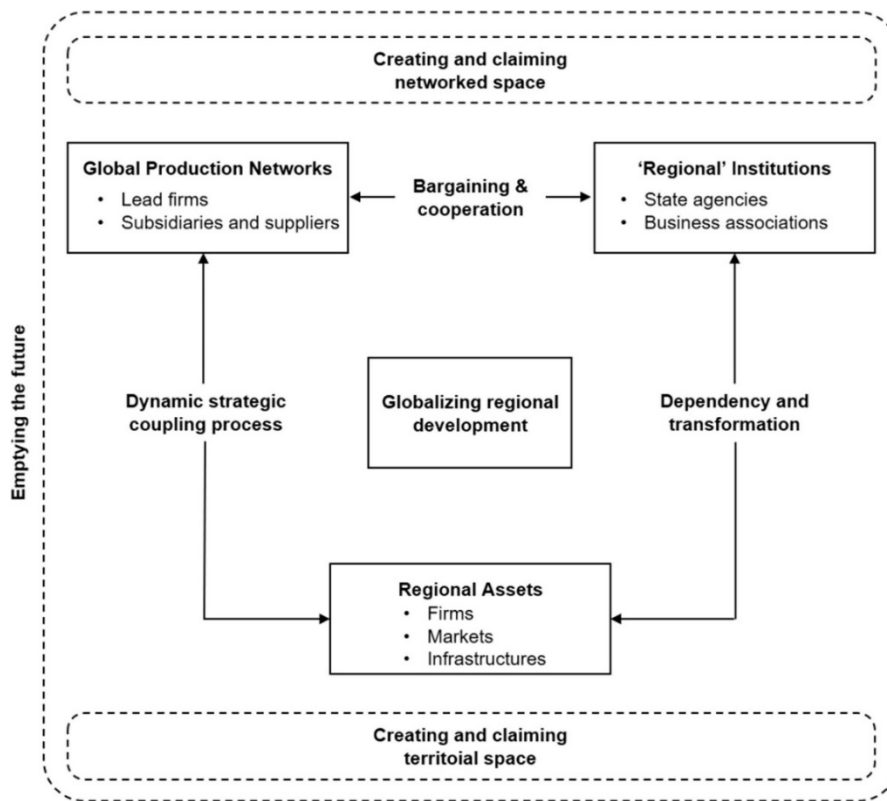


Figure 20: Linking strategic coupling with spatial imaginaries
 Authors' compilation, partly based on Coe et al., 2004, Yeung, 2015.

Importantly, however, this approximation should not be read as overriding material and structural coupling conditions between GPNs and regions that are already in place. Due to their discursive nature, spatial imaginaries merely add a complementary layer to existing coupling conditions. This layer may then lay the foundations for power as agenda setting or ideological power and urge both GPN as well as regional actors to engage in coupling processes, which might otherwise be unlikely or unfeasible. Importantly, the deployment of a spatial imaginary is generally available to any combination of coupling actors. While regional actors may deploy spatial imaginaries as a measure of place branding (Jacobs & Lagendijk, 2014; Jaffee, 2019; Wachsmuth, 2017), GPN and other extra-territorial actors may just as well deploy spatial imaginaries as a means for tapping new coupling regions (Bridge & Bradshaw, 2017; Harrison & Gu, 2021).

Three general analytical questions can be derived from Fig. 1. Spatial imaginaries should be analyzed for their effects on *what* (what future regional assets

become transformed), *where* (within what territory regional do such assets become transformed), and among *whom* (within which networks are couplings negotiated) coupling processes take place. To address these questions, we propose a pragmatic three-fold analytical apparatus, which allows for the periodization of a mobilized spatial imaginary and its effects on distinct coupling processes.

First, it is crucial to consider existing coupling conditions between regions and GPNs through the analytical categories of territorial and GPN dynamics (Coe & Yeung, 2015). The analysis of territorial dynamics entails a general discussion of available regional assets, such as labour, firms, and markets, but also the ability of regional institutions to transform these assets. Conversely, the analysis of GPN dynamics further entails the discussion of competitive GPN dynamics and different coupling needs in the form of spatial, technological, and organizational fixes necessary for a GPN to incorporate a region's assets (*ibid*).

Second, to analyse the discursive underpinnings of a spatial imaginary, we propose to differentiate between the underlying mechanisms of emptying the future and claiming space by situating these in relation to different power implications for coupling processes. This helps move beyond solely considering the mobilization of spatial imaginary, based on a simplified interpretation of what future is imagined and what spaces are created and claimed. More specifically, an emphasis on agenda setting and ideological power can help to emphasize those quiet registers of power that are exerted through the unmaking of certain imaginaries and spaces, even if such non-decision making does not result in open conflict, but rather silent compliance.

Finally, the first and second analytical steps help to derive and explain the actual effects on coupling outcomes between the region and GPN in relation to a spatial imaginary. Typically, GPN scholars analytically distinguish between three general coupling modes (MacKinnon, 2011, Yeung, 2015). Under *functional coupling* modes, regions maintain a substantial degree of autonomy, as power asymmetries between regions and GPNs are generally low (Horner, 2014). Functional couplings are characteristic of their simultaneously inside-out and outside-in natures, in so far as the coupling process is jointly driven by efforts among regional

and GPN actors. Functional coupling, thus, allows both regions and GPNs to benefit from a coupling process. More organic modes of strategic coupling, or *indigenous coupling*, occur when regions maintain high degrees of autonomy, as they can leverage their territorial assets in their favor. As such, indigenous coupling has an inside-out character, as regional actors reach outside their home regions to attract GPNs into their territory. Conversely, *structural couplings* occur when the coupling approach has an outside-in character, as extra-regional actors and GPN actors in particular are dominant in connecting a region into GPNs. Under structural coupling, regions tend to be strongly dependent, as most of the coupling benefits accrue to GPNs, while regions suffer from corporate capture through the extraction of labor, resources, or value (Phelps, 2008). Due to the structural imbalances between regions and GPNs, the “strategic” component in the strategic coupling framework can, thus, be jeopardized when indigenous or structural coupling modes result from coupling processes. In such instances, ruptures and frictions can also ultimately fuel decoupling processes, for example, when regions promote the development of domestic lead firms, alternative couplings, or as GPNs divest from one region to seek alternative spatial fixes elsewhere (Horner, 2014).

These three modes of strategic coupling, as well as considerations of decoupling, can thus support the analysis of the dynamic outcomes of coupling processes in relation to the different spaces created and claimed by a spatial imaginary, as well as the power under which these spaces become mobilized.

7.5 Case Study: SAGCOT and its Effects on the Coupling between Fertilizer GPNs and the Tanzanian Market Region

We use the case study of the *Southern Agricultural Growth Corridor of Tanzania* (SAGCOT) to illustrate how the spatial imaginary of a development corridor affected a coupling process in the fertilizer industry. Our qualitative research is informed by two datasets. First, we constructed a database of 700+ documents consisting of policy papers, legal documents, press releases, and transcribed public speeches and interviews. Second, we draw from qualitative research and

expert interviews in Tanzania covering a period of seven months distributed between late 2018 to early 2020 (see Table 7).

Table 6: Interviews in Tanzania (2018–2020)

Type	Firms, organizations, institutions	Code	Inter-views
Input Industry (Senior staff)	CEOs and Country Managers (Bayer/Monsanto, GreenGrow Ventures, OCP, ETG Exports, Premium Agrichem, STACO, Triachem, Tanzania Fertilizer Company, YARA International)	IIS	17
Input Industry (Operational staff)	Regional managers (Dar es Salaam Corridor Group, ETG Export, Premium Agrichem, Petrobena, STACO, YARA International)	IIO	14
Government	Ministry of Agriculture, Livestock and Fisheries (MALF), Tanzanian Fertilizer Regulatory Authority (TFRA)	GOV	7
Donors & Philanthropic Foundations	African Fertilizer and Agribusiness Partnership (AFAP), Alliance for a Green Revolution in Africa (AGRA), Building Rural Incomes Through Enterprise (BRITEN), CARE International, Clinton Foundation, FarmAfrica, One Acre Fund, Iringa Hope, Rural-Urban Development Initiative (RUDI), SAGCOT, USAID, SwissAid	NGO	18
Civil Society Organizations	Alliance for Food Sovereignty in Africa (AFSA), Tanzania Organic Agriculture Movement (TOAM), Tanganyika Farmers Association (TFA)	CSO	3
Policy Design & Research	Agricultural Council of Tanzania (ACT), Agricultural Non State Actors Forum (ANSAF), Sokoine University of Agriculture (SUA), University of Dar es Salaam (UDSM), Research on Poverty Alleviation (REPOA), Tanzania Agricultural Partnership (TAP)	POL	9

7.6 Coupling Conditions between the Tanzanian Fertilizer Market and YARA International

7.6.1 Territorial Dynamics in Tanzania's Fertilizer Sector

For Tanzanian farmers, synthetic fertilizer application is a widespread practice which can be mandatory for intensive and market-oriented farming. Whereas Tanzania's fertilizer sector was long monopolized by the state-owned *Tanzania Fertilizer Company* (TFC), the liberalization of the agricultural sector after 15 years of structural adjustment in Tanzania created a massive void in fertilizer supplies from the mid 1990s (Ponte, 2002). Although a landscape of private importers and distributors established under agrarian liberalization, low purchasing power among smallholder farmers, lacking infrastructure, and a highly selective

market presence by domestic fertilizer firms led to more than a halving of fertilizer application levels compared to those under the interventionist model prior to liberalization. In 2005, the leading fertilizer agency IFDC, contemplated accordingly that it was easier to find Coca-Cola than fertilizer in Tanzania. In 2003, the Tanzanian government under President Benjamin Mkapa reacted, therefore, to a looming food crisis by, first, re-introducing fertilizer subsidies to subsidize farm-gate prices and encourage fertilizer distributors to expand into the Tanzanian interior. Second, Mkapa further requested the Norwegian government to partner with YARA to stabilize fertilizer imports by establishing a buffer stock at the Dar es Salaam port.⁴⁹

From 2005 onwards, the territorial dynamics in Tanzanian fertilizer markets were, hence, increasingly supportive of market-based approaches. The Tanzanian government had abandoned its interventionist role and acted mainly as enabler of private marketing and an emergent landscape of small, usually domestically owned importers and distributors traded fertilizers on an arms-length level. While the role of regional institutions and the state of industrial organization improved gradually, two coupling constraints remained unchanged. On the supply side, infrastructure constraints especially at the Dar es Salaam port made large-scale bulk importation impossible. On the demand side, the purchasing power among Tanzanian farmers stagnated as the liberalization of Tanzania's agricultural sector had bypassed smallholder farmers and not delivered to hopes for widespread commercialization (Cooksey, 2011; Ponte, 2002).

7.6.2 Network Dynamics in YARA's Fertilizer GPN

The improving territorial dynamics in the Tanzanian fertilizer market were paralleled by a substantial restructuring of YARA's fertilizer GPN. In late 2004, YARA demerged from oil and gas multinational *Norsk Hdyro* with an initial public offering. Since then, YARA's high degree of financialization fueled an aggressive market expansion under the goal of doubling YARA's global market presence. Crucial to this was the expansion of the downstream business to

⁴⁹ NGO 18.02.2020.

incorporate otherwise “questionable markets” (Holm et al., 2016, p. 11). YARA’s *Africa Strategy* became the most prominent approach aligned with this new market imperative (Porter et al., 2014).

Acknowledging Norsk Hydro’s history of failed investments in Africa, the *Africa Strategy* reformulated YARA’s approach from “serving markets” towards being “part of creating that market”.⁵⁰ This new approach, implied that YARA strategized not only new spatial fixes, but also substantial technological and organizational fixes to future-proof its otherwise costly market development (cf. Bergius et al., 2018). Importantly, these technological and organizational fixes address the whole agricultural value chain to ensure that particularly smallholders commercialize their production to become viable fertilizer customers. YARA’s Africa Strategy promotes, therefore, two approaches. First, holistic value chain partnerships aimed at transforming agricultural value chains also beyond YARA’s supply chain. Second, PPPs providing the organizational fixes necessary to secure that technological fixes along value chains become flanked and legitimized by other agribusinesses, national governments, and international development agencies.⁵¹

Taken together, the territorial dynamics in Tanzania and the GPN dynamics in the fertilizer industry were, hence, gradually making a coupling between Tanzania and global manufacturer YARA increasingly likely. Indeed, shortly after Mkapa’s request to establish a buffer stock, YARA eventually entered the Tanzanian market in 2005. By forming the subsidiary *Chapa Meli* and acting solely as an importer supplying fertilizer to domestic distributors rather than directly to farmers, YARA’s initial commitment to the Tanzanian market however remained loose.

⁵⁰ Yara CEO Holsether at Davos World Economic Forum 2016.

⁵¹ Information based on internal company presentation and Porter et al. (2014).

7.7 SAGCOT as Spatial Imaginary

Officially launched in mid-2010, SAGCOT's mobilization had substantial effects on the coupling between YARA and the Tanzanian market region. Importantly, the mega-corridor originated from prior attempts between YARA and domestic stakeholders to establish a more modest PPP solely devoted to the fertilizer market.

Already in 2006, YARA initiated one of its pioneering value chain partnerships in Tanzania.⁵² Established as an informal coalition of willing partners, the *Tanzanian Agricultural Partnership* (TAP) focused on integrating smallholders from 13 districts in southern Tanzania into maize value chains.⁵³ The Norwegian government provided USD \$3.7 million core funding and was led by the consultancy *Prorustica* further supported by the Dutch *Rabobank* and the Tanzanian private sector apex organization the *Agricultural Council of Tanzania* (ACT). Shortly after launch, TAP drafted the *Fertilizer Fast Track Initiative* (FFTI) to directly intervene in fertilizer supply chains. Studies consulting the FFTI drafting concluded with two major recommendations. First, addressing supply-side issues, notorious congestions at the Dar es Salaam port justified the proposal to construct a terminal for fertilizer bulk importation outside of the port (ACT, 2007, 2008). Second, addressing demand-side issues, limitations for upscaling and legitimizing the FFTI were raised. However, the preliminary evaluation problematized a “conspicuous lack of organizational structure” (NORAD, 2006, p. ix) in general and questioned the lead role of *Prorustica* and YARA as the promoted “fertilizer producer and seller and suggested manager of the buffer stock” (NORAD, 2006, p. 44). To scale and legitimize the FFTI, the report recommended “options for a firmer and more long term programme” should be considered (ibid, p. 44). The Tanzanian government should be clearly involved and donors such as the World Bank and USAID should join NORAD in funding and legitimizing a more ambitious PPP. These early concerns over the FFTI, led TAP

⁵² The two other partnerships were launched in Ghana and Malawi.

⁵³ POL 14.02.2020.

to abandon the FFTI and initiate a more domestically embedded and far more holistic PPP in the form of SAGCOT. An interviewee participating in SAGCOT's early development stated:

“We [TAP] were very, very instrumental in the SAGCOT initiative. [...] We kind of did the heavy-weight lifting for them in the initial years and later on, we handed over to the SAGCOT Secretariat. [...] So, we were coordinating different partners including the development partners, the government and others to formulate the Investment Blueprint and other documents that were required to establish the SAGCOT initiative.”⁵⁴

SAGCOT's origins in a loosely organized and rather unassuming PPP solely devoted to Tanzania's fertilizer market had important implications for how SAGCOT was eventually designed.

7.7.1 SAGCOT as Emptying Future

Per design, SAGCOT promotes the vision of an agriculture-focused development corridor under the premise of filling a USD \$3.4 billion investment gap, bringing 350,000 ha of land into commercial production, and lifting two million Tanzanians out of poverty (SAGCOT, 2011). The 20-year plan was, therefore, embedded in a neo-Malthusian narration of a dystopian future. The threat of rapid population growth paired with stagnating productivity increases constituted the urgent call for attracting commercial and public capital from domestic and international sources. SAGCOT juxtaposed dystopia, therefore, with the promise that “the future could be a lot brighter” (SAGCOT, 2011, p. 11) if the investment gap were filled and underutilized land brought into commercial production either by large-scale farms or smallholder-based commercialization. Superficially, SAGCOT's vision persuaded for being holistic, solution-driven, and purely generative in terms of re-imagining a bright future.

Indeed, owed to earlier concerns over the FFTI's legitimacy, SAGCOT's mobilization was more tightly embedded in converging domestic and international

⁵⁴ POL 14.02.2020.

interests. Other than suggested above, SAGCOT's underpinning mechanisms of emptying the future become clear when considering its domestic and international embedding. In Tanzania, different – circulating – agrarian imaginaries described a far more complex political economy of Tanzanian agriculture than SAGCOT's design suggested (Aminzade et al., 2018). Broadly speaking, these imaginaries were differentiated by their varying positions on the role of the state versus capital and domestic versus foreign actors as well as class divides between large- and small-scale farmers. These various imaginaries resulted in increasingly conflicting policies (Cooksey, 2013). For instance, whereas the *Agricultural Sector Development Programme* (ASDP) was developed conventionally by Tanzania's *Ministry of Agriculture* (MALF) and favoring state interventions, domestic solutions, and smallholder farming, the ad-hoc launch of the *Kilimo Kwanza* policy in 2009 challenged the ASDP substantially. Drafted by entrepreneurial elites through the *Tanzania National Business Council* (TNBC) and institutionalized by bypassing the MALF with support from the Presidential Office, *Kilimo Kwanza* favored the role of capital over the role of the state as well as raising the necessity for commercializing agriculture. Adding to this, more subordinate discourses beyond policy remained inspired by Tanzania's socialist legacy of self-determination, the global food sovereignty movement, and also the persistent question of the future of pastoralist livelihoods (cf. Martiniello and Nyamsenda, 2018, Mbunda, 2016). Regardless of Tanzania's agricultural future being at a crossroads and as such open and contested, SAGCOT was eventually dubbed as bringing "Kilimo Kwanza in motion" (SAGCOT, 2011, p. 4). While SAGCOT aligned, therefore, with the interests of a nascent class of domestic elites and particularly also Kikwete's pro-market politics, SAGCOT's privileging of one agricultural imaginary over others was further constituted by crucial dynamics at a global scale.

To promote SAGCOT in front of a global audience, YARA's CEO Thorleif Enger announced already at the 2008 United Nation's *Business Call to Action Forum* in London the launch of YARA's *Agricultural Growth Corridor* (AGC). Well-timed due to the global food crisis, Enger described the AGC approach as

a business-led response to UN's Millennium Development Goals and Kofi Annan's call for an *African Green Revolution*. YARA pledged anchor investments of USD \$40 million along two transport corridors in Mozambique and Tanzania, respectively. The construction of fertilizer terminals and warehouses along both corridors would then create precedence for scaling the AGC approach towards other African regions (UNDP, 2008). Following several presentations at high-level events, such as the 2008 *UN General Assembly* in New York, the 2009 *G-8 Food Summit* in L'Aquila, and the *New Vision for Agriculture* meeting at the 2009 *World Economic Forum*, YARA's AGC approach subsequently gained widespread popularity as a promising territorial tool for agro-industrial solutions (Gálvez Nogales & Webber, 2017). Particularly the design as a business-backed initiative resonated not least ideologically with the burgeoning of global alliances among agribusinesses and development agencies seeking to fast-track an African Green Revolution. Hence, also from the "global" side, SAGCOT's promotion privileged particularly the deployment of agribusiness-based solutions flanked by donor-funded subsidies.

Eventually in late 2009, and paralleled by a similar agreement in Mozambique, president Kikwete agreed with representatives from the Norwegian embassy, the African Development Bank, the World Bank, and YARA to proceed SAGCOT's mobilization. The Norwegian government provided USD \$800,000 to draft concept notes for the Mozambican *Beira Agricultural Growth Corridor* (BAGC) and SAGCOT (BAGC, 2009; SAGCOT, 2010). YARA's consultancy *Prorustica*, the DFID-funded social impact investor, *AgDevCo*, and the infrastructure financing firm *InfraCo* eventually designed both concept notes.

Navigating and representing both domestic and global interests by re-imagining a persuasive future of Tanzanian agriculture was certainly pivotal for SAGCOT's mobilization. However, the same seemingly solely generative mobilization was also emptying the future from competing agrarian alternatives at the same time. While the FFTI's former focus on distinct interventions in fertilizer markets got thereby increasingly obfuscated by the much more holistic promises of SAGCOT, the interests of the fertilizer industry remained widely

represented. This becomes particularly visual in SAGCOT's creation and claim of space.

7.7.2 SAGCOT as Claiming Space

To understand SAGCOT's claim of space, a comparison of SAGCOT's concept note with its Mozambican counterpart (BAGC) is insightful (Fig. 21). Cartographically, both concept notes treated the general idea of corridors in a remarkably arbitrary fashion. SAGCOT was illustrated by two lines demarcating a third of Tanzania as a corridor region; BAGC by a circle entailing parts of Mozambique, Zimbabwe, Malawi, and Zambia. While both maps further ignored national and subnational administrative boundaries, their structuring elements were long-existent infrastructures and high-potential regions for agriculture. Both corridors should be understood with regard to the earlier identified supply- and demand-side issues in the fertilizer industry (Kaarhus, 2018). Apart from Mombasa, Dar es Salaam and Beira are the most important regional hubs for importing fertilizer along the East African seaboard. These hubs ensure the supply of host countries and landlocked neighbors. Adding to this supply-side concern, particularly SAGCOT's territorial reach, therefore, coincided greatly with the need to unlock new end markets. Due to a dominance of fertilizer-intensive crops, such as maize and paddy, and nutrient-poor soils in Tanzania's Southern Highlands, SAGCOT demarcated the most potential region for fertilizer markets. In 2010, about two thirds of Tanzania's domestic demand was in the SAGCOT region. Accordingly, despite a high degree of abstraction, both corridors created important territorial insides and outsides which secured that domestic and international interventions along agricultural value chains would coincide with prospective fertilizer markets. Asked about the motivation of locating SAGCOT in southern Tanzania, one YARA manager stated:

“Actually, you know, this was just a general structure. The SAGCOT...it's like a big picture: Okay, we need to go this way. You see

now that's very perfect. All the companies, they will find that this plan is very good."⁵⁵

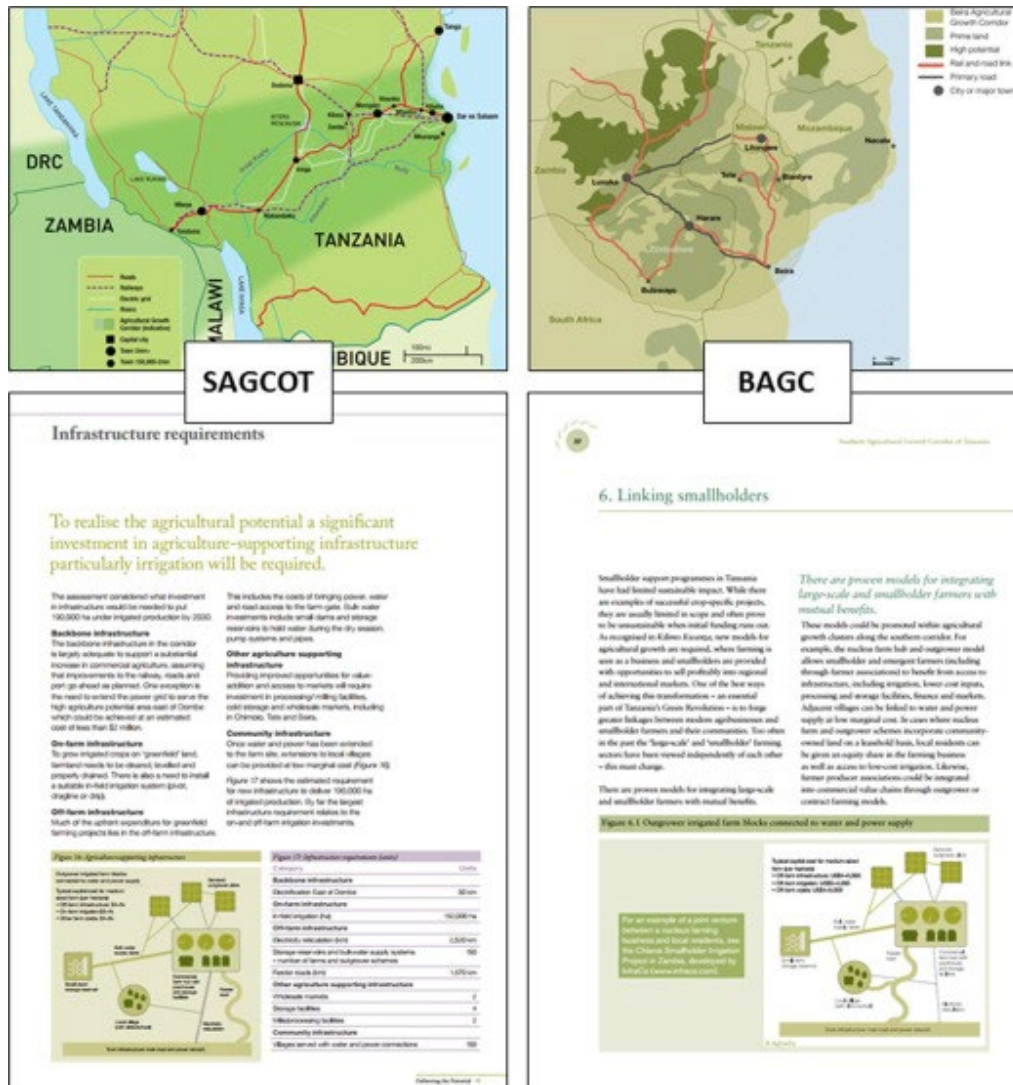


Figure 21: Excerpts from the SAGCOT and BAGC concept notes

Source: BAGC, 2009, SAGCOT, 2010

This logic of creating and claiming space by assembling a “big picture” is further accentuated by SAGCOT’s underpinning logic of creating both networked insides and outsides. SAGCOT promoted a complex “state-capital alliance” (Sulle, 2020, p. 346) or “institutional bricolage” (Buseth, 2017, p. 48) under the

⁵⁵ IIS 12.02.2020.

prominent claim of providing a neutral stakeholder platform between the state and capital. The drafting of the final *SAGCOT Investment Blueprint* widened the network behind SAGCOT as additional development agencies (USAID, AGRA, Norfund), agribusinesses (Dupont, Monsanto, General Mills, SABMiller, Syngenta), and domestic think tanks (TNBC, ACT) joined SAGCOT. Consultation workshops in Dar es Salaam further guide-lined the blueprint's development under the notion of "making the vision concrete" (Jenkins, 2012, p. 24). However, despite these exhaustive efforts of opening SAGCOT to a wider set of stakeholders, SAGCOT's mobilization evoked also outspoken discontent. Commenting on SAGCOT's concept note, one of our respondents raised as early as in 2010:

*"It is not totally clear to me whether the SAGCOT concept has been requested by the Tanzanian government, or whether it is being imposed on them. If it's the latter, then it is likely to face resistance to change, and implementation will be difficult. [...] I do not see any reference to the pastoralists that occupy very significant areas of the (drier parts) of the corridor. If neglected in the blue print, they will become marginalized and form a major problem to any commercial development."*⁵⁶

Such outspoken scepticism of SAGCOT's inclusivity and neutrality, was not rare and further accompanied by more silent compliance among side-lined bureaucracies such as the MALF, regional administrative bodies, and Tanzanian research institutions due to the dominance of the Presidential Office in the early drafting of SAGCOT.⁵⁷ Although joining the SAGCOT PPP was generally open to everyone on the condition of agreeing to *SAGCOT Partnership Principles*,⁵⁸ YARA's prominent involvement in the early mobilization created barriers to entry which became particularly visible in the fertilizer industry. As stated by managerial staff from a YARA competitor:

⁵⁶ Farmer's written comment on SAGCOT Concept Note, dated August 2010.

⁵⁷ POL 11.09.2018, NGO 18.09.2018, GOV 01.11.2019.

⁵⁸ IIS 14.11.2018, POL 14.02.2020.

“We wanted to work with them, but they have no interest. They work with YARA only and they can do that. [...] They are the prime partner of SAGCOT and SAGCOT is the prime partner of YARA. [...] We are looking for alternatives to do PPP, but SAGCOT is not our business.”⁵⁹

These implicit outsides of SAGCOT were further based on diverging norms and values as the experience of an organic fertilizer supplier suggests:

“No, we are not bothering to work with them because the answer will be the same. We know they have laughed at us organic people to get out of here. You are hippies! They have no professional attitude [...] it's only these stupid fools who provide markets to the chemical fertilizer business”⁶⁰

In terms of creating networked insides and outsides, SAGCOT functioned, therefore, first and foremost under the premise of holistic partnerships and inclusivity which secured the necessary legitimacy both on the domestic and international level. Nevertheless, depending on the agenda and ideological background, the networked space around SAGCOT was also constituted by its outsides.

7.8 SAGCOT's Effect on the Coupling between YARA and the Tanzanian Market

In 2010, and despite the successful launch of the BAGC corridor quite similar to SAGCOT, YARA abruptly withdrew its plans for building a fertilizer terminal in Beira which factually put an end to the whole corridor (Kaarhus, 2018). Political instabilities and YARA's divestment from its South African retailing business had made an import terminal economically unviable. YARA has since fully focused on capitalizing on SAGCOT.

SAGCOT's mobilization allowed YARA to fix supply- and demand-side issues which had long hindered a more substantial coupling process. On the supply

⁵⁹ IIO 30.03.2019.

⁶⁰ IIS 04.10.2019.

side, YARA launched the construction of its import terminal in 2012 according to ACT's earlier recommendations under the FFTI. YARA received support from the domestic and international side. Under controversial circumstances, President Kikwete ensured that YARA could access the recommended peri-port plot on a 99-year lease base. Additionally, the Norwegian state subsidized YARA's USD \$25 million investment with a USD \$6 million loan provided by NORFUND. The construction of the terminal with an annual capacity of about 350,000 tons meant a breakthrough in the Tanzanian fertilizer industry. Rather than individually importing via the highly bureaucratic *Tanzania Port Authority*, domestic distributors could directly access fertilizer via YARA's terminal. Such a long-term commitment by a fertilizer manufacturer was unprecedented for Tanzania. At the ceremonial opening of the terminal in 2013, Kikwete stated accordingly:

“[N]ow YARA is importing fertilizers. It's no longer there in our minds.”

In the subsequent period between 2013 and 2016, the coupling process guaranteed that YARA could regularly handle about 40 to 55% of the imports into the steadily growing Tanzanian fertilizer market. Although the heavy endorsement of YARA's market entry was critically observed by the *IFDC*⁶¹ as a risk for creating a monopoly in an already oligopolistic market,⁶² YARA's spatial fix through the terminal contributed greatly to the Tanzanian government's plans for stabilizing fertilizer imports (Fig. 22).

⁶¹ IIS 07.02.2020.

⁶² IIO 25.03.2019; IIS 30.03.2019.

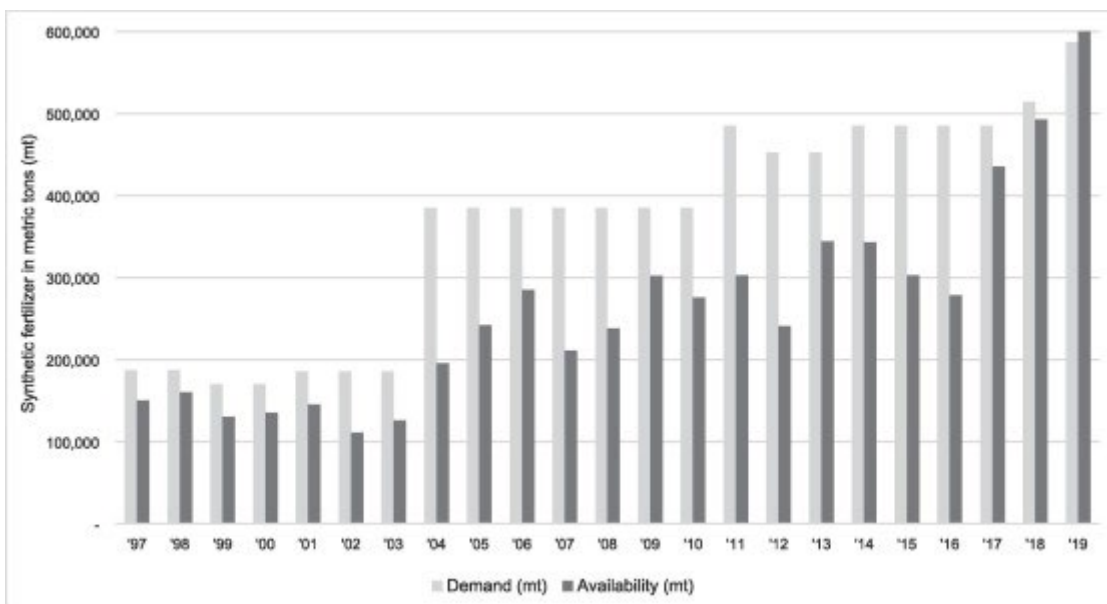


Figure 22: Demand and availability of synthetic fertilizer in Tanzania (1997–2019)

Source: URT, 1997–2020

While SAGCOT’s mobilization was, therefore, pivotal to making the terminal feasible, SAGCOT became perhaps even more important for YARA’s strategized technological and organizational fixes on the demand side. Shortly after the terminal launch, YARA abandoned its exclusive function as an importer by establishing several warehouses along the corridor (Fig. 23). Either vertically integrated (Iringa, Njombe, Mbeya) or out-sourced to regional subsidiaries (Morogoro, Makambako), these warehouses served to bring fertilizer closer to regional distributors, but also allowed YARA indirectly involve in fertilizer re-tailing.

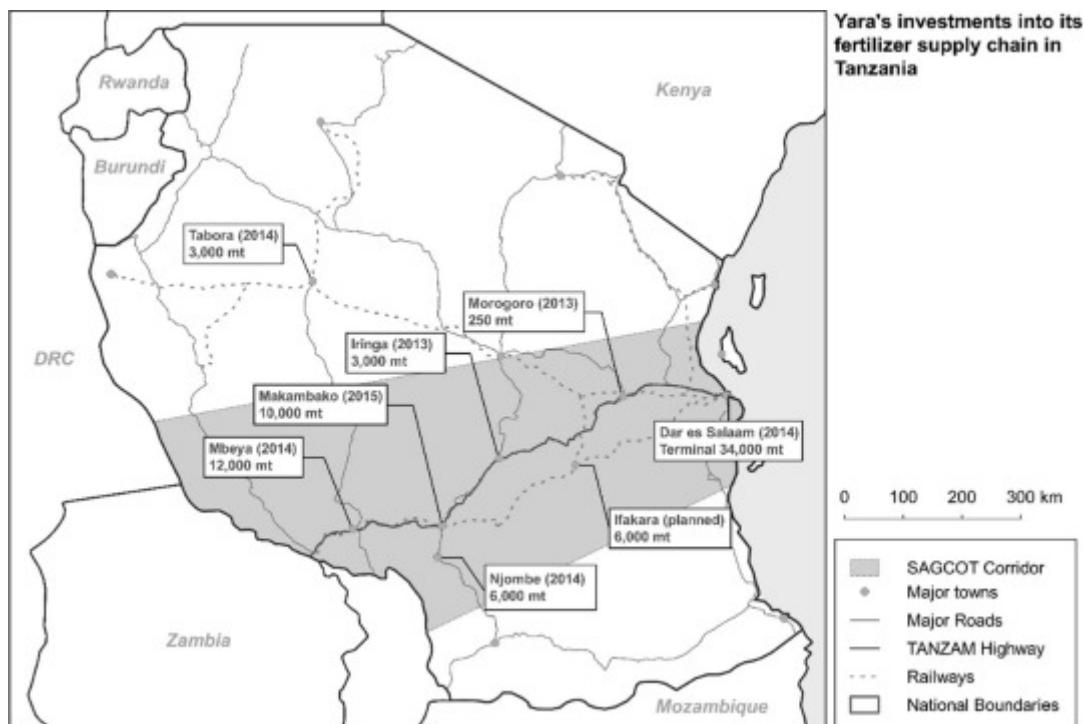


Figure 23: YARA's investments in Tanzania
(Data: authors)

Indeed, at the warehouse level, more than half of Yara's turnover has since been generated through indirect partner sales rather than conventional distributor sales.⁶³ Partner sales are typically mediated by YARA-registered donor projects (e.g., AGRA, NAFKA, the World Food Programme) or commercial farms (e.g., Silverlands, Kilombero Plantations) which aggregate fertilizer demands from smallholder farmers. Agreements on such partner sales become either mediated via the *SAGCOT Centre*, or directly from embassy to embassy.⁶⁴ Accordingly, smallholder-targeted donor projects attracted under SAGCOT became pivotal to subsidizing YARA's indirect retailing practices. The 2012 launch of the G8s *New Alliance for Food Security and Nutrition* and USAID's associated *Feed the Future Initiative* are most illustrative for such direct benefits realized through SAGCOT. While USAID had committed USD \$315 million for projects in northern and southern Tanzania, about 80% of the committed funding was

⁶³ IIO 15.02.2020.

⁶⁴ IIO 15.02.2020.

eventually disbursed in the SAGCOT region after Kikwete requested USAID to prioritize disbursements along the corridor (URT, 2017). Accordingly, SAGCOT's territorial insides and outsides induced a significant shift of donor projects from northern Tanzania to the SAGCOT region. Additionally, SAGCOT's stakeholder platform further created a competitive advantage within the fertilizer industry in favor of YARA. A former MALF representative summarized in this vein:

“What Yara really did was that they started now to really compete with the smaller distributors and take their business. [...] But this was not the government's initial idea, they wanted to have the demands collected and give these demands to someone with financial muscle to process the LOCs [Letter of Credits backing importation costs] and everything. But they did surpass this line. As importers, you are not supposed to open shops, you have to link to distributors.”⁶⁵

At least until 2016, YARA's coupling with the Tanzanian market region, hence, benefitted substantially from SAGCOT's earlier mobilization. Considering the mutual interests involved and the steady increases in fertilizer application among Tanzanian farmers, the first years after YARA's market entry stand for a functional coupling in so far that it created mutual benefits. However, YARA's expansion into retailing paired with a widespread disillusionment of SAGCOT's implementation increasingly jeopardized the functional coupling mode dramatically. By 2016, commercial SAGCOT investments had barely materialized and most of the few popular SAGCOT-affiliated investments had withdrawn after unsatisfactory results (Hartmann et al., 2021a; Sulle, 2020). Further, donor disbursements initially attracted by SAGCOT had peaked around 2015, and then abruptly decreased as continuation funding under SAGCOT could not be secured. Lastly, the shifting Tanzanian political economy put SAGCOT's continuation existentially at risk. Under Kikwete's successor John Magufuli, Tanzanian politics shifted from economic diplomacy towards a developmental

⁶⁵ IIS 18.02.2020

nationalist agenda which is inherently at odds with the SAGCOT model (Paget, 2020; Pedersen et al., 2020). In 2019, the Tanzanian government consequentially withdrew crucial funding agreements with the World Bank and announced a potential redrafting of SAGCOT on terms and conditions harmonizing better with the new national agenda (Africa Confidential, 2019). Since then, SAGCOT has solely been able to secure some emergency funding from NORAD to continue basic operations and, hence, lost most of its visionary guise.

For YARA's coupling, this gradual disenchantment and loss of legitimacy of the SAGCOT vision today explains several frictions and potential ruptures. First, the withdrawal of indirect donor subsidies at the demand side challenges YARA's expansion into the retailing segment. After declining sales at the regional level, YARA recently released several regional managers. Second, under the return of interventionist policies in Tanzania, the government further seeks to regulate the importation process not least to dismantle YARA's dominance in importing. Claiming that YARA over-stretched its destined role as an importer, the government introduced a tender system to increase the competitiveness in the import process and decrease its dependency. Additionally, under the premise of protecting farmers from, the government further introduced indicative prices which fix a price ceiling for fertilizer. These recent interventions have since been challenging the former functional coupling mode and indeed suggest first decoupling tendencies. According to our field work in the 2019/2020 season, YARA's market share of imports fell below 20%. A senior YARA employee highlighted accordingly:

“We would not invest again under the current conditions, that's for sure!”⁶⁶

7.9 Conclusion

Owing to the complexity of SAGCOT's origins, slow implementation, and various reconfigurations after launch (Bergius & Buseth, 2019; Buseth, 2017), a

⁶⁶ IIS 11.02.2020.

comprehensive analysis goes beyond the scope of any single article; and yet our work makes several important empirical and conceptual contributions. Empirically, we add to the complex picture of SAGCOT's discursive mobilization as well as to its material ramifications. The early motives that underpinned SAGCOT's mobilization are historically constituted and often obfuscated. Our focus on the fertilizer industry provides a unique insight into these origins, and explains how and by whom SAGCOT became eventually capitalized. This perspective contributes to the polarized debate on the impact of SAGCOT. A focus on SAGCOT's capitalization as a market region therefore complements a literature which has focused more on the productionist side of SAGCOT (Gebrekidan et al., 2020; Sulle, 2016b, 2020). Due to the strategic coupling framework's firm-centrism, our focus on YARA certainly bears the risk of over-emphasizing YARA's influence on SAGCOT and vice versa. Nevertheless, our empirical work highlights how the spatial imaginary of SAGCOT emerged as a resource of persuasive power. This resource served to make a substantial difference to the coupling between YARA and the Tanzanian market region. Without SAGCOT's mobilization, YARA's unprecedented coupling would have been unfeasible as it relied on gathering and securing substantial flanking support in more direct (especially regarding supply-side issues) and more indirect ways (especially regarding demand-side issues). However, the recent fading of the SAGCOT vision and subsequent frictions in the coupling with YARA's GPN suggest that the difference that SAGCOT made was, in fact, quite fragile.

Conceptually, by linking spatial imaginaries to the strategic coupling literature, we can usefully address the onto-epistemological complexity of development corridors in particular, and the envisioning and implementation of mega infrastructures more generally. The value of this conceptual cross-fertilization lies in acknowledging the discursive spatio-temporal underpinnings of development corridors and how these translate into resources of power through tangible coupling processes. This avoids the weaknesses of superficial approaches, which often conflate particularly one-dimensional views of power in one way or another, by proposing that any making of future must simultaneously entail an unmaking of its alternatives. Certainly, SAGCOT's mobilization allowed neither

YARA nor the Tanzanian government to exert power over others. Rather, the re-scaling of an initially loose and modest, fertilizer-oriented PPP to eventually become the mega-corridor SAGCOT, epitomizes how spatial imaginaries can serve to create crucial insides and outsides in territorial and networked terms. Manipulating these insides and outsides allows coupling counterparts to jointly exert power with others by the means of setting agendas, and not least by forging ideological consent. Finally, both our empirical and our conceptual contributions remind us, therefore, how particularly narrow teleologies of (African) future(s) are actively constituted and mobilized under prevailing capitalist imperatives. Imagining an overtly narrow future must then not solely resemble a pragmatic abstraction, but it can also be a means to an end.

7.10 CRediT authorship contribution statement

Gideon Tups: Conceptualization, Methodology, Investigation, Writing - review & editing, Writing - original draft. **Peter Dannenberg:** Conceptualization, Methodology, Resources, Writing - review & editing, Supervision, Project administration, Funding acquisition.

7.11 Acknowledgments:

We thank Anke Hagemann (Brandenburg University of Technology), Emmanuel Sulle (University of the Western Cape), Glyn Williams (University of Sheffield), Jana Kleibert, Tim Rottleb (Leibniz Institute for Research on Society and Space), Rene Vesper (Bonn University), and the anonymous reviewers for their critical suggestions to improve this paper. Further, we are indebted to everyone who contributed empirical insights to this study. These insights have been invaluable for developing the argument of our paper. This work was supported by Deutsche Forschungsgemeinschaft [INST 217/928-1] and is part of the CRC-TRR 228 'Future Rural Africa'.

8 Thesis Article II

Large investments, small farmers: A financialisation perspective on value chains in a development corridor

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8.1 Abstract⁶⁷

Development corridors have recently gained momentum as territorial tools to attract flows of global capital into agricultural value chains. As this includes the controversial blending of public with private funding for investments into farmland, the integration of smallholders in large-scale operations is increasingly promoted as legitimacy practice. With this article, we discuss the role of finance in shaping such value chain arrangements. Using a spatially sensible financialisation perspective, we present two investment cases that have touched ground as reaction to the promotion of the Southern Agricultural Growth Corridor of Tanzania (SAGCOT). We assess how finance unfolded along territorial (corridor region and investment origin) and relational (investment chain and value chain) spatialities, to scrutinise the tensions and fragile outcomes that were co-constituted by mixed financial and moral investment imperatives. This helps to understand whether, why, and with what consequences smallholders can benefit from corridor-related investments.

Keywords: Financialisation, value chains, agriculture, development corridors, Tanzania

⁶⁷ This article is published in a journal with British spelling.

8.2 Introduction

With the interrelated food and finance crises (2007/08), the agricultural sector has returned onto the agenda of national planning, international development, and global capital investments. Same rediscovery of agriculture as field of development intervention as well as investment opportunity, was further accompanied by a general return towards regional planning to facilitate and govern the increased articulation with the global political economy (Schindler & Kanai, 2021; Smalley, 2017). Ambitious infrastructural projects in the form of agriculture-oriented development corridors have since epitomised this trend in several African regions. Sometimes dubbed as ‘investment corridors’ (Bergius et al., 2018, p. 2), the new generation of corridors goes, however, way beyond the conventional understanding as providing solely connectivity through linear, physical infrastructures (Dannenberg et al., 2018). Rather, the notion of attracting ‘investments along the agricultural value chain’ (de Cleene, 2014, p. 67) has become the most accentuated feature of contemporary corridor-making. Deployed to demarcate territory that can attract flows of global capital, development corridors can hence be understood as territorial tools aimed at financialising agricultural value chains.

In line with this understanding, we address corridor-making and its implications for integrating smallholders into value chains with a distinct perspective on the role of finance. Based on the case study of SAGCOT, two farmland investments are analysed. To adhere to financial and at the same time moral investment imperatives, both large-scale farms integrated smallholder farmers⁶⁸ into their respective value chains. Our qualitative research highlights how a perspective on finance can add to explaining whether, why, and especially with what consequences farmland investments along SAGCOT have led to the integration of smallholders into value chains.

Conceptually, we draw from financialisation literature and adopt Pike & Pollard’s (2010) approach on the economic geographies of financialisation. The

⁶⁸ From here on ‘smallholders’.

spatial sensibility of this approach allows to differentiate the complexity of territorial and relational spatialities under which finance touched corridor territory. We use this to explain emerging tensions and paradoxes between large investments and smallholders beyond a confined land grabbing perspective (Pedersen & Buur, 2016). We show that these tensions can go as far as to existentially jeopardise the efforts of letting smallholders benefit from development corridors on the long run.

We structure this article as follows. We introduce how financialisation processes along agricultural value chains are promoted in practice and how they are discussed in the literature. We then explain our conceptual framework for researching the economic geographies of financialisation. After explaining our methodology, we use our framework to discuss two case studies. Finally, we conclude by arguing why a financialisation perspective on value chains can add to understanding the terms of smallholder integration along development corridors.

8.3 Financialisation and agricultural value chains

With vast empirical evidence on what Epstein (2005, p. 3) popularly defines as ‘the increasing role of financial motives, financial markets, financial actors and financial institutions in the operation of domestic and international economies’, interest on financialisation has gained widespread attention. Financialisation perspectives serve as epistemic entry point to understand contemporary capitalism and are used by scholars to understand the rising relevance of finance from the global political economy down to everyday life. While the theoretical foundation and conceptual applicability of financialisation is often criticised for its fuzziness (Christophers, 2015; Ouma, 2014), financialisation research can be understood as an inter-disciplinary heuristic and rallying point (Fuchs et al., 2013).

Regarding the agricultural sector, financialisation has indeed become such a rallying point. Despite the long history of finance in agriculture (Martin & Clapp, 2015), the 2007/08 food and finance crises have elevated the focus on financialisation processes (Clapp, 2014). Research on the ‘new enclosures’ (White et al., 2012), the ‘corporate food regime’ (McMichael, 2012) and the financial

networks and actors invested in agriculture (Borras et al., 2020; Kish & Fairbairn, 2018) composes a body of literature incorporating financialisation as a meta-perspective for understanding agricultural production and trade. This literature differentiates two broader phenomena: financialised commodities and financialised farmland (Fuchs et al., 2013).

Work on financialised commodities shows that particularly value chains for globally traded cash crops are increasingly financialised through the price mechanisms of derivative markets. Far beyond their financial sphere, global derivative markets have transformed how and to the favour of whom value chains are organised (Bargawi & Newman, 2017; Newman, 2009; Staritz et al., 2018). Here, value chains resemble translation devices for financialisation processes from global markets in their most financial form towards local trading and production in its most physical form (Purcell, 2018).

Rather indirectly, financialised farmland, and with that the second phenomena, does affect agricultural value chains as well. With the rediscovery of farmland as an alternative asset class (Ducastel & Anseeuw, 2017; Ouma, 2020), a ‘farmland investment boom’ (Fairbairn, 2014, p. 777) or the ‘finance-farmland-nexus’ (Ouma, 2016, p. 82) has led to what is often problematised as a ‘global land rush’ (McMichael, 2012; Pedersen & Buur, 2016).

The financialisation of farmland relies foremost on complex transnational ‘investment chains’ (Kish & Fairbairn, 2018, p. 573) or ‘investment webs’ (Borras et al., 2020, p. 1). Constituted of financial actors such as equity investors, financial intermediaries, and asset managing firms, these networks are however not only providing capital, but also setting the investment’s financial (e.g. revenue creation, investment horizon) and moral (e.g. social or environmental impact) imperatives (Kish & Fairbairn, 2018). In order to enhance particularly the moral performance of farmland investments and pre-emptively oppose accusations of neo-colonial forms of land grabbing (Bluwstein et al., 2018), the integration of smallholders into large farms’ value chains has since established as a widely applied legitimacy practice (Brüntrup et al., 2018; Kirsten & Sartorius, 2002; Sulle, 2020). Additionally, when fully commercial investments are not feasible

at a given place and time, the moral performance of large-scale farms can become instrumental for attracting subsidizing capital from public or benevolent funders or investors who are seeing a case in creating social impact and/or who are willing to abstain from immediate profits.

On the side of financial actors, morality as a resource of securing and creating financial value is hence an important factor to make investments possible and more profitable. The win-win logic of leveraging synergies between capital accumulation and developmental effects has become a widespread phenomenon in the contemporary development of agricultural value chains in Africa. Hand in hand with the upsurge of value chain-oriented mega-alliances such as the *New Alliance for Food Security and Nutrition* or the *Alliance for a Green Revolution in Africa* (Moseley, 2016; Sulle & Hall, 2013), an unprecedented landscape of ‘new actors in development’ (Richey & Ponte, 2014) is today steering the transformation of African agriculture in this fashion.

This blended mode of financialising agricultural value chains, goes however not without criticism. As Mawdsley (2016) raises, highly speculative financial investments are the main beneficiaries of foreign aid flows into frontier markets. For frontier markets, public and benevolent capital is increasingly pivotal to escort investments as it subsidizes otherwise unprofitable asset classes. Such subsidies, and hence new forms of financialisation, through foreign aid and philanthropic funding tends to be ‘neglectful and wilfully blind to the greater exposure to the risk and volatility that such trends entail’ (Mawdsley, 2016, p. 8). Particularly in cases where investments fail, frontier markets can ultimately create a vacuum of accountability when the lines of who covers costs and risks and who collects benefits get blurred.

The translation of investment imperatives from financial actors towards everyday farm operations occurs not in an isolated interaction between the financial sphere of investors and farm operators. Rather, the territorial setting of farmland investments is co-constitutive to investment imperatives. When farmland investments touch ground, place-based specifics such as policy, legal regimes, infrastructure, and the physical environment shape what imperatives are applicable

(Ouma, 2014). Here, moral performance becomes again pivotal to achieve and maintain socio-political legitimacy within the territorial setting that farmland investments penetrate: the creation of jobs, tax incomes, but also the integration of smallholders can create this legitimacy (Li, 2015). These territorial-institutional settings at investment destination are, therefore, complementary to the financial sphere of investors and supporters in co-constituting the ground rules for farmland investments.

Ouma (2014) argues in this vein, that a reading of financialisation ‘from above’ (the financial sphere of investments) should include – if not be replaced – by a perspective ‘from below’ (the place and space-based sensitivity of such investments). Only then, an overemphasis as seeing financialisation as explanatory for almost everything can be avoided (see also Christophers, 2015). To create sensibility for place and space-based implications, we adopt Pike & Pollard’s (2010) two-fold framework on the economic geographies of financialisation.

8.3.1 Widening and deepening range of agents, relationships and sites

Pike & Pollard (2010) raise that financialisation processes should be understood as inescapably rooted in their geographic context. Therefore, a scalar reading of financialisation can help identify what spaces are made, linked, and affected by a widening range of financial actors and practices. These spaces can be conceptualised as territorial – bounded – entities (e.g. nation-states, regions) and relational – unbounded – flows (e.g. capital circulation, trading networks).

Accordingly, we address the financialisation of farmland in relation to value chains as follows: In territorial terms, the financialisation of farmland links (i) the socio-institutional settings from which networks investors and intermediaries originate with (ii) the domestic setting at destination of a farmland investment (e.g. the corridor region). In relational terms, we differentiate between (iii) the investment chain as constituted between financial actors and farmland investment, and (iv) the terms of integration between farmland investment and

smallholders (Table 8). With this approach to financialisation, we create the geographical sensibility necessary to disentangle the role of finance for corridor-making.

Table 7: Framework for the analysis of farmland investments and chain integration of smallholders

Spatiality	Sub-type of spatiality	Analytical themes
Territorial (bounded)	Origin of farmland investors and subsidiaries	Institutional setting, economic and moral obligations
	Destination of farmland investment	Institutional setting, production factors
Relational (unbounded)	Investment chain (financial actors – farmland investment)	Investment imperatives
	Value chain (farmland investment – smallholders)	Integration practices

8.3.2 Tensions between territorial and relational spatialities

According to Pike & Pollard, the territorial and relational spatialities under which financialisation processes unfold and that they parallelly create can lead to tensions and discrepancies. Such tensions reveal the often uneven and contradictory everyday consequences of financialised spatialities. Therefore, we derive analytical themes from the four identified sub-types of spatialities (Table 8). For both territorial entities, the institutional setting (e.g. human rights regulations for investors, conditions to receive financial subsidies from public sources) of financial actors *vis-à-vis* the setting in the investment destination (e.g. agricultural policy, property regimes, production factors) are co-constitutive for investment imperatives. This differentiation serves to disentangle how and by whom financial as well as moral investment imperatives are driven and how they are affected under changing territorial conditions either at financial actors’ origins and/or destination of investment.

For the relational spatialities of investment and value chains, the same understanding of how investment imperatives are co-constituted can further explain how the investment chain (expressed by the flow of capital and its imperatives) relates to the structures and dynamics of operating large-scale farms and also

integrating smallholders into value chains (expressed through the terms of integration). Ruptures and tensions can then become visible when these analytical categories shift.

This two-fold analytical framework of first differentiating the spatialities under which farmland investments occur, and then probing them for their tensions will guide our empirical analysis. We use the framework to show how farmland investments affected the integration of smallholders into value chains along SAGCOT.

8.4 Case study selection and methods

We draw from empirical work along the Tanzanian SAGCOT corridor and present two farmland investments that have materialised shortly after SAGCOT's launch (Figure 24). We chose these cases as they have been repetitively put forward as successes of SAGCOT. Both aligned their financial and operational models with SAGCOT's blueprint from the onset and were integral to developing the prioritised value chains of soya and maize.

Our data consists of the following: (i) a review of academic and grey literature on SAGCOT and investment cases; (ii) 32 problem-centric interviews with project managers and employees, donor representatives, small- and large-scale farmers, and SAGCOT and government representatives; as well as (iii) five farm visits. Data on the case studies were collected during long-term research stays in late-2018 and mid-2019 by the first author.

A major limitation lays in the politicised nature of SAGCOT in general and both case studies in particular. To remain politically legitimate, SAGCOT stakeholders are careful to control the corridor's public representation. Further, as Brüntrup et al. (2018) line-out, especially farmland investments at financial or political risk often allow only limited empirical access to 'their inside'. Accordingly, our long term research stays were crucial for contextualisation amid the shifting political economy of Tanzania and SAGCOT.

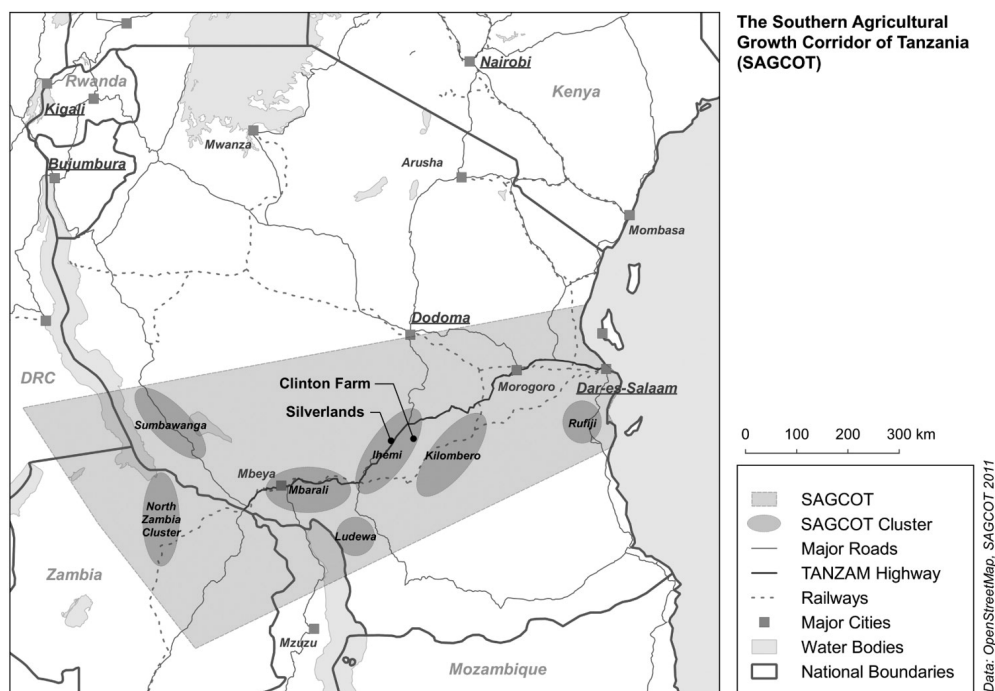


Figure 24: The Southern Agricultural Growth Corridor of Tanzania

Design & data: Authors

8.5 Results

The SAGCOT corridor was launched by a state-capital alliance of donors, multinational agri-businesses and the Tanzanian government in 2010 (Bergius et al., 2018; Mbunda, 2016). Covering an infrastructure axis, the corridor proposes several priority value chains, such as soya, beef, maize, and others, as favourable investment cases (Figure 24). In a grand-modernist fashion aiming to ‘deliver rapid and sustainable agricultural growth’, SAGCOT’s (2011:2) Investment Blueprint promotes investments into value chains particularly through commercial, large-scale farms (Sulle, 2020). The promotion of commercial farms as investable assets feeds into the goal to untap an ostensibly underexploited potential to exploit land for farming. Nevertheless, due to the ‘greenfield state of development’ (SAGCOT:19) more than commercial capital is required to overcome unfavourable economies of scale and scope for purely private investments. As a fix, the blending of private with public capital to kick-start a ‘virtuous agricultural growth cycle’ (SAGCOT:19) is put forward. Funders aiming at creating social impact and willing to abstain from immediate profits (donors,

philanthropists, social impact investors) are hence targeted as early capital sources (de Cleene, 2014). Sensible to the need to legitimise the access to such funding, SAGCOT's blueprint highlights further that 'the most important requirement is that smallholder farmer and local community benefits are built into the project from the outset'. For this, farmland investments should foster the integration of smallholders into value chains (de Cleene, 2014:38).

Contrary to blueprint goals, our and other research (e.g. Mbunda, 2016; Bergius et al., 2018; Brüntrup et al., 2018, Sulle, 2020) highlights however that 10 years after SAGCOT launch, implementation of the corridor is way behind schedule – if not under existential threat. With the legislative shift from president Kikwete to his successor Magufuli in 2015, a general turn towards industrialisation policies *vis-à-vis* the former focus on agriculture-led development has scrambled the Tanzanian economy. This scramble has since decreased SAGCOT's relevance substantially. Domestically, declining support by the Tanzanian government was paired with worldwide accusations that SAGCOT facilitates land grabs (Bergius et al., 2018; Bluwstein et al., 2018). Today, the confidence in the corridor project among investors has clearly suffered and also the international donor community froze or withdrew substantial shares of initially committed funds (Sulle, 2020). Accordingly, the dynamic political economy of the SAGCOT territory is characterised by an early stage of widespread attention and massive investment commitments that was followed by a gradual withdrawal of support and today's dawning failure of the whole project. This dynamic is important as it defines the territorial setting of both case studies.

8.5.1 Silverlands Tanzania

Silverlands Tanzania aggregates one of the largest farmland investments in the corridor. Part of the Tanzanian portfolio is a poultry farm that integrates smallholders into its value chain.

8.5.1.1 Investment chain and territorial origins of Silverlands Tanzania

Silverlands Tanzania is entity of *SilverStreet Capital*, a UK-governed and Luxembourg-based private equity fund, that manages an investment portfolio worth \$300 million. During fundraising in 2009, SilverStreet collected capital by private and institutional investors, such as European pension funds, insurance companies and development finance institutions (e.g. the *Commonwealth Development Corporation* (CDC)). The fund operates farms in Malawi, Namibia, South Africa, Tanzania and Zambia. The Tanzanian investment of \$49.7 million is split into *Silverlands Ndolela* (two farms totalling 2200 ha for cropping) and *Silverlands Tanzania* (673 ha farm for poultry). With \$19.3 million and \$28.9 million, respectively, the US development finance institutions *Overseas Private Investment Corporation* (OPIC) and the World Bank’s *Multilateral Investment Guarantee Agency* (MIGA) further back the portfolio against risks of expropriation, political violence, and fragile regulatory frameworks (OPIC, 2015). Moreover, donor and philanthropist projects support the Tanzanian investment. The *World Poultry Foundation* by the *Bill and Melinda Gates Foundation* (BMGF) allocated a \$3.6 million grant to establish an extension network for poultry breeders. *Caritas International* and the *Clinton Foundation* ran smallholder-oriented programmes on soya cultivation (Figure 25).

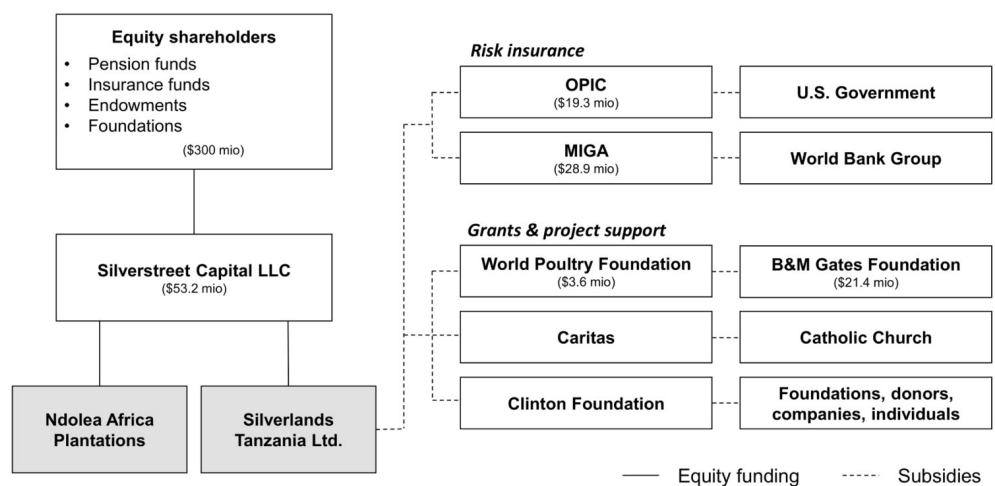


Figure 25: Silverlands’ investment chain. Design: authors.

In total, Silverlands' investment chain is far from being a straight-forward commercial investment. In territorial terms, the investor landscape is composed of funders and supporters with predominantly UK and US origin who indeed blend private with public capital. This blending explains a two-fold investment imperative for Silverlands' operations.

On the one side, equity investors expect whopping profits between 20 and 25 percent annually for the 10-years investment cycle.⁶⁹ At the end of the investment cycle sometime between 2021 and 2022, the fund will divest all assets.⁷⁰ Hence, Silverlands' investment imperative follows foremost the logic to develop, operate, and eventually liquidate all assets for profit.⁷¹ This imperative fits well with the subsidiary risk insurances provided by OPIC and MIGA as their subsidies underlie the eligibility criteria of facilitating US-based private capital to gain foothold in global South economies.

On the other side, however, particularly indirect support for the farm's development and operational costs through public capital (e.g. CDC, OPIC, MIGA), but also philanthropic activities (Caritas, BMGF), adds a moral imperative to the investment. This moral imperative is defined by different frameworks, such as the United Nation's *Sustainable Development Goals*, the World Bank's *International Finance Corporation Performance Standards*, or the CDC's *Modern Slavery Act*. These frameworks define an overlapping and fuzzy set of sustainability standards and can be summarised as going beyond 'avoiding harm' as they aim not only to alleviate issues such as land grabbing, but at the creation of environmental and social benefits (e.g. OPIC, 2015).

In total, both, the territorial setting of originating funders and the relational structure of Silverlands' investment chain define not only the long-term operational logics of the farm (develop – operate – liquidate), but also a constant pressure to

⁶⁹ Silverlands #4.

⁷⁰ Silverlands #1.

⁷¹ Silverlands #4.

uphold legitimacy in form of a win-win narrative in front of its shareholders and supporters. To do the latter, Silverlands uses its poultry farm.

8.5.1.2 Silverlands approach of integrating smallholders into its value chain

Silverlands uses a hub out-grower model for its poultry farm as proposed in SAGCOT's blueprint. Other than fully integrated poultry businesses that would have missed 'a massive development opportunity for Tanzania' (Silverstreet Capital, 2018, p. 23), the externalisation of upstream activities is communicated as creating social impact.

Generally, Silverlands' poultry chain foremost relies on its on-farm operations: investments into sophisticated farm equipment allow the farm to produce about 170 000 heads of day-old chicken and 400 tons of feed weekly. Beyond-farm, Silverlands involves in arm's length trading with smallholders to access raw materials for feed production. Since 2015, maize and soya purchases have increased from 4200 to 44 000 tonnes, thus making Silverlands a regional offtaker for about 8000 soya and 9500 maize farmers (SilverStreet, 2018). Pivotal for this are tight partnerships with donor or philanthropist projects. These smallholder-oriented projects create economies of scale when purchasing maize and soya as well as for disseminating new varieties and production technology necessary to match Silverlands' raw material needs. At downstream side, Silverlands further raises the externalisation of breeding and retailing to local breeders as creating impact. Here, Silverlands – again with strong philanthropic support by the BMGF through the World Poultry Foundation – involves in extension activities to expand the Tanzanian value chain for poultry.⁷²

8.5.1.3 Tensions in navigating financialised spatialities

Merging Silverlands' moral with financial investment imperatives is messier than suggested at first glance. Indeed, as stated by the farm management, the

⁷² Silverlands #2.

navigation between relational and territorial tensions of the investment have substantial implications for everyday operation:

*We have to balance between being a responsible investment and being profitable. For me, as a businessman, this was something totally new.*⁷³

*It is difficult to quantify our impact, but it's absolutely necessary to document it for our board of investors. Measuring our impact has become a part of our day-to-day business.*⁷⁴

Accordingly, everyday farm operations follow more than sole commercial reasoning. The mixed investment imperative translates into an omnipresent pressure to proof social impact.

Expressive for this pressure to proof social impact, and thus the creation of (moral) value, is especially the trading of soya for feed production. The quality of soya is decisive for processability and, according to farm management, it would be economically most feasible to bulk-import and store large volumes of soya at high quality and lower price from Zambian large-scale producers.⁷⁵ Yet, Silverlands opts for nurturing a regional, smallholder-based value chain to create moral value in the form of regional trust and legitimacy and social impact hard facts directed towards shareholders (amount of smallholders integrated).⁷⁶ Despite philanthropic support via smallholder-oriented projects, the sourcing of soya from smallholders comes eventually with higher costs and less quality *vis-à-vis* the Zambian alternative.

In this sense, the decision whether to buy from smallholders is less based on how profitable their integration might be according to factors such as firm capability (e.g. soya quality) or transaction costs (high for smallholder-produced soya), but merely on how much this benefits Silverlands' regional and trans-regional moral

⁷³ Silverlands #2

⁷⁴ Silverlands #4

⁷⁵ NGO #2, Silverlands #2;3

⁷⁶ CDF #3

performance. This moral performance is essential to harmonise the different spatialities under which Silverlands operates. Silverlands has benefitted from this harmonisation strategy through the SAGCOT initiative (e.g. SAGCOT lobbying to remove taxations on feed production) and vice versa become an affirmative model to it.⁷⁷ Today, Silverlands is communicated as the ‘puller of SAGCOT’s soya value chain’⁷⁸ and used as precedence case for how SAGCOT’s investment strategy might work elsewhere.

Against these successes of the Silverlands investment, the same translation of imperatives to operational level creates however also paradoxical tensions. First, whereas Silverlands’ poultry chain is used to showcase and capitalise on the social impact of SilverStreet’s Tanzanian portfolio, the much larger crop farms, where high-value activities such as export-oriented crop or seed re-production take place, are generously ignored with regard to where social impact practices are pursued. Creating social impact through the poultry farm seems to suffice to legitimise the otherwise exclusive counterparts of Silverlands’ Tanzanian portfolio (see SilverStreet, 2018). Even where smallholders are integrated (poultry farm), the extent of this integration is thin. As smallholder integration is limited to supplying raw materials, smallholders remain with activities where little value is captured and upgrading is unlikely. Both, the spatial and functional selectivity of where financial and moral value is created show therefore that Silverlands’ can leverage its self-conceptualising position to govern how, where, and to the favour of whom moral as well as financial value is created.

Second, the SilverStreet fund’s investment plan raises questions about the long-term prospect of smallholder integration. As a stated by the farm management:

Let me be clear: we are a private equity investment, so that means the ambition is to build a business and sell it on a future date. They [the investor board] might decide to sell everything, they might also decide to

⁷⁷ Smallholder #1; 2; commercial farmer #2; NGO #1; SAGCOT #1

⁷⁸ SAGCOT #1

*launch a second round of investment. We don't know about their decision.*⁷⁹

This indicates that, regardless of how successfully smallholders can integrate into Silverlands' operations, latest the liquidation of the fund's assets will start a new round of investment and then reconfigure the investment imperatives at place. SilverStreet's investment circle is more short-sighted than the 30-years SAGCOT plan or the long-term goals of donors to achieve some form of sustainable impact. Whereas the development costs of SilverStreet's investment were heavily flanked by subsidiary funds (donors, philanthropists) and institutional backing (SAGCOT, Tanzanian government) along the assumption of mutual interests, it remains unaccounted how these interests might shift at date of divestment. Particularly the looming demise of SAGCOT and the widespread withdrawal of public and benevolent funding, questions whether moral imperatives can be upheld in such way that smallholder integration *vis-à-vis* the alternative of buying raw materials elsewhere remains profitable.

8.5.2 Clinton Development Farm

The Clinton Development Farm (CDF) established in close partnership with SAGCOT. Despite initially integrating smallholders as an offtaker, recent changes in the farm's investment chain have fully reconfigured how CDF operates.

8.5.2.1 Investment chain and territorial origins of the Clinton Farm

In 2013, the Clinton Development Initiative (CDI), a subsidiary of the US-based Clinton Foundation, launched a farming project similar to Silverlands. The Clinton Foundation is an donation-based foundation that raises capital for in-house projects from governments, firms, individuals and other foundations mainly in the US⁸⁰ (Figure 26). Therefore, the foundation does not underlie a strict imperative of generating profits but uses the inflow of donations for covering

⁷⁹ Silverlands #4

⁸⁰ 3For an overview see: <https://www.clintonfoundation.org/contributors>.

operational costs. This funding model allows the foundation to be relatively flexible and independent from hard(er) international standards for measuring impact. The foundation summarises its impact obligation as follows:

At the end of the day of course, the most important piece of data is the number of lives saved, improved, and empowered – or as we like to say, the number of people who are now living better life stories.⁸¹

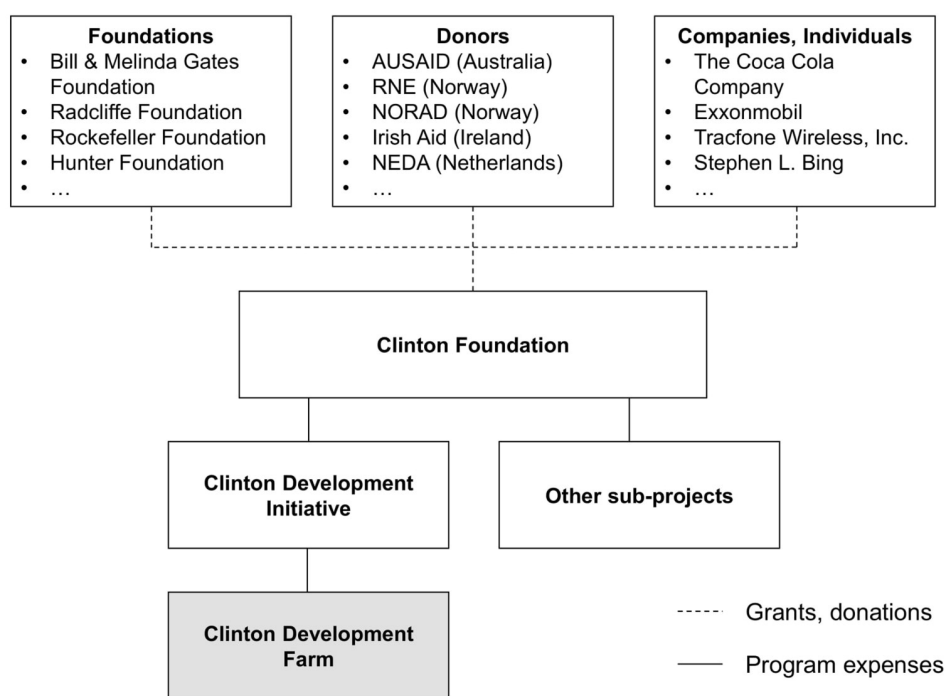


Figure 26: The Clinton Development Farm’s investment chain. Design: authors.

To achieve the benevolent but fuzzy aim of creating better life stories, the CDI long followed its house-made *Anchor Farm Approach*. The approach aimed at developing value chains for smallholders by establishing large-scale hub farms as offtaker and centre of innovation. Thus, although the farm’s investment chain is not shareholder-driven like Silverlands, the CDF aimed just as well at

⁸¹ Clinton Foundation, Annual Report 2013–2014 (<https://www.clintonfoundation.org>).

developing a commercial farm that could provide economies of scale for smallholders and operate profitably on the long run.

8.5.2.2 Clinton farm's approach of integrating smallholders into its value chain

Due to the similarity of the CDI's *Anchor Farm Approach* (at that time already applied in Malawi and Rwanda) and SAGCOT's hub farm model, the CDF affiliated with the SAGCOT initiative from the onset. Most illustratively, SAGCOT assisted the CDF to take-over the state-owned 1000-hectare through a 20 years lease agreement.⁸²

With an initial investment of \$5.0 million, particularly the commercial farm was equipped with agricultural machinery and silos for large-scale cultivation of maize and soya. Additionally, the CDI launched a programme for about 6000 smallholders to target the introduction of high-yielding farming practices and pool the marketing of crops. Here, the commercial farm occupied a three-fold function of creating economies of scale for distributing inputs, hosting agricultural trainings, and facilitating commodity trades with larger buyers such as Silverlands, Tanzania's National Food Reserve Agency, and processors from Northern Tanzania.⁸³ Our interviews suggest that the CDF indeed positively impacted surrounding communities with this approach.⁸⁴ In total, the first few years of the CDF describe a period in which the unprecedented inflow of philanthropic capital mobilised widespread excitement about the CDF. Although observed sceptically for the high operational costs which had to be covered by the foundation,⁸⁵ smallholders scored higher yields and integrated more tightly into domestic value chains for maize and increasingly soya.

⁸² CDF #4, SAGCOT # 1.

⁸³ CDF #4.

⁸⁴ CDF #1; 4, NGO #1, commercial farmer #2, smallholder #1;3, government representative #1; 2.

⁸⁵ Commercial farmer #1; 2.

8.5.2.3 Tensions in navigating financialised spatialities

Despite the promising launch, CDF's operations came to a sudden halt only four years later. When first visiting the farm in 2018, fallow plots and deserted infrastructure were all that was remaining. The operation of the farm was suddenly stopped in late-2018.

Although explanations for the shutdown are complex, two shifts were fundamental. Firstly, the shifting territorial setting in Tanzania forced the withdrawal from CDF:

With anchor farm, we were selling to big buyers. That means you have to go into business transactions. At this moment, it also means you are encroaching the purpose of being a non-profit organisation. [...] That is why we had to stop anchor farm.⁸⁶

Indeed, increased enforcement of tax collection and rigid auditing of non-profits went hand in hand with the declining relevance of SAGCOT under the new Tanzanian government (Sulle, 2020). With the re-regulation from 'tax holidays'⁸⁷ for foreign capital towards strict enforcement of tax collection, the territorial setting for commercial farming – even when listed as non-profit – had changed dramatically. Under these circumstances, the CDF's operation somewhere between commercial and non-profit entity was no longer tolerated by the Tanzanian government.

In US territory, the farm's investment chain further experienced a blow due to US politics. With the defeat of Hillary Clinton in the presidential elections and far-right media house-driven conspiracy theories that accused the foundation of money laundering, the foundation's ability to raise capital suffered dramatically. Whereas annual support long amounted to about \$250 million, same support fell below \$25 million in 2017 and has since not recovered (Figure 27).

⁸⁶ CDF #3.

⁸⁷ CDF #4.

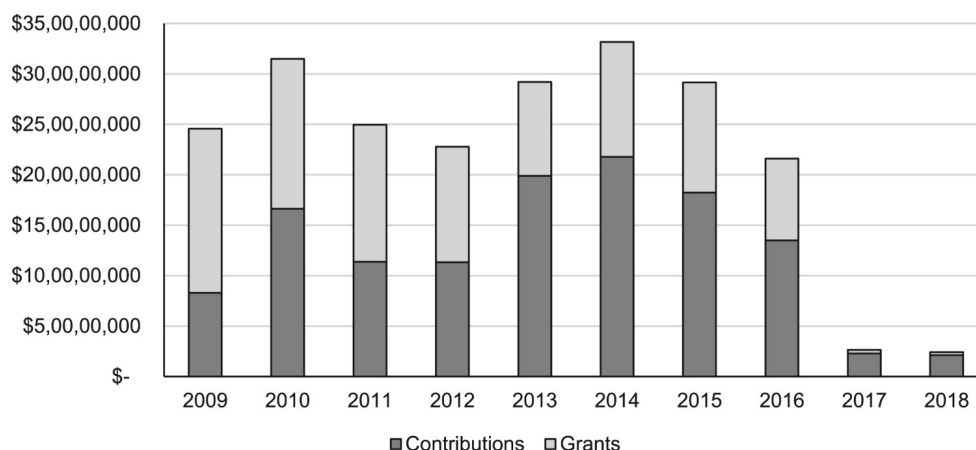


Figure 27: Public support to the Clinton Foundation. Data: Clinton Foundation.

The shifting territorial conditions of both domestic and foreign origin have thus fuelled a breakdown of the legitimacy and capacity of CDF’s investment chain. As stated by a former CDF employee, this breakdown meant a sudden withdrawal from operating the farm:

*Finally, they sent an email for what they call a global meeting. It was addressed to all staff members. [...] In the meeting, they gave us a one week notice and everyone was dismissed.*⁸⁸

The CDF’s shutdown has since created a vacuum of information among formerly integrated smallholders. Interviewees highlighted that the CDF’s withdrawal lacked transparent information about the core farm’s withdrawal and what this would imply for smallholders.⁸⁹ Whereas maize could still be sold via alternative markets, particularly the Silverlands-destined soya was now stock-piling at smallholders’ farms and eventually fed to cattle rather than commercially traded.

Despite the sudden withdrawal from the farm, the foundation has, however, not fully phased-out. In 2019, the CDI introduced their *Community Agribusiness Approach*. Today, smallholder cooperatives are promoted as an alternative mode to train farmers and achieve favourable economies of scale in staple crop value

⁸⁸ CDF #4.

⁸⁹ CDF #4, smallholder #3; 4.

chains. Hence, the CDI follows a totally different approach of promoting the smallholder integration.

The CDF's brief operational history shows how territorial dynamics within Tanzania (tax collection and regulatory enforcement) but also the US (political turmoil) could suddenly jeopardise the whole investment and its value chains. Both territorial dynamics explain the foundation's sudden withdrawal from funding the core farm and the dramatic consequences for formerly integrated smallholders. The withdrawal highlights how suddenly the spatialities created and linked by financialisation processes can collapse. Similar to Silverlands, such collapse is not explained by how feasible smallholder integration is. Rather, it can be explained through the lens of finance and the dynamic territorial and relational spatialities along which it unfolds.

8.6 Discussion

How can we make sense of the two case studies? At first glance, both investments materialised with similar operational models. Apart from operating a commercial core farm, they integrated several thousands of smallholders and confirmed with SAGCOT's approach of blending private and public investments into farmland. However, our financialisation perspective allows for a deeper understanding of the circumstances under which both investments touched ground. Whereas other research has addressed the farm(er)-based, socio-economic outcomes of similar farming arrangements in detail (Bellemare & Bloem, 2018; Kirsten & Sartorius, 2002), a financialisation perspective can add to addressing the mechanism of such outcomes. Under mixed investment imperatives, smallholder integration follows no longer economic reasoning at place (the farm). Rather, the 'smallholder slot' becomes a resource to navigate the complex imperatives to which investments need to comply. How feasible the actual practice of integrating smallholders is becomes secondary. It is secondary as integrating smallholders is not entirely motivated by directly capturing value between commercial farm and smallholders, but as it is essential for creating moral value that can be translated into hard cash elsewhere.

In early times of SAGCOT, farmland investments could easily translate moral value. As long as moral imperatives as co-constituted by investors, donors, and the SAGCOT framework were adhered to, direct and indirect capital flows supported the development and operation of both commercial farms. Hence, it was less relevant *how* smallholders were integrated, but primarily *whether*. The legitimacy and subsidiary gains from smallholder integration clearly outweighed the otherwise complicated operations and opportunity costs of nurturing smallholder integration. Such paradox outcomes can only be understood with a space-sensitive perspective on financialisation.

Moreover, this perspective adds to understanding why ruptures of financialised spatialities can imply sudden reconfigurations for whether, why, and with what consequences smallholder integration remains attractive. These tensions became most visible with the CDF's withdrawal and they are looming to become relevant for Silverlands. Under 'working' conditions, when territorial and relational spatialities align, smallholders might indeed benefit from farmland investments. But what happens when tensions become ruptures? As Kaarhus (2018, p. 108) concludes on similar investments in the Mozambican Beira Corridor: 'who remains with the risks, and who is left to pay the debts, becomes acute when some partners leave'. In this sense, it is debatable to what extent public and benevolent capital is sustainably invested to the favour of smallholders. Here, our approach can scrutinise the unevenly distributed and often neglected risks of farmland investments – even beyond farm.

In short, a financialisation perspective is more than an intellectual exercise of approaching the same matter from different epistemologies. Rather, such perspective can contribute to practically inform negotiations between investors, donors, philanthropists and local actors when they venture into similar arrangements.

8.7 Conclusion

We argued that a financialisation perspective is important to understand how development corridors materialise. It helps to acknowledge the most accentuated

logic of contemporary corridor-making. This logic is about attracting flows of global finance and channelling them into the development of value chains. Hence, rather than providing just roads, corridors demarcate territory and suggest assets to be incorporated into flows of global finance. These flows originate, on the one side, from benevolent and developmental aims among the international development community and, on the other side, from the pressure to establish alternative asset classes among global capital.

Our empirical work raises how SAGCOT's design served to attract and blend both flows of finance. SAGCOT functions as a territorial tool that ultimately channels blended finance into farmland. The common denominator for such controversial blending can be found beyond farm; namely in the integration of smallholders. Smallholder integration has become a legitimated practice for corridor-making in general, and for farmland investments in particular.

Whether, why, and with what consequences smallholders integration occurs is tightly related to the imperatives under which farmland investments unfold. Under mixed investment imperatives somewhere between benevolent social impact creation and the generation of shareholder value, smallholder integration is no longer explained single-handedly by transaction cost theory as suggested by conventional value chain literature. Mixed investment imperatives obfuscate the mechanisms of whether and at what terms commercial farms opt for integrating smallholders. Here, smallholder integration is no longer solely explained by the value created between commercial farm and smallholders. Rather, smallholder integration is rendered as a resource to capture (more) value elsewhere. This elsewhere is reflected by the extent to which moral value created by smallholder integration is exchangeable into financial value at different times and spaces (e.g. global fund raising and subsidies before investment, local subsidiary projects or institutional support after investment).

When value is no longer necessarily captured through mutually beneficial and sustainable chain arrangements, but by leveraging the number of 'smallholders integrated', the implications of smallholder integration require scrutiny. Although smallholders might indeed capture some of the initial gains of finance

attracted into corridor territory, the sustainability of such arrangements cannot be taken for granted. Ruptures in territorial terms (originating from funders and/or the investment destination) can abruptly scramble the relational spatialities (investment chain and value chain) that allow to translate moral value created through smallholder integration into financial value for investors. When ruptures occur, the integration of smallholders can then quickly lose all its attractiveness.

How and to whose favour corridors target global flows of finance requires therefore careful consideration. Against calls to fast-track corridor-making, the question how to alleviate and distribute the risks along financialising value chains should not be marginalised. Planning for failures, not only for investors, but especially also smallholders, can help aggravate the tensions and unsustainable outcomes that corridors might otherwise produce.

9. Thesis Article III

Global Suppliers, Intangible Assets, and Power in Global Value Chains: Explaining Governance from the Supply-Side of the Fertilizer Chain

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9.1 Abstract

Global suppliers of agricultural inputs such as seeds, fertilizers and agrochemicals exert increasing degrees of power in global value chains (GVCs). Although the GVC literature has explained how global *buyers* govern GVCs from the buying-end, the question of how global *suppliers* achieve governance from the supplying-end remains underexplored. We address this gap by combining a multi-dimensional typology of power with literature on intangible assets. We argue that intangible assets are crucial resources for global suppliers to morph otherwise ungovernable supply chains for undifferentiated input commodities into more sophisticated and governable GVCs. We illustrate our argument with the case of the global fertilizer supplier, YARA International. YARA's intangible asset investments were instrumental in governing the value chain integration of Tanzanian smallholder farmers. They allowed YARA to exert more than bargaining power (demonstrative, institutional and constitutive power) and to effectively position itself as supplying lead firm in Tanzania's agro-industrial GVC.

9.2 Introduction

Nitrogen fertilizer fuels large parts of the global industrial food system. Today, more than half of the food we eat, waste, feed or convert into biofuel is derived directly from nitrogen fertilizer (Erisman et al., 2008). Two crucial commodity characteristics of fertilizer frame the organization of fertilizer supply chains. First, fertilizer is a hyper-tangible commodity due to its bulky materiality.

Further, its production and consumption depend on the terraforming of manufacturing (fossil resource extraction) and farming regions (soil transformation) (Menegat et al., 2022). Second, fertilizer is a truly global commodity: Cross-continental fertilizer trade is necessary to alleviate the global nutrient imbalances exacerbated by industrial agriculture (Lu and Tian, 2017). These two commodity characteristics explain why global fertilizer trade is predominantly organized in a market-based fashion. Stiff competition over volume and price encourages little more than arm's length relations along fertilizer supply chains. Power (i.e. chain governance) between fertilizer suppliers and farmers is not usually exerted beyond pricing-based bargaining power and only when horizontal oligopoly conditions apply (Vilakazi and Roberts, 2019). Taken together, these commodity characteristics inherent to fertilizer do not seem to provide the socio-material fabric for fully fledged global value chains (GVCs) in a strict sense.⁹⁰ After all, fertilizer chains are neither controlled by clearly identifiable lead firms, nor are they governed by more than market-based interactions.

However, in recent years, these commodity characteristics are changing, and with them, the organization of fertilizer chains changes as well. Rapid industry consolidation and new corporate identities suggest that fertilizer lead firms and modes of lead firm governance are on the rise. Global suppliers no longer only compete horizontally as classic commodity suppliers seeking to simply monopolize whole markets through volume and price. Rather, they seek to position themselves as influential lead firms that can vertically govern whole agro-industries. This new thrust towards lead firm functions on the supply-side of agro-industrial value chains relies, first, on strategic investments that enable unprecedented governance practices and, second, on the partial reinvention of the commodity characteristics inherent to fertilizer itself. Rather than maintaining their growth imperatives by investing in tangible assets that geographically perforate new end markets (e.g. vessels, import terminals and warehouses), emergent fertilizer lead firms now also invest in a range of strategic intangible assets that

⁹⁰ We are following Ponte et al. (2019) and their definition of GVCs as being more than 'just markets' and as necessarily entailing some form of clearly identifiable lead firm that must be involved by governing parts of a chain beyond arm's length relations.

functionally expand their value chain presence (e.g. branding, knowledge and information systems and stakeholder networks). By augmenting the hyper-tangible and global commodity chain for fertilizer into something more than tangible, these suppliers can exercise power beyond mundane types of bargaining power. Differentiating and explaining what types of power global suppliers exercise is, therefore, crucial to understanding why lead firm governance from the supply side is increasingly ‘on the menu’ (Clapp, 2018).

Research on the growing power of agro-industrial suppliers that distinctly references the GVC framework is scarce. Although mega-corporations such as Bayer and Syngenta (both seeds and agrochemicals) and YARA and CF Industries (both fertilizers) increasingly mimic sophisticated value chain strategies reminiscent of buying lead firms (e.g. global crop traders, buyers and brand owners), few studies have explicitly addressed how global suppliers achieve GVC governance in a lead firm fashion (Trebbin and Franz, 2010, Werner et al., 2021). The aim of this paper is, therefore, to conceptualize the types of power global input suppliers exert and to explain how this allows them to be positioned as lead firms governing agro-industrial chains from the supplying, rather than the buying, end of GVCs.

This article proceeds as follows. To theorize the case of supplying lead firms in agro-industrial GVCs, we draw from two major discussions. First, we adopt a multidimensional typology of power to descriptively differentiate the power types exerted by global suppliers (Dallas et al., 2019). Second, we use literature on intangible assets to explain how intangibles allow suppliers to manipulate principal power dimensions in GVCs. To illustrate our conceptual argument, we present an in-depth case study of the Norwegian fertilizer supplier YARA International and its governance practices in the Tanzanian agro-industrial value chain. Empirically, our results highlight YARA's ability to govern the agro-industrial GVC by supplying farmers with more than fertilizer (i.e. knowledge and information) and by linking them with more than fertilizer (integration into value-chain-oriented partnerships). This novel approach is based on YARA's strategic investments in intangible assets. We showcase how a global supplier

succeeds in occupying a fully fledged lead firm function by blending direct and diffuse, as well as dyadic and collective, power types. Conceptually, we conclude that the role of intangible assets should not be underestimated regardless of how mundane, undifferentiated or strictly market-driven a supply chain may appear. Intangibles explain how supplying lead firms reorganize value chains ‘from the bottom’ to eventually exert power. This power is deployed to gain competitive market advantages vis-à-vis more conservatively organized competitors, but it also nudges farmers into new agricultural practices, creates new demands and integrates them into new streams of knowledge and information extraction. Emphasizing the power of global suppliers helps to conceptualize how Southern farmers become increasingly squeezed by lead firms from both the buying and supplying end of GVCs.

9.3 Supplying Lead Firms and Power in GVCs

In the GVC literature, a conceptual focus on global buyers and their far-reaching abilities to exert power from the GVC buying-end has long explained the rapid spread of buyer-driven GVCs under the post-Fordist global division of labour (Gibbon et al., 2008, Neilson, 2014). This focus has been indispensable in explaining various governance modes between buying lead firms and their first-tier suppliers (Gereffi et al., 2005).

However, recent industrial restructurings show that the primacy of buying lead firms in governing GVCs should not be taken for granted. The rise of transnational first-tier suppliers from emerging economies (Raj-Reichert, 2020), the emergence of global platform leaders among tech monopolists (Rikap, 2020, Schwartz, 2020) and the collective or institutional power of extra-chain actors, such as states, labour unions and civil society actors (Bair and Palpaucer, 2015, Horner, 2017), have empirically challenged and conceptually diversified the GVC framework beyond the powerful role of buying lead firms. This diversification of who governs whom is most prominently expressed by several advancements that conceptualize power and governance in GVCs. Frameworks theorizing bi- or multipolar governances (e.g. in cases of several buying lead firms or

substantial extra-chain power exerted by the state or civil society actors) have gradually moved away from strict foci on single lead firms by expanding their analysis to include more actors involved in governing GVCs (Fold, 2002, Ponte, 2014). In light of this, the earlier notion of chain governance as solely a matter of driving and linking (Gereffi et al., 2005) has been expanded by wider theorizations of power to include subtler modes of normalizing governance (Gibbon et al., 2008). This conceptual advancement accommodated the role of diffuse and tacit types of power in shaping (un-)codified conventions, such as preferences, standards and good practices along chains (Ponte and Sturgeon, 2014).

All these advancements have clearly diversified understandings of power and governance. However, we contend that especially Dallas et al.'s (2019) multidimensional approach to power helps to explain how global suppliers can achieve substantial governance and even function as fully fledged lead firms in agro-industrial GVCs.

9.3.1 Differentiating multidimensional power in GVCs

Dallas et al.'s organizing framework differentiates ideal types of power in GVCs. Importantly, their framework opts for an actor-independent approach. It posits relational and practice-dependent dimensions of power (instead of making pre-occupied statements about which actors hold what power). The following sections summarize the power dimensions before discussing the power types with direct reference to supplying lead firms in agro-industrial chains.

9.3.1.1 Principal power dimensions in GVCs

There are two principal dimensions of power in GVCs. The relational dimension considers the arena of actors, whereas the practice-related dimension is concerned with the transmission mechanisms of power. When combined, these dimensions form a matrix with four possible power types (Figure 1).

The arena of actors considers how actors are positioned relative to one another as power is exerted. Dyadic arenas include hierarchically organized settings, including lead firms exerting power over subordinated chain actors. In contrast,

collective arenas include more horizontal constellations constituted by multiple chain actors acting simultaneously and often in uncoordinated ways.

The transmission mechanisms dimension distinguishes practices of exercising power. In direct power transmissions, power is exerted over others, usually quite explicitly. Diffuse transmissions are more tacit, subtle and often implicitly accepted. This is not to imply that they are exerted unintentionally, just that they usually rely on being exerted with others. Diffuse power relies, therefore, on practices of persuasion, demonstration and performance.

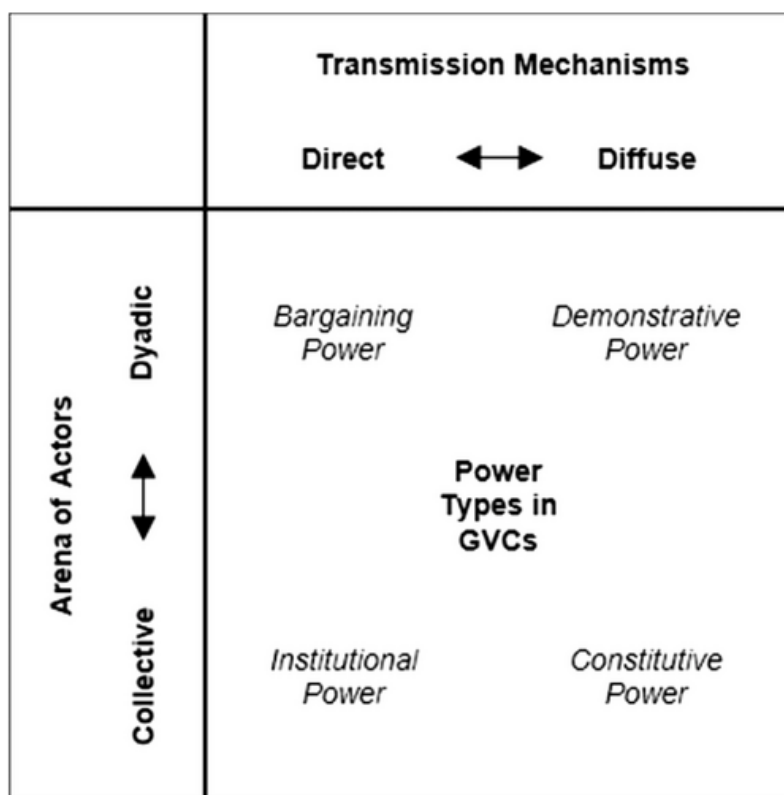


Figure 28: Typology of power in global value chains (GVCs) (based on Dallas et al., 2019)

9.3.1.2 Ideal power types available to global suppliers

We introduce each power type before discussing their relevance for global suppliers in agro-industrial GVCs.

Bargaining power

Bargaining power occurs under dyadic actor constellations and direct power transmissions. It is usually expressed in the firm-to-firm hierarchies between

lead firms and first-tier producers (Gereffi et al., 2005). More hierarchical forms of governance are associated with higher differentials of bargaining power, whereas purely market-based interactions are assumed to elicit more balanced power differentials.

In agro-industrial GVCs, bargaining power usually occurs when buying lead firms leverage favourable dyadic–direct power relations using knowledge and experience differentials, the ability to seamlessly exchange producers and exclusive control and information over production and marketing linkages (Grabs and Ponte, 2019). This allows lead firms to define process and product standards and exploit value from the production process (Ajwang, 2019, Ouma, 2010). Brands, standards, digitally mediated monitoring tools and networked gatekeeper positions in a value chain are key assets allowing buying lead firms to exert bargaining power.

It is far more difficult for agricultural input suppliers to exert bargaining power. High price sensitivity among farmers, especially in Southern end markets, encourages the use of unbranded inputs, such as self-bred seeds, generic agrochemicals or locally available fertilizers over more specified and costly inputs (Shattuck, 2021, Werner et al., 2021). Finally, inter-chain competition prevents suppliers from exerting bargaining power unless horizontal monopoly or oligopoly conditions apply (Vilakazi & Roberts 2019).

Demonstrative power

Demonstrative power also unfolds under dyadic actor relations but is transmitted diffusely. It occurs when tacit norms and rules of integration create peer pressure among competing, subordinated or would-be chain actors. For instance, tacit sustainability standards can produce peer pressure to achieve new product standards within GVCs, even if these are not clearly articulated by lead firms (Grabs & Ponte 2019).

In agro-industrial GVCs, dyadic-diffuse power relations can have normalizing and differentiating effects. Both typically unfold in favour of buying lead firms.

Normalizing effects occur when tacit upgrading and inclusion criteria pressure farmers to improve their process and product quality to remain eligible for inclusion in a GVC (Nadvi, 2008). Differentiating effects can occur simultaneously when the adoption of new norms or uncodified rules entrenches inequalities within (e.g. farmer vs. farmer) or across (e.g. farmer vs. buyer) chain segments (Ouma 2010).

For input suppliers, demonstrative power is crucial in achieving normalizing modes of governance and gaining footholds in new end markets. Demonstrative power is more than conventional branding; it usually involves the long-term re-configuration of cultivation practices in whole farming regions (Scoones and Thompson, 2011). To do so, input suppliers invest in dyadic actor constellations along agro-industrial chains to nudge the diffuse transmission of new knowledge and information regimes. These regimes serve to promote distinct input portfolios (e.g. marketing one brand or technology), and they may shape agricultural systems as a whole (e.g. alienating input-extensive agricultural practices). Farmer schools, demonstration plots and public events like agricultural fairs complement input suppliers' strictly trade-related activities (i.e. selling inputs) with much subtler knowledge-based activities. Demonstrative power transmits diffusely, as it is often impossible to trace who defines and translates what knowledge. This is especially true when suppliers operate through intermediaries (e.g. public extension staff, donor projects) to reach a broad farmer base. For instance, global suppliers tend to co-opt chronically underfunded public extension networks and use established bureaucracies and institutional structures to gain on-farm presence and demonstrate their portfolios (Aga, 2019, Luna, 2020).

Institutional power

Institutional power entails collective actor arenas and direct transmissions of power. It occurs when actor collectives are mobilized around a common interest. Institutional power applies when the state intervenes directly in GVCs (Horner 2017). It is also exerted by more loosely institutionalized stakeholder networks,

such as PPPs, multi-stakeholder initiatives or chain actors with similar identities and motivations (Riisgaard et al., 2019).

In agro-industrial chains, institutional power is most visible when states intervene in chain relations between farmers, buying lead firms and consumers (e.g. trade regulations, labour regulations, standards or subsidies). However, global suppliers also mobilize institutional power to tap into new end markets. For example, global seed suppliers notoriously lobby for favourable seed patenting to juridically restrict what inputs can be legally traded and under whose ownership (Rock, 2018, Scoones and Thompson, 2011). The widespread mobilization of PPPs to create ‘enabling environments’ in agro-industrial GVCs also adds substantial de facto institutional power (Amanor, 2019). Value chain-oriented PPPs like agricultural development corridors or agricultural stakeholder platforms create collective actor constellations through which global buyers and suppliers partake in agenda-setting (Trebbin & Franz 2010). For global suppliers, institutional power serves two major purposes. It can future-proof the territorial expansion of a firm's tangible assets through logistics and marketing infrastructure (Tups & Dannenberg 2021). It can also favourably reconfigure GVCs for global suppliers, even beyond their input segments (e.g. by promoting wider commercial and export-oriented farming) (Amanor 2019).

Constitutive power

Constitutive power relies on collective actor constellations and diffuse power transmissions. It is characterized by minimal levels of formal institutionalization and exerted subtly, both intentionally and unintentionally. Despite its tacit characteristics, it has substantial effects on GVC governance.

Constitutive power is perhaps the most decisive, but least noticeable, type of power mobilized by global suppliers. Although buying lead firms tend to rather selectively integrate a small producer base of export-oriented farmers into GVCs, global suppliers are faced with so-called bottom-of-the-pyramid markets (Coe & Yeung 2015). In such markets, a large customer base must first be established, but this process is difficult and costly due to high price sensitivity and low brand consciousness. Although constitutive power is difficult to orchestrate,

it has the most potential to gradually drive new conventions and, eventually, reach a large customer base. Indeed, both demonstrative and institutional power can translate into constitutive power once demonstrated or institutionalized norms, rules and preferences become accepted as common sense (Dallas et al. 2019). Combinations of demonstrative and institutional power can, therefore, nudge whole farming regions to align with global suppliers' strategic needs.

Taken together, the multidimensional approach to power helps us differentiate the multifaceted powers required to achieve governance in GVCs (Cf. Grabs & Ponte, 2019). The relational and practice-based power dimensions apply regardless of chain actor; thus, the framework can analyse lead firm governance from the supply-side. Yet, it remains descriptive – it does not explain how the principal dimensions are manipulated. Though some degrees of lead firm governance from the buying end of GVCs is often taken for granted, global suppliers' practices to manipulate power dimensions require further explanation. Literature on intangible assets in GVCs offers such explanations.

9.4 Intangible Assets and GVC Governance from the Supply Side

Intangible assets are defined as 'nonfinancial assets that lack a physical substance, are non-rival in consumption and are at least partially appropriable' (Durand and Milberg, 2020, 404). They include computerized information, intellectual property, brands, customer and supplier linkages and institutional embeddedness (Jaax and Miroudot, 2021). Unlike tangible assets, intangibles are indefinitely scalable, non-rival in consumption, and have the unique cost-benefit structure of rising returns to scale. Bottle-neck characteristics of tangible assets, such as diminishing marginal returns and limited scalability, do not apply to intangibles (Durand & Milberg 2020).

In GVCs, intangibles – like global brands, standards and intellectual property rights – have been instrumental in the emergence of the post-Fordist lead firm. After all, intangibles were a necessary precondition for buying lead firms to venture into spatially disaggregated production and trade. Only with the direct control of intangibles could lead firms risk externalizing more tangible chain

activities (e.g. labour-intensive production, logistics). Extracting rents from outsourced chain segments relies on the ability of lead firms to internalize and secure intangible assets from appropriation (Durand & Milberg 2020). As such, intangibles are essential in manipulating principal power dimensions in GVCs.

9.4.1 How Intangibles shape Actor Constellations

Gereffi et al. (2005) explored the centrality of intangibles in exerting power and governance in GVCs, particularly how buying lead firms leverage intangibles to shape the complexity of knowledge transactions, the codifiability of information and the capabilities of a chain's production segment. Intangibles like brands, product(ion) knowledge or control over customer and supplier linkages determine how lead firms build transactional dependence among outsourced chain actors. This dependence coerces other chain actors into a narrow range of tangible production tasks, while simultaneously inhibiting them from building intangible capacities themselves (Davis et al., 2018). The distribution of intangibles explains, therefore, how generally dyadic actor constellations are maintained, and how they can affect intra-chain bargaining and demonstrative power (Rikap, 2021). Indeed, unevenly distributed intangibles cause steepening along the upstream and downstream ends of the so-called GVC 'smile curve' (Durand & Milberg 2020). Lead firms can vertically monopolize a GVC through intangible asset ownership, both at the supplying (research and design, innovation, standardization) and the buying end of GVCs (marketing, branding). This enables them to capture value from (nearly) infinite returns to scale and simultaneously exert downward pressure on the out-sourced, more tangible and less lucrative midstream segment of the GVC (production).

Although intangibles help assemble dyadic actor constellations, they can also shape collective actor constellations. This is epitomized by the recent proliferation of digital platform monopolies, service delivery and micro-job platforms (Rikap 2020; Schwartz 2020). Platform ownership, and its control over strongly scaled customer and supplier relations, enables lead firms to govern and benefit from production and trade without being directly involved in the tangible making and marketing of goods or services at all (Butollo and Schneidmesser, 2022).

Furthermore, the network embeddedness of lead firms in more or less formalized actor collectives can be an intangible asset of its own, as epitomized by the growing prominence of value chain-oriented PPPs and multi-stakeholder initiatives (Riisgaard et al. 2019). It guarantees a stake in political decision-making and agenda-setting (institutional power), but it also creates the superstructure for highly scalable network effects required to exert constitutive power in the long run (Mann and Iazzolino, 2021).

In sum, intangibles can shape dyadic and collective actor constellations. They can solidify vertical gatekeeper positions and horizontal network positions in favour of lead firms and allow them to exert power both dyadically and collectively.

9.4.2 How Intangibles shape transmission mechanisms

Intangibles can also shape power transmissions in GVCs. With reference to direct power, intangibles support bargaining and institutional power. With reference to diffuse transmissions of power, intangibles further support demonstrative and constitutive power.

Direct power transmission in GVCs relies on resources to enforce or institutionalize the distribution of value or the adoption of codified rules and norms (Dallas et al. 2019). Such resources are intangibles. Brand ownership, codified product(ion) knowledge and exclusive market information and links allow for the enforcement of strict rules of integration along value chains (Lee et al., 2012, Ponte and Sturgeon, 2014). The spread of digital supply chain management tools and digital product tracing systems exacerbates informational advantages and the ability to extract information rents by providing lead firms with ‘panopticon control’ over a value chain (Durand & Milberg, 2020). Manipulating direct transmission mechanisms can affect direct-dyadic bargaining power along GVCs (Foster et al., 2018). A similar exertion of direct power via collective actor constellations applies once control over network-based intangibles is established. Most prominently, platform owners set platform-wide standards and barriers to entry (Butollo & Schneidmesser 2022; Rikap 2020). However, lead firms can

also wield power through political lobbying and agenda-setting via stakeholder platforms (Riisgaard et al. 2019). Full or partial ownership of network-based intangibles can be instrumental in exerting direct-collective institutional power.

Intangible assets can also affect diffuse power transmissions. For instance, digitization in GVCs gave rise to new forms of direct control, but just as well for dyadically demonstrating new knowledge and standards among actual and would-be chain actors (Hartmann et al., 2021b, Mann and Iazzolino, 2021). Although dyadic-diffuse demonstrative power includes branding measures with potential consumers, it also entails the demonstration of new production practices or consumer preferences. For Baglioni et al. (2021, 12), the decisive effect of intangibles is, therefore, that ‘rather than producing things, they produce new habits, aspirations, affects’. Adding to their effects on demonstrative power, intangibles can further constitute diffuse transmissions of power via actor collectives. This is especially true when combinations of intangibles exert demonstrative and institutional powers on a long-term, strongly scaled and often subtle basis. The loosely formalized sustainability standards and partnerships in GVCs are one such outcome. These usually rely on the deployment of several of the above intangibles (e.g. direct-dyadic digitized product tracking and direct-collective value-chain partnerships). They may eventually translate into diffuse-collective types of constitutive power that not only affect a single value chain, but also whole industrial landscapes (e.g. gradually normalized tacit norms, rules and preferences).

In sum, intangibles are important resources to manipulate principal power dimensions in GVCs. Studies on how and with what purpose intangibles are deployed have long explained the power of buying lead firms. However, they also explain how GVC suppliers may seek lead-firm functions. The following case study illustrates how the multidimensional approach to power and a focus on intangibles can be combined.

9.5 Case Study: Power and Governance in the Fertilizer GVC

This section illustrates how intangibles emerge as a crucial resource of power for global suppliers through the case of global fertilizer supplier YARA's practices of integrating and governing Tanzanian farmers into agro-industrial chains.

Our study draws from primary data collection informed by a critical realist methodology (Belfrage & Hauf 2016). Critical realist methodology uses mixed methods to systematically ground and construct mid-range theories based on an iterative data collection and analysis process (Belfrage & Hauf 2016). It supports intensive research methodologies that use in-depth, qualitative data from unique case studies to postulate causal mechanisms (Sayer, 1992, 163). Therefore, our iterative process of data collection and analysis focused on qualitative, semi-structured expert and stakeholder interviews, site visits and participation in industry conferences and policy workshops. From late-2018 to mid-2021, we collected 69 semi-structured interviews with experts and stakeholders in and beyond Tanzania. Interviewees included managerial and operational staff from YARA and competing suppliers (including importers, wholesalers and retailers), small- and large-scale farmers, public extension staff, development actors, industry analysts and agricultural policymakers. Although most informants were consulted once, key experts such as firm managers and policymakers were interviewed twice to allow for iterative insights. Additionally, we participated in 13 industry-related digital events (global industry conferences and workshops, national policy meetings). These helped us frame the fieldwork results with major trends in the fertilizer industry. The analysis of interview recordings, notes and post-scripts was supported by the content analysis tool MAXQDA and drew on the critical realist principles of abduction (re-theorizing observed events) and retrodution (postulating mechanisms that explain the event) (Belfrage & Hauf 2016).

The following section contextualizes why YARA re-invented its corporate profile from a mundane commodity manufacturer into a global lead firm. We then show how YARA deployed intangible assets along the agro-industrial chain in

Tanzania. Finally, we explain how intangibles were used to exert different power types and achieve substantial governance.

9.5.1 Adapting corporate profiles to new imperatives in the global fertilizer industry

YARA is one of few globally operating fertilizer suppliers that are heavily invested in re-inventing their corporate profiles towards taking a lead firm position in agro-industrial GVCs. This ambition is explained by global restructurings in the fertilizer industry. Over the last two decades, industrial restructurings included the privatization, consolidation and globalization of fertilizer firms. Already since the early 2000s, industry-wide privatization and financialization trends encouraged fertilizer firms to make investments in expanding their geographic market coverage (Chapman, 2003). Further, the 2007/08 fuel, food and finance crisis was followed by a wave of mergers and acquisitions that consolidated the industry into fewer but larger multinationals (Hendrickson et al., 2020, Lie, 2015). Lastly, the vertical integration of fertilizer chains (displacement of fertilizer trading houses, investment in direct marketing) emerged as firm strategy to future-proof further horizontal market expansions in the last few years (IPES, 2017, Tups and Dannenberg, 2021). Taken together, these restructurings meant that fertilizer is today no longer produced and traded by state- or cooperatively owned companies along the imperative to protect strategic food supply imperatives (Chapman, 2000). Rather, fertilizer production and trade are increasingly defined by competitive imperatives among globally organized fertilizer suppliers. In order to maintain competitive, fertilizer firms no longer simply supply fertilizer markets at a distance – they also seek lead firm functions to govern the agro-industrial GVC from the supply-side.

YARA is an industry leader in these novel imperatives. As an industry analyst stated in our interview:

YARA is ahead of the pack. YARA really does set the trend in markets regularly regardless of whether we're talking about new types of value chain-oriented

*marketization. They are generally seen as a market leader. Of course, they have such a gigantic power and their strength of their brand cannot be overstated.*⁹¹

This role as industry leader is explained by YARA's brief history. Following an initial public offering (IPO) and spin-off from Norwegian oil and gas firm Norsk Hydro in 2004, YARA invested heavily in raising upstream manufacturing capacities and expanding its downstream supply chains into new end markets (See Figure 29). Though industrial competitors, such as CF Industries (IPO in 2005), Mosaic (demerger from Cargill in 2004), or Nutrien (merger between Agrium and PotashCorp in 2018), have consolidated, financialized and streamlined their operations in a similar fashion, YARA is renowned for its aggressive expansion into less-established fertilizer markets (Porter et al., 2014).

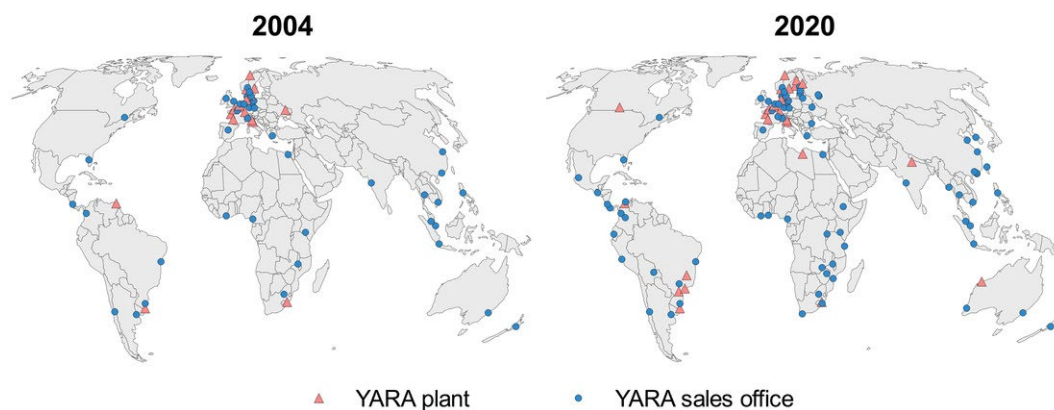


Figure 29: YARA's global expansion since its initial public offering (IPO) in 2004 (based YARA Annual Reports 2004–2021)

YARA's communication of its corporate profile underscores the ambition to become the uncontested lead firm at the global level. Already YARA's IPO was promoted under the banner of 'Harvesting the Value of a Global Presence.' More recently, YARA, (2019) summarized its corporate profile at a shareholder meeting: rather than deriving value from commodity margins ('sell what we produce'), YARA intends to tap into new income streams by deriving value from knowledge margins ('sell scalable solutions'). As such, YARA intends to back away from its mundane commodity manufacturer role and shift into a holistic

⁹¹ Interview with international market analyst (28.04.2021).

crop solutions company. Figure 30 illustrates this new corporate profile and its implications for the governance of value chains. YARA aspires for ‘global market reach’ through the tangible expansion of its GVCs, but YARA also seeks ‘on-farm presence’ – or, in our words, governance – to expand the hyper-tangible commodity of fertilizer by highly scalable intangible assets.

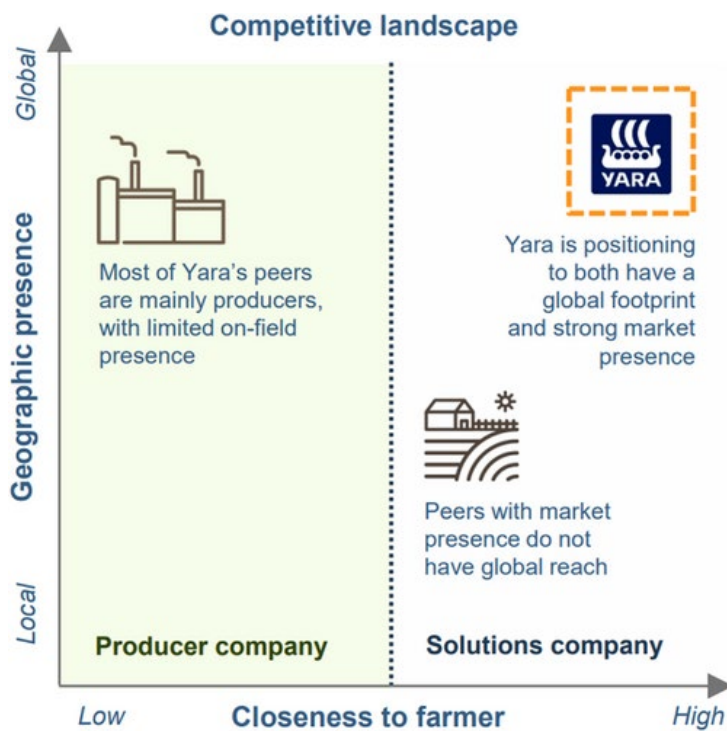


Figure 30: Excerpt from YARA's firm strategy to achieve global on-farm presence (YARA, 2019)

9.5.2 Reorganizing principal power dimensions in Tanzanian fertilizer chains

Tanzania is a pivotal market for YARA to practice its new corporate profile. Tanzania is one of three pilot markets⁹² in YARA's so-called Africa Strategy, a regionally focused approach to develop value chain-based marketing and scale partnerships and stakeholder platforms in some of the last geographical frontiers for increasing global fertilizer use and turnover (Porter et al. 2014; Tups & Danenberg 2021).

⁹² YARA first piloted its new value chain approach under the Africa Strategy in Ghana, Malawi and Tanzania.

Fertilizer chains in Tanzania – and other African end markets – are usually fragmented and strictly organized by arm's length actor relations (Figure 31). Importing firms' source unspecified bulk fertilizer from various manufacturing regions at global market prices. Wholesalers stock the imported fertilizer in warehouses in agricultural hot spots. Finally, local retailers, farming cooperatives or commercial farmers either sell fertilizer to farmers at retail prices or apply the commodity directly onto their soils. Therefore, fertilizer production and trade occur in a market-based chain with no clear lead firm in charge and no eminent modes of sophisticated governance.

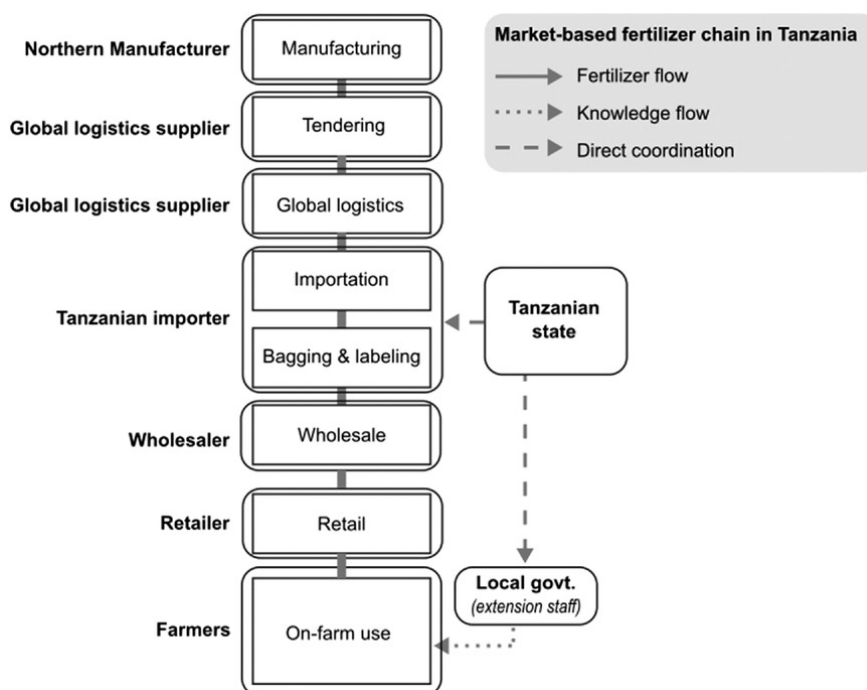


Figure 31: Market-driven fertilizer chain in Tanzania (authors' design)

YARA's approach to organizing the fertilizer chain is fundamentally different. From global manufacturing down to the regional wholesale segment, YARA maintains a vertically integrated chain structure (Figure 32, top). YARA only uses more horizontal approaches to achieve scale economies at the bottom-of-the-pyramid, the retail and on-farm market consisting of thousands of farmers. Two major strategies are required to do so, and both rely on the deployment of intangibles. First, YARA invests in assets to supply more than fertilizer. This

includes knowledge and information infrastructures that unfold vertically from plant-to-farm and vice versa (Figure 32, left part). Second, YARA is invested in assets that link with more than fertilizer. These involve strategic partnerships and stakeholder platforms that support the horizontal scaling of the fertilizer chain's retail segment (Figure 5, right part) and include comprehensive end-to-end value chain solutions that link farmers to commercial crop buyers (Figure 32, bottom).

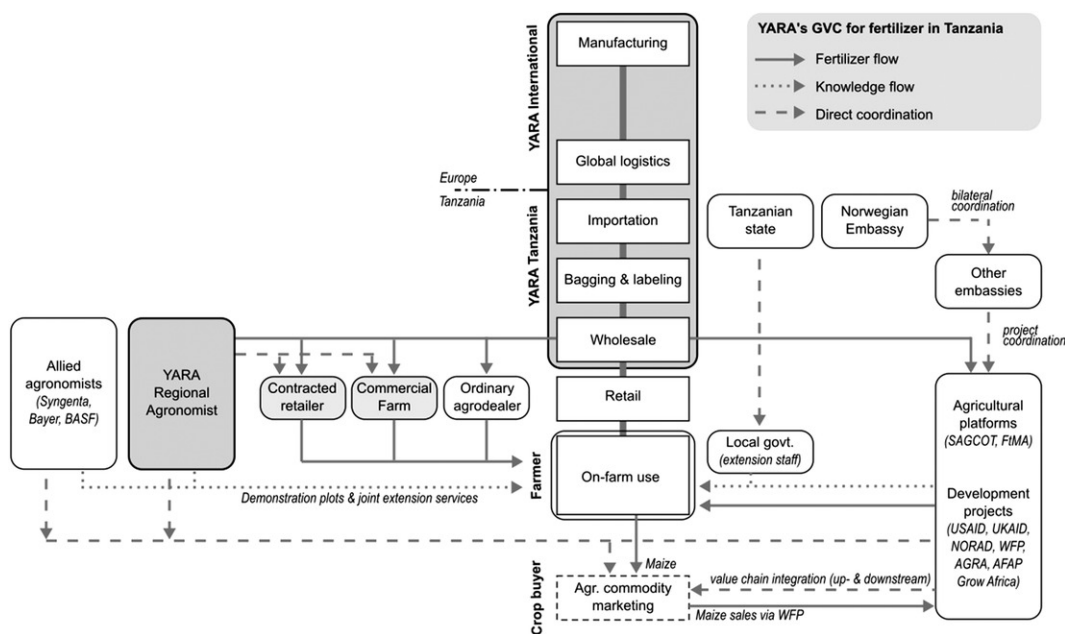


Figure 32: Lead firm-driven fertilizer chain in Tanzania (authors' design)

Both a YARA manager and a manager of a competing supplier summarized YARA's unique organization in Tanzania as follows:

Compared to other companies, we don't just sell fertilizer. Other traders just sell and go. [...] For us its completely different, we sell what we call a crop nutrition solution. That's the huge difference. [...] We want to create a market whereby your customers will be with us all the way long.⁹³

⁹³ Interview with a YARA supply chain manager (02.04.2019).

*YARA...everything they do is different. They are unique in our industry because they are a manufacturer. They pioneer in agronomical practices and they transform how farmers work. You cannot compare them to us. They have their people everywhere. [...] All their activities are expensive. They hire the best staff, they have the agronomic extension, they have their modern factory.*⁹⁴

9.5.2.1 Supplying more than fertilizer: knowledge and information as intangible assets

YARA's ambition to supply more than fertilizer refers, first, to investments in crop- and nutrition-related assets. These assets enable knowledge flows and complement the otherwise tangible supply chain for fertilizer. Second, it refers to rolling-out digitally mediated information systems to extract valuable farm and market information. These investments shape favourable dyadic actor constellations which support direct as well as more diffuse transmissions of knowledge- and information-based powers.

To complement fertilizer supplies with knowledge flows, YARA expanded its vertically integrated fertilizer supply chain through outreach activities that reach up to the farm level. Though YARA externalizes the last-mile retailing to contracted retailers (so-called Silver Partners or foot soldiers), this approach guarantees YARA on-farm presence through regional agronomists. YARA's regional agronomists must meet corporate-defined turnover quotas, and they pursue these through knowledge-intensive outreach activities. To normalize the use of synthetic fertilizer, regional agronomists facilitate public-private knowledge interventions in the form of demonstration plots at the village level. Public extension officers maintain the plots in exchange for the harvested crops, YARA's agronomists provide complementary fertilizer and agronomists from adjacent global suppliers provide seeds and agrochemicals (YARA partners exclusively with

⁹⁴ Interview with a regional manager of a YARA competitor (30.03.2019).

Syngenta and Bayer). A YARA agronomist summarizes these outreach activities as follows:

*So, we agree on partnership with Syngenta or Bayer and then we ask all farmers around that demo plot to come there. It will be like an exhibition. We just communicate with different leaders that we want their farmer groups to come to us.*⁹⁵

These measures especially assemble dyadic actor constellations which allow YARA – and other agronomists and agricultural experts – to diffusely exert demonstrative power and normalize novel knowledge bases about agricultural inputs in the on-farm segment.

YARA not only supplies more than fertilizer, but it also extracts more than money. Shortly after the COVID-19 pandemic began, YARA launched the Action Africa project in partnership with the Norwegian government and the World Food Programme (WFP) to donate 40,000 t of fertilizer across seven East African countries. To be eligible, farmers had to digitally register and provide basic farm information (contact data, farm size and cultivated crops). In Tanzania, about 660,000 farmers registered and YARA selected 83,000 recipients to receive two or three 50-kg bags of fertilizer. When recipients collected the fertilizer donation, they had to provide more detailed data (geodata, input-usage practices and yield data). This initial \$8 million USD fertilizer donation in Tanzania⁹⁶ allowed YARA to quickly scale a digital information platform and harvest valuable farm information from farm-to-firm. YARA intends to use its new digital assets to digitize the whole value chain and tighten its interaction with recipient farmers. YARA's managing director explained:

It is not drop and leave, we are now journeying with the farmers. We can now support them going forward into the next season and 10 or even

⁹⁵ Interview with YARA agronomist (15.02.2020)

⁹⁶ YARA donated \$25 million of fertilizer in East Africa. It is unclear how much was subsidized by the Norwegian government and the WFP.

*50 years to come. [...] We want to ensure that farmers are doing the right thing and following up what is expected.*⁹⁷

Indeed, YARA valorized its data and linkages into AfricaConnect, a digital marketing and information platform with two functions. First, YARA seeks to scale the platform to become ‘the centre of knowledge’ in African agro-industries, both through the dissemination of farming knowledge and the gathering of farm data. Second, YARA seeks to expand the ‘full end-to-end traceability’ achieved in its fertilizer chain by connecting farmers with other agricultural input suppliers (seeds and agrochemical suppliers) and crop buyers along the whole agro-industrial chain.⁹⁸

Digitization measures have, thus, increased YARA's ability to establish dyadic actor constellations with many farmers. The latest ambitions to scale the collected data and established digital linkages horizontally into a marketing platform highlight how digital assets also help establish collective actor constellations in the long run. New means of extracting information allow YARA to manipulate actor constellations in and beyond the fertilizer chain. Further, they tap into new mechanisms of transmitting power. More directly, YARA may capitalize on its growing informational advantage to increase its bargaining power vis-à-vis farmers. More diffusively, YARA uses its digital asset to exercise demonstrative and constitutive power by supporting the scaling of favourable product preferences and farming approaches.

In sum, YARA's ongoing investments to supply more than fertilizer foreground how the strategic deployment of intangible assets shapes principal power dimensions along and beyond the fertilizer chain. Without its novel approach of supplying more than fertilizer, YARA could not partake in and capitalize on these novel actor constellations and power transmission mechanisms.

⁹⁷ Interview with YARA's managing director (televised in Capital Television Tanzania – 23.10.2020).

⁹⁸ For more information, see: <https://yaradigital.com/en/africaconnect>.

9.5.2.2 Linking with more than Fertilizer: Value Chain Linkages as an Intangible Asset

A second major strategy seeks to link with more than fertilizer. To do so, YARA has initiated and partly funded value chain-oriented stakeholder platforms. In Tanzania, YARA was instrumental in mobilizing two PPPs that integrate farmers not only into YARA's fertilizer chain, but also into agro-industrial chains more generally.

First, YARA was pivotal in mobilizing the Southern Agricultural Growth Corridor of Tanzania (SAGCOT). By 2006, YARA was leading figure in scaling a small and strictly fertilizer-oriented PPP⁹⁹ into an agricultural development corridor covering a third of Tanzania. Officially launched in 2011, SAGCOT now functions as a territorial tool to attract public and private finances for integrating smallholder farmers into agro-industrial value chains. Despite SAGCOT's generally underwhelming performance (Hartmann et al., 2021a, Sulle, 2020), it created an institutional framework and geographical focal region for donor- and philanthropist-led agricultural projects targeting last-mile integration of smallholders. YARA substantially benefitted from SAGCOT, due to its prominent position in drafting the PPP. First, SAGCOT serves as a political lobbying platform to negotiate agricultural interventions between public and private actors. Although SAGCOT has no mandate to implement agricultural projects on the ground, it has considerable weight in advising the government on agricultural policy and budget allocation. Further, SAGCOT helps to facilitate agreements on bulk fertilizer purchases between development projects and fertilizer suppliers (horizontal right part of Figure 32). YARA is, therefore, the fertilizer supplier of choice when SAGCOT-affiliated development projects integrate farmers into the fertilizer chain. The managing directors of two YARA competitors summarize the implications as follows:

⁹⁹ YARA initially entered the Tanzanian market through the Tanzania Agricultural Partnership (TAP). The TAP addressed fertilizer market development in few selected regions in Tanzania.

SAGCOT they are too married to YARA and that's why you see us not as [a] member of the SAGCOT. We just work on our own because they are just too much married with YARA. They [SAGCOT] are giving them a 100% monopoly.¹⁰⁰

They [YARA] are the prime partner of SAGCOT and SAGCOT is the prime project of YARA. I think the PPP model they have is good; they have mobilized a lot of resources and entered the smallholder market. We are looking for alternatives to do PPP, but SAGCOT is not our business.¹⁰¹

YARA also launched a smaller value chain-oriented PPP, the Farm to Market Alliance. The FtMA consists of an agribusiness consortium, including global suppliers (Bayer, Syngenta, YARA), the finance and insurance provider Rabobank, the multi-lateral development project Alliance for a Green Revolution in Africa (AGRA) and the WFP. The FtMA links farmers to input suppliers and large-scale crop buyers through forward delivery contracts, but it also provides input loans and weather-insurance schemes, and trainings on input usage, soil testing and post-harvest handling. In Tanzania, 42,000 farmers were registered by late 2018. Although external evaluations confirm that the FtMA increased the availability of finance (input loans) and farm inputs (\$2.3 million USD in input loans), linkages to crop buyers remained rather thin (\$1.6 million USD in crop sales).¹⁰²

Both SAGCOT and the FtMA showcase YARA's strategy of linking farmers with more than fertilizer. Stakeholder platforms mobilize and institutionalize collective actor constellations that support the common aim of fostering end-to-end value chain integration of smallholders also beyond just supplying inputs. YARA's network embeddedness in such stakeholder platforms (e.g. by initiating, funding or partaking) allows it to leverage collective actor constellations

¹⁰⁰ Interview with managing director of YARA competitor (25.03.2019).

¹⁰¹ Interview with a regional manager of a YARA competitor (30.03.2019).

¹⁰² Data based on Thorpe & Guijt (2018) and interviews.

and effectively exert both (direct) institutional power as well as (diffuse) constitutive power.

Taken together, YARA's strategies of supplying and linking farmers with more than fertilizer highlight the crucial role of intangibles in maintaining favourable actor constellations and nurturing new mechanisms of power transmission.

9.5.3 Achieving governance from supply-side through new types of power

This section uses Dallas et al's (2019) four power types to conclude how YARA's actions translate into new types of power and governance. Figure 33 provides a summary of the results.

		Transmission Mechanisms	
		Direct	Diffuse
Arena of Actors	Dyadic	<p><i>Bargaining power</i></p> <ul style="list-style-type: none"> • Vertical chain integration • Contracting of retailers • Digital integration of farmers <p>→ Direct control over chain → Direct access to retailer and farmer information</p>	<p><i>Demonstrative power</i></p> <ul style="list-style-type: none"> • Demonstration plots • Branding measures (media, poster, etc.) <p>→ Introduction of agricultural practices → Product differentiation and alienation</p>
	Collective	<p><i>Institutional power</i></p> <ul style="list-style-type: none"> • PPPs • Collective action with allied agro-businesses <p>→ Creation of linkages beyond fertilizer chain → Capitalization on public funding</p>	<p><i>Constitutive power</i></p> <ul style="list-style-type: none"> • Long-time market assembly <p>→ Normalization of „modern farming“ → Affirmation of extra-chain actor support (state, donors)</p>

Figure 33: Types of power in the fertilizer global value chain (GVC) (authors' design)

Bargaining power

YARA benefits more than competing suppliers from vertically integrating the fertilizer chain. Usually, direct-dyadic bargaining power occurs under market-based conditions, implying contestation over margins among disintegrated chain

actors positioned between port (import segment) and farm (retail segment). However, YARA can squeeze information and horizontal monopoly rents from the value accrued between its global plants (manufacturing segment) and Tanzanian farms (retail segment). Vertical integration creates management and information advantages (e.g. available volumes, demand and prices), and YARA uses this information to exert bargaining power, especially over its contracted retailers. Retailers must adhere to retail prices and achieve fertilizer turnovers as defined by YARA's internal assessments and market development goals. Because the Tanzanian fertilizer market is growing in volume and still serviced by several suppliers, the adverse effects of YARA's increasing bargaining power have not presented major issues for farmers thus far. However, YARA's unique ability to exert multiple types of power clearly indicates a gradual monopolization of the fertilizer market, so market regulators and farmers' organizations worried that this could become an acute issue in the future.

Demonstrative power

YARA exerts a substantial degree of demonstrative power down to the farm segment. Demonstrative power increases brand awareness among trained farmers and alienates competing brands. More generally, demonstrative power affects a shift from more input-extensive towards more input-intensive farming practices, often with problematic implications for the economic and environmental sustainability of fertilizer use (Cf. Menegat et al. 2022). YARA's demonstrative power nudges farmers, therefore, to use (more) fertilizer and to develop brand awareness in favour of YARA's product portfolio. Remarkably, demonstrative power also increasingly unfolds across fertilizer chains, which suggests a gradual transition from demonstrative into constitutive power. Competing suppliers have also started to mimic YARA's demonstrative practices by investing in knowledge-based assets such as demonstration plots.

Institutional power

YARA also exercises institutional power. As the initiator of stakeholder platforms, YARA mobilizes collective actor constellations within which power is directly transmitted. Resultant institutional power is articulated by YARA's

participation in agenda-setting regarding agricultural interventions and project foci. Indeed, institutional power plays an important role in subsidizing and escorting YARA's expansion of the fertilizer chain. According to regional agronomists, roughly 60% of YARA's fertilizer turnover goes through so-called partner sales. Partner sales are directly organized via PPPs like SAGCOT and the FtMA. More conventional, market-based fertilizer sales only account for 40%. Our interviews with YARA's competitors highlighted that only YARA can wield this institutional power with market-distorting effects. Competitors are usually excluded from such preferential agreements. Accordingly, YARA's institutional power relies on mobilizing and maintaining partwise control – or network centrality – in stakeholder platforms. Thus, institutional power capitalizes on public funds that effectively subsidize the scaling of farmers' integration into the value chain.

Constitutive power

YARA's investments in both demonstrative and institutional power have gradually transcended into constitutive power – they normalize the increasing demand for synthetic fertilizers (Cf. Tups & Dannenberg 2021). Growing brand awareness among farmers favours YARA and disadvantages unbranded fertilizer traded in market-driven chains. This subtle expression of constitutive power is obviously not exclusively attributable to YARA; it emanates from manifold actors across Tanzania's agro-industry and the *longue durée* of agricultural modernization attempts in Tanzania (Aminzade et al., 2018, Mbunda, 2016). Nevertheless, YARA's exhaustive investments in intangibles have been a vital part of naturalizing more tacit norms and standards in the fertilizer chain, while also nudging Tanzania's agricultural system to be more receptive to value chain integration as a whole.

In sum, YARA exerts all four power types, albeit to varying degrees. In particular, demonstrative, institutional and constitutive powers are exerted to an unprecedented extent (compared to other fertilizer suppliers). YARA's collections of intangible asset investments underpin far-reaching modes of chain governance, which drives (vertical integration), links (value-chain integration of farmers,

horizontal partnerships) and normalizes (branding, input-intensive agriculture) substantial transformations in Tanzania's agro-industrial value chain. We illustrate this crucial function of tangible assets (as mainly affecting bargaining power) and intangible assets (as mainly affecting ‘softer’ types of power) in the framework below (Figure 34).

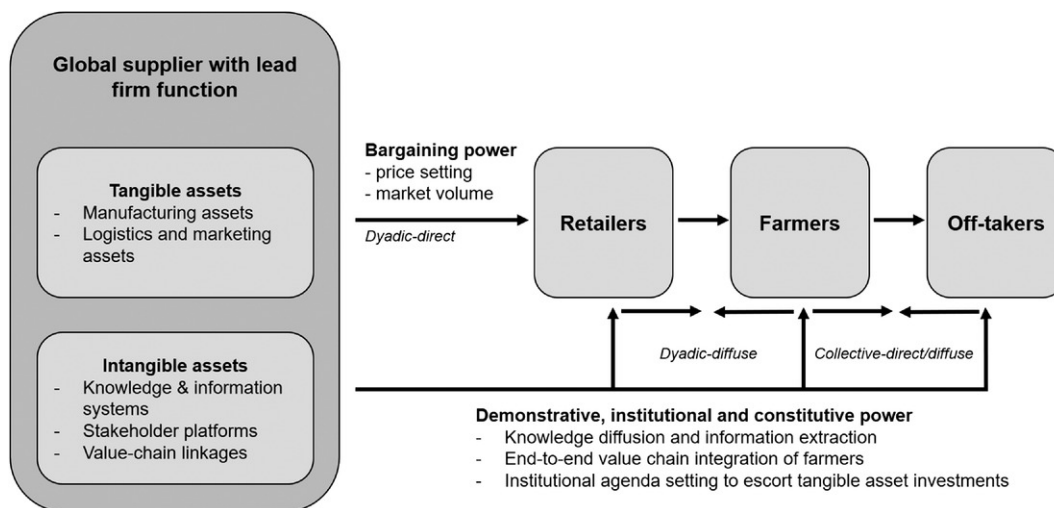


Figure 34: Framework for explaining the power of global suppliers (authors' design)

9.6 Conclusion

As we are finishing this article, the global food system is in crisis mode. A perfect storm of congested supply chains amid the COVID-19 pandemic and the Russian invasion of Ukraine resulted in rising food prices and global hunger. For buying lead firms (e.g. brand owners and commodity trading houses), the crisis allowed for windfall profits made on the backs of farmers and consumers. And notably, these profits derive directly from a long-term restructuring of agro-industrial GVCs driven by fewer and more powerful buying lead firms. However, the same crisis also reveals issues beyond power at the buying end of GVCs. In the case of fertilizer, sanctions and new protectionism induced a sudden supply

shock to agricultural inputs.¹⁰³ The immediate repercussions of this shock seem familiar: Skyrocketing fertilizer prices cascaded into high costs for farmers (input costs), governments (emergency subsidies) and consumers (food prices). In the meantime, fertilizer suppliers reported windfall profits (Tups and Bassermann, 2023). The current crisis underscores thereby the importance of critically reflecting on the implications of increasing power from the supply-side of agro-industrial GVCs over the long term. Accordingly, this article contributed conceptual and empirical explanations as to how and why global input suppliers exert increasing degrees of power.

Our conceptual work showed that combining a multidimensional typology of power with the literature on intangible assets in GVCs, helps to understand the imperatives, shifting firm objectives and consequential practices that underpin the rising power to govern GVCs from the supply-side. Our empirical work illustrated this using one of the most advanced lead firms pursuing such governance strategies. However, YARA is not an outlier; it is a bellwether for such novel strategies and practices among global suppliers (Cf. Shattuck 2021; Werner et al. 2021). After all, several waves of industrial consolidation have equipped a handful of global input suppliers with the financial capacity to systematically exacerbate the uneven distribution of intangible assets along the agro-industrial chain (Clapp, 2022).

Although the question of how buying lead firms leverage their intangible assets (brands, standards and market linkages) has received substantial attention from GVC scholars, our work suggests that the role of supplying lead firms and their use of intangibles as resource of power should also be considered as a mechanism for steepening the GVCs smile curve. Focusing on the strategic deployment of intangible assets adds thereby explanatory value to the pressing questions of why and how supplying lead firms gain an increasingly direct grip over farmers, and our food system as a whole.

¹⁰³ The fertilizer supply shock followed sudden export bans (Russia, China) and Western sanctions for finished fertilizer and intermediate goods, such as natural gas, potash and phosphate rock.

10 Thesis Conclusions

This thesis emphasized the relevance of future-making in Africa in general and explained the effects of the Tanzanian SAGCOT corridor on agro-industrial value chains in particular. In order to do so, the thesis was split into two major objectives. Firstly, it aimed at identifying and understanding the spatio-temporal mechanisms of SAGCOT's mobilization. Secondly, it further aimed at using these mechanisms to explain the socio-economic processes and effects of SAGCOT along agro-industrial value chains. In the following, I will first summarize the thesis' empirical contributions along the two research objectives. Finally, I will reflect on the thesis' conceptual contributions.

10.1 Synthesis of research contributions

The thesis' major research contributions have been presented in three self-standing articles. While the first thesis article contributes mainly to the first objective's research question, the second and third articles are mainly concerned with the second objective's research question.

10.1.1 Conclusion for Objective I: Understanding the mechanisms of SAGCOT's mobilization

The first thesis objective was operationalized through one research question. This question asked:

What are the generative mechanisms for SAGCOT's mobilization and what spatio-temporality did these mechanisms create?

Thesis article I and the thesis' empirical background (chapter 5.2) respond to this question with an analysis of SAGCOT's mobilization alongside its early origins, its institutionalization, and especially the mechanisms which underpinned this process. While detailed analyses especially about the political preconditions and backgrounds for agricultural modernization already exist (Buseth, 2017; Mbunda, 2016), my work raises how SAGCOT became initially mobilized from the agribusiness multinational YARA. I show how a rather modest and small

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PPP between YARA and only a few farming and private sector apex organizations in Tanzania became gradually morphed into a fully-fledged development plan for Tanzania's Southern Highlands. In order to explain how this modest PPP could be so quickly scaled-up and become a development corridor of international reputation, the use of the spatial imaginary framework helps to postulate two major mechanisms which should be understood as necessary conditions for SAGCOT's mobilization.

Firstly, I understand one crucial mechanism to be an *emptying of the future*. Actualized through the global food crisis and urgent calls for implementing a rapid African Green Revolution, SAGCOT functioned foremost as a timely imaginary. SAGCOT emerged thereby from a state of crisis to eventually transform Tanzania's agricultural landscape through a new sense- and meaning-making (semiosis). This semiosis was all about what future seemed likely and how and by whom this future should be implemented. Although especially SAGCOT's final investment blueprint claims to be a holistic approach for transformations along the whole agro-industrial value chain, the results of *thesis paper I* align with a large body of literature which has shown that SAGCOT circumscribed a future that was driven by few actors and created in fast-tracked and "top-down" manner (Chome et al., 2020; Coulson, 2015; Sulle, 2020). Further, many of the assumptions about existent structures as well as possible outcomes were exaggerated as well as blind to potential (and in hindsight actual) hindering factors (e.g. the availability of land for commercial farms). Regardless of this background and regardless of the obvious mismatch between semiotic (symbolology, metaphors) and extra-semiotic factors (existent and possible structure), the mechanism of emptying the future can explain how SAGCOT's proposed future became nevertheless persuasive and effective. Eventually, SAGCOT convinced national stakeholders (state and private), but especially also international actors such as donor organizations, philanthropist foundations, and last but not least agribusinesses to invest according to the proposed vision.

Secondly, the mechanism of *emptying of future* was further accompanied by a *claiming of space*. My work shows how this claim of space occurred in territorial

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and networked ways. On the one side, SAGCOT demarcated a geographical container for rapid agro-industrial modernization and globalization in order to pull and pool resources (finance, projects, government emphasis) into the corridor region. On the other side, especially the institutional structure of the PPP behind SAGCOT became established as only partly inclusive lobbying platform for the interest of SAGCOT's stakeholders. Both claims of space are quite relevant. After all, they functioned as timely spatial signifiers for were and among whom urgent interventions after the food crises should occur (e.g. targeting of donor programs).

Taken together, the mechanisms of *emptying future* and *claiming space* describe, therefore, two principal mechanisms which have constituted SAGCOT's spatio-temporality and which have been important for mobilizing SAGCOT even despite its surprising origins.

10.1.2 Conclusion for Objective II: Explaining socio-economic processes and effects of SAGCOT along agro-industrial value chains

The thesis' second research objective relates directly to the aforementioned mechanism. Already in the *first thesis article*, I have described how the spatial imaginary SAGCOT became a resource of persuasive power for the coupling of GPNs with the corridor region. The case study of YARA and its practices of capitalizing on the Tanzanian fertilizer market suggests thereby how SAGCOT's mobilization emerged as a necessary condition for making otherwise unfeasible couplings between corridor territory and the global economy possible.

The second research objective aimed however at addressing the socio-economic processes and effects of SAGCOT in more detail and along the agro-industrial value chain. This is achieved in *thesis article II & III*. Both articles use mainly the GVC framework and they add to responding to two research questions that address the processes and effects of SAGCOT from the agro-industrial chain's downstream and upstream end respectively. The first research question was, therefore, the following:

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What are the processes and effects of SAGCOT's mobilization at the downstream end of global value chains?

Responding to the first question, *thesis article II* uses case studies from two of the perhaps most popular farmland investments that directly relate to SAGCOT's mobilization. Attracted by SAGCOT's mobilization, a substantial, but selective process of financialization led to the launch and sometimes re-launch of a handful of commercial large-scale farms as these became supported by blended capital (private investments and public subsidies). In order to legitimize these farmland investments along the corridor, the respective farms needed to adhere to strict investment criteria as formulated by the respective funders. Among these criteria was the value chain integration of smallholder farmers into the farms' operations. *Thesis article I* analyses, therefore, how the two case studies of large-scale farmland investments indeed integrated smallholder farmers into their value chain. Although these farmers merely supplied basic, low-value commodities such as maize and soya for further processing, several thousand smallholders could effectively establish new market outlets for their farm produce. Further, both farms were supporting smallholders in improving the quality and quantity produced. Remarkably, especially the more commercial investment of both case studies opted for these linkages although alternative linkages would have been more reliable and less costly (bulk-purchases from Zambian commercial farmers). I explain this decision with the financialized nature of both farms. As their investment chain created clear investment imperatives for how the farms should operate, a pivotal measure to adhere to these imperatives was the integration of smallholders even against straight-forward economic reasoning "at farm". These dynamics from the downstream end of the agro-industrial chain suggest therefore the following in terms of processes and effects related to SAGCOT. Firstly, SAGCOT could at least selectively elicit processes such as the financialization of farmland at the agro-industrial value chain's downstream side. While this process had indeed positive effects for smallholders who could reap the benefits of new market outlets and even benefit from the involved knowledge and technology transfers, these effects must however also be put in perspective. Already during my first fieldwork phase, one of the two farms had

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been abandoned. After financial issues and changes in the farm's investment chain, the farm project was phased out abruptly and smallholders were suddenly without a buyer for their crop. Even for the second case study, the complex and smallholder-supportive financial model, which had initially become possible under SAGCOT, was about to be phased out soon as the farm was scheduled to be sold. Both raises, therefore, the question of the sustainability and longevity of the created downstream linkages and hence also the question of accountability. Although some of the public subsidies that have been attracted by SAGCOT may indeed have contributed to the temporary integration of some smallholders by novel value chain linkages, the same integration never occurred due to economic reasoning *at farm*, but rather in order to make the crucial investment chain *behind the farm* possible. Importantly, these short-time, but extremely costly effects are no phenomenon exclusive to the two presented case studies. Similar failures among SAGCOT projects such as the recent closing of the KPL farm in SAGCOT's Kilombero cluster suggest that the failure of such downstream linkages is a trend rather than isolated event.

The second research question related to the thesis' second objective was the following:

What are the processes and effects of SAGCOT's mobilization at the upstream end of global value chains?

The processes and effects of SAGCOT's mobilization at the upstream end are mainly addressed by *thesis article III* but also partly by *thesis article I*. Both articles have deliberately focussed on the case study of YARA and the practices of the firm to establish Tanzania as a new market for fertilizer. Both articles analyze and explain how the market entry of a global supplier in Tanzania was a quite unprecedented event. After decades of state-organized fertilizer supplies and one decade of radical privatization, the state of fertilizer chains in Tanzania was highly fractured. A diverse landscape of Tanzanian importers, wholesalers, and retailers organized the import, distribution, and marketing of the highly standardized commodity. As such, one can barely speak about an actual value chain, but rather about a fractured market where power could only play-out in

cases where either the government intervened in times of market failures or when fertilizer firms organized in cartels to coerce farmers in paying higher prices (Ponte, 2002; Vilakazi & Roberts, 2019). Although YARA operated on Tanzania's fertilizer market even prior to SAGCOT's launch, SAGCOT appeared as a clear game-changer for the multinational. Whilst YARA was long hesitant to risk high investments into sunk capital, SAGCOT's launch was quickly followed by substantial investments along the corridor. Both thesis articles follow how YARA used the investments to gain substantial market presence along SAGCOT, but they further raise how YARA used not at least its institutionally privileged embedding in the SAGCOT PPP to fundamentally re-invent the fertilizer market and indeed assemble an actual value chain along which actual lead firm governance could be exerted from firm-to-farm. Accordingly, a first process related to SAGCOT's mobilization from the upstream end of value chains is reflected by the rise of global suppliers. This does not only entail YARA, but especially also the Swiss-Chinese seeds and agro-chemical supplier Syngenta as well as partly the German seeds and agro-chemical supplier Bayer. Lead firms operating from the supply side, have hence gradually crept up the value chain and SAGCOT has been instrumental for the necessary investments in this process.

The effects of this process are difficult to assess as much about them must remain an unresolved and quite normative debate. Generally, especially the case of YARA shows how smallholder farmers can benefit from the novel forms of integration from the upstream side of the value chain. Fertilizer deliveries are not only more reliable, but YARA is today strategically deploying several intangible assets along and around the value chain to factually deliver more than fertilizer (knowledge) as well as to link farmers with more than fertilizer (PPPs such as SAGCOT which aim to link farmers with buyers). Due to these measures, YARA's brand is today preferred by most farmers. By today, the effect of the rise of global suppliers is hence at least at first sight quite supportive for many farmers who aim to increase their yields and improve their farming practices. However, my work also raises the inherent risk to this gradual consolidation of power from the supply side. After all, YARA's and other suppliers' investments

and value adding activities at the chain's upstream end serve a purpose. As it allows global suppliers such as YARA to differentiate their business especially from established and indeed quite competitive (price-related) domestic fertilizer firms, the rise of global suppliers must also be evaluated concerning to its prospective effects. Both vertical (along chain) and horizontal (between chains) monopolization tendencies are an acute and widely observed threat that can put the input-output balances of smallholder farmers at risk. More principally, the rising influence of global suppliers further raises the question who controls the agricultural value chain, but also more generally the food system in future.

Taken together, both research questions on the processes and effects of SAGCOT's mobilization on the downstream and upstream sides of the agro-industrial value chain add, therefore, foremost important observations on the generally erratic effects of SAGCOT. My analysis rejects claims that SAGCOT has done or achieved nothing as they are often raised in the public debate about the PPP. Rather, I provide evidence for some of the general processes elicited (financialization, rise of global suppliers) as well as some of the selective (downstream integration) as well as more widespread (upstream integration) effects which can indeed be strongly associated with SAGCOT's mobilization and its distinct spatio-temporality.

10.2 Synthesis of conceptual contributions

This thesis started with the question of whether the future can exist and what the effects of its existence may be. I have conceptually contributed to this question by developing an account which I loosely term an economic geography of future-making. This account seeks to link the semiotic and extra-semiotic mechanisms that make the future present with the socio-economic processes and effects that relate to such making of future. Both conceptually as well as empirically, this thesis states thereby that future matters and that what is typically perceived as "the future" has generally more effect on the geographies of the present than is often assumed.

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The first crucial point for the above claim is foremost the thesis' philosophical underlabouring through Critical Realism. This is as Critical Realism provides a productive ontological and epistemological apparatus to most generally grasp the unwieldy nature of the future (Cf. Harnesk & Isgren, 2021; Wright, 2010). Perhaps the most popular sentence written by Roy Bhaskar is the question of "what the world must be like for science to be possible" (2013, p. 18). Departing from this question, Critical Realism formulates a radical critique *against* and way *beyond* both positivism and post-modernism as it proposes scientific measures to make fallible and yet rational statements about a stratified – and hence intransitive – reality. This thesis has used this crucial intervention to theorize the future. Or to put it more bluntly: It has asked the question what the future must be like to become existent. My understanding is that from a critical realist standpoint, the future can indeed exist in multiple forms. Firstly, it does so foremost in form of the generative mechanisms that are inherent to things. These mechanisms are no causal laws and they are not described by strict probabilities. Rather, they are described by open possibilities which may be activated or not. For Critical Realism, the future is, therefore, generally undetermined, uncertain, and indeed open to change. Its eventual emergence – or its folding into present – is however not purely relative nor a reason for fatalism as it relates *to* and as it is confined *by* the existent intransitive generative mechanisms and their respective possibilities at play. Secondly, the future exists however also by the ways it is assembled in form of imaginaries which create abstractions of the future to make future present. From a critical realist standpoint, imaginaries are hence the form of future that can exist within the transitive realm of reality while their constitutive mechanisms remain intransitive. This understanding explains, on the one hand, the unwieldy onto-epistemological state of the future, but it also allows to approach both the transitive and the intransitive sides of the future through a careful combination of intelligible (postulating generative mechanisms through retroduction) and empirical (re-theorizing observed events through abduction) methods as they are proposed by Critical Realism.

Somehow contrary to the critical realist understanding of an undetermined and open, but also non-arbitrary future, *social*, *ecological*, and perhaps especially

economic imaginaries of the future have however widely established as a means of creating “cultural facts” with reference to the future (Appadurai, 2013; Beckert, 2016; Sarr, 2016; Beckert & Bronk, 2018). Despite the uncertainty and openness of the future, there is a widespread tendency to perceive of the future as far more monolithic, determined, and without alternative than it actually is (Wright, 2010, Groves, 2016). In order to make the complexity and unknowability of the future “manageable”, the reduction of possible into probable futures functions thereby as a double-edged sword for how the future is made present. On one side, this reflects the necessary pragmatism that is needed in order to deal with the otherwise overwhelming complexity of the future (Jessop, 2012). On the other side, a tendency towards overt reductionism raises however fundamental questions such as: “What future is wanted by whom?”, or in a narrower economic sense: “What future benefits whom?”. The critical realist perception of the future to be generally far more open than it is (made) visible on the transitive dimension of reality (what we know about the future and how we imagine the future to be) should, therefore, be acknowledged for its limitations and inherent tendency towards certain blindness of possible alternatives. This philosophical underlabouring sets the theoretical fundament for this thesis and especially for my intention to develop an economic geography of future-making.

A second crucial point for why I claim that the future matters more than we usually assume becomes further visible at the conceptual level. My approach of linking concepts from Economic Geography with concepts from Cultural Political Economy proposes thereby a way forward to incorporate the future and especially future-making into the analysis and explanation of uneven accumulation processes. Generally, I think that despite the somehow diverse “island life” in Economic Geography (Peck, 2012), much of the orthodox faction of the literature is poorly equipped for emphasizing the processes, effects, and even less so: the mechanisms of future-making. This bears the risk of treating “the future” as an empty signifier or as one of many determinants which can be superficially addressed. This thesis suggests that it does not suffice to emphasize the future in passing; the future matters more than we tend to accept. Cultural Political Economy supports this claim and allows to emphasize the future to be more than

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another determinant. Cultural Political Economy provides thereby the required explanations for how future is made existent in its imaginary form as well as who is dominant in this process. This is why I argue that asking what futures are “out there” and why these futures are imagined the way they are should be imperative for the analysis of any socio-economic change and as such also be acknowledged within Economic Geography concepts.

In total, this thesis has made important and novel contributions in empirical and conceptual terms. Future can exist and the effects of its existence can be barely overestimated.

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Appendices

Appendix 1: List of interviews

Table 8: Thesis interviews 2018 - 2021

ID	Stakeholder category	Stakeholder sub-category	Date interview	SAGCOT-affiliated
1	Academia		11.09.2018	Yes
2	Academia		18.10.2018	No
3	Academia		25.10.2018	No
4	Academia		02.03.2019	No
5	Academia		15.10.2019	No
6	Academia		11.10.2020	No
7	Agro-industry	Commercial farmer	26.09.2018	Yes
8	Agro-industry	Commercial farmer	27.09.2018	Yes
9	Agro-industry	Commercial farmer	04.10.2018	No
10	Agro-industry	Commercial farmer	05.10.2018	No
11	Agro-industry	Commercial farmer	07.05.2019	Yes
12	Agro-industry	Commercial farmer	17.05.2019	No
13	Agro-industry	Commercial farmer	17.05.2019	Yes
14	Agro-industry	Commercial farmer	17.05.2019	Yes
15	Agro-industry	Extension staff	13.04.2019	No
16	Agro-industry	Extension staff	02.05.2019	No
17	Agro-industry	Extension staff	10.05.2019	No
18	Agro-industry	Extension staff	13.05.2019	No
19	Agro-industry	Input supplier	19.09.2018	No
20	Agro-industry	Input supplier	01.10.2018	No
21	Agro-industry	Input supplier	01.10.2018	No
22	Agro-industry	Input supplier	01.10.2018	Yes
23	Agro-industry	Input supplier	08.10.2018	No
24	Agro-industry	Input supplier	08.10.2018	No
25	Agro-industry	Input supplier	09.10.2018	Yes
26	Agro-industry	Input supplier	09.10.2018	Yes
27	Agro-industry	Input supplier	10.10.2018	Yes
28	Agro-industry	Input supplier	10.10.2018	Yes
29	Agro-industry	Input supplier	18.10.2018	Yes
30	Agro-industry	Input supplier	14.11.2018	Yes
31	Agro-industry	Input supplier	25.03.2019	Yes

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32	Agro-industry	Input supplier	27.03.2019	Yes
33	Agro-industry	Input supplier	28.03.2019	No
34	Agro-industry	Input supplier	30.03.2019	No
35	Agro-industry	Input supplier	02.04.2019	Yes
36	Agro-industry	Input supplier	13.04.2019	Yes
37	Agro-industry	Input supplier	18.04.2019	No
38	Agro-industry	Input supplier	25.04.2019	No
39	Agro-industry	Input supplier	03.05.2019	No
40	Agro-industry	Input supplier	14.05.2019	No
41	Agro-industry	Input supplier	22.05.2019	No
42	Agro-industry	Input supplier	04.10.2019	No
43	Agro-industry	Input supplier	27.11.2019	Yes
44	Agro-industry	Input supplier	24.01.2020	No
45	Agro-industry	Input supplier	07.02.2020	No
46	Agro-industry	Input supplier	11.02.2020	Yes
47	Agro-industry	Input supplier	11.02.2020	Yes
48	Agro-industry	Input supplier	12.02.2020	No
49	Agro-industry	Input supplier	15.02.2020	Yes
50	Agro-industry	Input supplier	18.02.2020	No
51	Agro-industry	Output buyer	27.09.2018	Yes
52	Agro-industry	Output buyer	09.10.2018	Yes
53	Agro-industry	Output buyer	10.03.2019	Yes
54	Agro-industry	Output buyer	20.05.2019	No
55	Agro-industry	Output buyer	13.02.2020	No
56	Agro-industry	Smallholder farmer	26.09.2018	Yes
57	Agro-industry	Smallholder farmer	26.09.2018	Yes
58	Agro-industry	Smallholder farmer	13.03.2019	No
59	Agro-industry	Smallholder farmer	18.05.2019	No
60	Agro-industry	Smallholder farmer	21.05.2019	No
61	Agro-industry	Smallholder farmer	21.05.2019	No
62	Agro-industry	Smallholder farmer	21.05.2019	No
63	Development		19.09.2018	Yes
64	Development		03.10.2018	Yes
65	Development		13.03.2019	Yes
66	Development		25.03.2019	Yes
67	Development		26.04.2019	Yes
68	Development		07.05.2019	Yes
69	Development		14.05.2019	Yes
70	Development		17.05.2019	Yes

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71	Development		20.05.2019	Yes
72	Development		22.05.2019	No
73	Development		23.05.2019	Yes
74	Development		24.06.2019	Yes
75	Development		26.06.2019	Yes
76	Development		29.01.2020	Yes
77	Institutional	Civil society organization	31.03.2019	No
78	Institutional	Civil society organization	05.05.2019	No
79	Institutional	Civil society organization	13.01.2020	No
80	Institutional	Government	11.09.2018	No
81	Institutional	Government	15.09.2018	No
82	Institutional	Government	29.03.2019	Yes
83	Institutional	Government	01.04.2019	Yes
84	Institutional	Government	23.04.2019	Yes
85	Institutional	Government	14.05.2019	No
86	Institutional	Government	22.06.2019	No
87	Institutional	Government	01.11.2019	No
88	Institutional	Government	04.02.2020	No
89	Institutional	Non governmental organization	18.09.2018	Yes
90	Institutional	Non governmental organization	19.10.2018	Yes
91	Institutional	Non governmental organization	01.03.2019	No
92	Institutional	Non governmental organization	01.03.2019	No
93	Institutional	Non governmental organization	28.03.2019	Yes
94	Institutional	Non governmental organization	28.03.2019	Yes
95	Institutional	Non governmental organization	13.02.2020	No
96	Institutional	Non governmental organization	14.02.2020	Yes
97	Institutional	Non governmental organization	18.02.2020	Yes
98	Institutional	Non governmental organization	21.02.2020	Yes
99	Institutional	Non governmental organization	28.04.2021	No

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Appendix 2: List of events

Table 9: Observed & participated stakeholder events 2018-2021

ID	Type	Event	Host	Participation	Date
1	Conference	Celebration of the Nobel Peace Prize 2020	Nobel Peace Center / Yara International	digital (live)	02.12.2020
2	Conference	African Green Revolution Forum Summit 2020	African Green Revolution Forum (AGRF)	digital (live)	08.-11.09.2020
3	Conference	Argus Africa Fertilizer Live - Virtual Conference	ARGUS Media	digital (live)	23.-24.02.2021
4	Conference	Africa Fertilizer Conference	AFRIQOM	digital (live)	28.-29.06.2021
5	Fair/Exhibition	Agro Processing for Sustainable Industrial Development Fair (Dar es Salaam)	City Dar es Salaam	analogue	02.07.2019
6	Fair/Exhibition	AFMASS FoodTech Conference & Expo (Dar es Salaam)	AFMASS	analogue	28.-29.03.2019
7	Policy workshop	Agricultural cluster meeting - Iringa region	SAGCOT	analogue	07.05.2019
8	Policy workshop	Tanzania Fertilizer Regulatory Authority - Stakeholder meeting on indicative prices	Tanzania Fertilizer Regulatory Authority (TFRA)	analogue	04.02.2020
9	Policy workshop	COVID-19 Analysis: Study validation (Dar es Salaam)	Agriculture Non-State Actors Forum (ANSAF)	digital (live)	17.06.2020
10	Policy workshop	Africa Fertilizer Ecosystem - Unlocking Africa's potential	AFRIQOM	digital (live)	07.10.2020
11	Policy workshop	Agribusiness in unprecedented times - Challenges and opportunities for CEOs in Africa	KPMG International	digital (recording)	17.11.2020
12	Policy workshop	Annual Agricultural Policy Conference (Dodoma)	Policy Analysis Group (PAG)	digital (live)	03.-05.08.2021

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13	Webinar	African fertilizer markets: an uneasy public-private alliance	ARGUS Media	digital (recording)	19.06.2019
14	Webinar	How to make Input Finance work?	Alliance for a Green Revolution in Africa (AGRA)	digital (recording)	28.04.2020
15	Webinar	Plenary: Role of Agro Input Distribution Systems in African Agriculture Transformation Agenda	Alliance for a Green Revolution in Africa (AGRA)	digital (recording)	11.06.2020
16	Webinar	Blended Finance for Agricultural Development	Alliance for a Green Revolution in Africa (AGRA)	digital (recording)	27.08.2020
17	Webinar	Responsibly feeding the world and protecting the planet	Yara International	digital (recording)	16.09.2020
18	Webinar	Fertilizer Cost Simulator: Taking Knowledge from Port to Farm	International Fertilizer Development Center (IFDC)	digital (live)	28.09.2020
19	Webinar	Tanzania going to the polls	Britain Tanzania Society	digital (live)	06.10.2020
20	Webinar	Feeding the Soil to Feed Africa Improving Soil Health to Boost Farm Productivity	International Fertilizer Development Center (IFDC)	digital (live)	13.10.2020
21	Webinar	Virtual Exchange: Rethinking Food Supply and Demand (The Great Food Challenge)	Food and Agriculture Organization of the United Nations (FAO)	digital (live)	16.10.2020
22	Webinar	Tanzania's 2020 elections: What's at stake?	Dansk Institut For Internationale Studier (DIIS)	digital (live)	23.10.2020
23	Webinar	COVID-19 and Fertilizer Value Chains in Sub-Saharan Africa: Impacts and Policy Responses	African fertilizer and Agribusiness Partnership (AFAP)	digital (live)	18.11.2020
24	Webinar	Yara Forum Digital	Yara Deutschland	digital (recording)	25.11.2020
25	Webinar	Yara ESG Investor Seminar 2020	Yara International	digital (recording)	07.12.2020
26	Webinar	Plenary: Building Back Better - Building Resilience for Stronger Food Systems after COVID 19	Alliance for a Green Revolution in Africa (AGRA)	digital (recording)	03.03.2021
27	Webinar	Agribusiness Deal Room - Country Launch: Tanzania	Alliance for a Green Revolution in Africa (AGRA)	digital (recording)	26.08.2021

Appendix 3: Interview guidelines

Interview framework: Institutional stakeholders (government & parastatal organizations)¹⁰⁴

Block I: The interviewee: role and position

- Role in the institution
- What are your major tasks working for this institution?
- What did you do before you worked for this institution?
-

Block II: General introduction to institution

- What is the role of the institution?
 - Goals
 - Structures & Activities
 - History and changes
 - Funding

Block III: Agricultural activities

- How does your institution intervene into the agricultural sector in general?
- What are your basic principles for intervening into agriculture?
- Do you have specific focus regions or sectors?

Block IV: Value-chain-oriented interventions

- How does your institution intervene into agricultural value chains?
 - Facilitating role? Enabling role? Restrictive role?
 - Product focus?
 - With which type of farmers do you usually work?
 - How do you select farmers to work with?
 - With which type of agro-industrial actors do you work?

- How do you select agro-industrial actors to work with?
 -
- What are challenges and successes of intervening into agricultural value chains?
 - Successes?
 - Challenges?
 - What changes are required to improve your intervention into agricultural value chains?
- How do you support capital investments into value chains?
 - What types of capital investments along chains do you support?
 - How do you support these investments?
 - Do you follow guidelines for what investments to attract?
 - What has worked, what has failed?

Block V: Institutional interactions with the donor and NGO landscape

- How have you experienced the growing number of agriculture-related donor and NGO projects in recent years?
- Relevance of donor/NGO landscape?
 - How important is the donor/NGO landscape for agricultural transformation?
 - Is the donor/NGO landscape undermining or complementing state interventions into agriculture?
- Partnership organization
 - How are agriculture-focussed institutions interacting with the new donor/NGO landscape?

¹⁰⁴ During the three fieldwork phases, various actors have been interviewed. In this process, the interview guideline was usually adopted depending on interviewed actor. This section illustrates, therefore, only some of the used guidelines.

Appendices

- How is setting the agenda for agricultural development?
- Is this agenda-setting shaped by conflict or is it harmonious?
- Have major agendas changed in recent years?

Block VI: Role of SAGCOT and other agricultural platforms

- What is the role of SAGCOT in transforming Tanzanian agriculture?
- What are the effects of SAGCOT?
 - Policy and institutions
 - Agricultural transformation
 - Regional and global integration
 - Value chains
- Does SAGCOT differ from other agricultural PPPs?
 - Strong support under Kikwete?
 - High funding commitments?
 - Global attention?
 - Global critique?
- Did SAGCOT change since its launch?
 - Internal structures?
 - Institutional embedding?
 - Partnerships with donor/NGO landscape?
 - Support by capital investments?
 - Awareness and reception among farmers and general public?
- Can SAGCOT achieve its promises?
 - Smallholder farmers?
 - Commercial farmers?
 - Additional value chain actors?

Block V: Institutional shifts and effects on value chain interventions

- What does the nation-wide political shift from liberalisation to strong state intervention imply for agriculture in general?
 - Does agriculture move to the background due to industrialization focus?
 - How does your institution deal with a new role of agriculture?

- Do you approach value chain interventions differently?
 - What forms of value chains are supported today? (domestic vss. foreign; regional vs. global)
 - Which actors along agricultural value chains are strengthened and to the cost of whom?
 - What is the response of value chain actors to the strengthening of the state?
- What are the effects on the donor/NGO landscape?
 - More, less, or different approaches?
 - What is the role of foreign development actors?
 - How is the shift received in the development community?
- What are the effects on SAGCOT?
 - Can SAGCOT continue as it was initially designed?
 - Will projects such as KPL continue to remove funding?
 - Will the government redesign SAGCOT or just abandon the project?
 - How do SAGCOT representatives respond to the political shifts?

Block VI: The future of agriculture

- What transformations are needed in agriculture on the long run?
- What is the role of agriculture for the Tanzanian economy in the future?
- How should the future of agriculture look like in 2050?
- Who can and who should implement this future?
- How likely is this future achieved?

Appendices

Interview framework: NGOs and donor projects

Block I: The interviewee: role and position

- Role in the project
- What are your major tasks working for this project?
- What did you do before you worked for this project?

Block II: Project type and structure

- Can you briefly what this project is doing?
 - Goals?
 - Structure (places of activity, employees)
 - Operational since?
 - Funding? Responsibilities?

Block III: Value chain activities

- What are the major dynamics in staple crop value chains in the region?
 - Challenges, advantages?
 - Why is development-oriented intervention necessary?
 - What has to change?
- How does your project intervene into agricultural value chains?
 - Product focus?
 - How do you support farmers?
 - How do you select farmers to work with?

Block III: Input supply and cultivation

- How do you support knowledge and GAP adoption?
 - Demonstration plots & outreach?
 - Farmers day?
 - Farmer groups?
- What agricultural practices do you primarily promote?
 - Input use (what, from whom)
 - Other cultivation practices (what)

- How do you support the access to inputs for farmers?
 - Supply chain strategy
 - Choice of fertilizer types
 - Seeds and crop protection
 - Finance
 - Machinery?
- What are challenges and successes of disseminating GAP?
 - How do farmers perceive the proposed measures?
 - Do you face opposition by other actors?
- What are solutions that have proven to work in organizing efficient input supply chains?
- What are the key challenges to organize efficient input supply chains for farmers?

Block IV: Demonstration plots & outreach

- How do you organize a typical demo plot?
 - Identification of plot / farmer?
 - Role of public extension officer?
 - How do you find input suppliers to contribute?
- What is the lifecycle of a typical demo plot?
 - Who is doing what?
 - Who is trained eventually?
 - What about the end?

Block IV: Output marketing

- Do you support marketing or processing activities amongst farmers?
 - How do you support these?
 - With whom do you link farmers?
 - Strategic partnerships to improve markets?
- What are the challenges in linking farmers to markets for staple crops?

Appendices

Block V: Partnerships and joint activities

- Do you maintain strategic partnerships for your activities?
 - Private sector – with whom & for what?
 - Public sector – with whom & for what?
 - NGO projects?
- How are these partnerships maintained?
 - Strategies to coordinate?
 - Dynamics and changes?
 - Failures, diverging interests?
- What is the role of SAGCOT in the project region?
 - What is the role of SAGCOT?
 - Is SAGCOT important for your activities?
 - How is SAGCOT supporting your activities?
 - Have there been changes in terms of how your project works with SAGCOT?
 - What is the future of SAGCOT?

- Who can and who should implement this future?
- What are likely obstacles to achieving the future as you proposed it?

Block VI: Effects and impacts

- How has the agricultural sector in the project region developed and what is the role of your project?
 - Efficient supply chains?
 - Intensification of production?
 - Shift of product choice?
 - New or extended marketing outlets?

Block VII: The future

- What is needed for the project region to be successful in agriculture?
- What is the role of agriculture for this region in the future?
- How should the future of agriculture in the project region look like in 2050?

Appendices

Interview framework: Fertilizer industry

Block I: The interviewee: role and position

- Occupation – today and past
- Daily practices and activities at work

Block II: General introduction Tanzanian fertilizer industry

- Can you briefly describe the fertilizer industry in Tanzania?
 - Main actors
 - Latest developments
 - Challenges and successes
 - Market development
- What role does your company play in the industry?
 - When established?
 - Main competitor?
 - Uniqueness? Strategy?

Block III: Company profile

- Can you briefly explain the structure of your company?
 - Ownership
 - Products
 - Infrastructure (logistics, warehouses; where?)
 - Employees
 - Where active
- How do you organize the supply chain for fertilizer from world market to the farmers' soil?
 - Import
 - Procurement & Logistics
 - Marketing
 - Extension, demonstration plots
- What is important for your company to be successful?
 - Consumer preferences, fertilizer uptake
 - Infrastructure
 - Import regulations, politics
 - World market

- Partnerships

Block IV: Market imperative, risks and competition

- Have you expanded the business in the last year and do you plan to expand it further?
- What are the risks associated to expanding your business in the fertilizer industry?
 - Economic conditions
 - Product, competition
 - Regulatory/political
- Which companies do you see as the main competitor in the industry?
 - Why is this the case?
 - Are they doing something different?
- Do you have strategic partnerships to maintain or expand your business?
 - NGOs and donor projects
 - Other input suppliers
 - Other fertilizer suppliers
 - Agribusinesses
 - Farmer associations or groups
 - Government
- Do you see companies doing a bad job in the industry?
 - Why? What are they not doing?

Block V: Logistics and last mile distribution

- How do you import and process the fertilizer you sell?
 - From where imported?
 - Bagging, branding?
 - Logistics
- How do you manage the last mile distribution to the farmer?

Appendices

- Last point of company-internal distribution
- How to convince farmers
- Partnerships to manage the last mile
- Bottleneck of fertilizer distribution and uptake

Block VI: The role of SAGCOT and similar agricultural platforms

- Does your company partner with SAGCOT?
 - Official partnership?
 - How and what?
 - YARA?
- Has SAGCOT changed the fertilizer industry?
 - How?
 - To the benefit of whom?
 - Friction, competition

Block VII: The future

- How will the fertilizer industry in TZ develop in future?
- What is needed for a successful development of the fertilizer industry?
- Who defines the future of the Tanzanian fertilizer industry and distribution?
- Do you do anything to make this future possible and implement it?
 - **General imports and exports in TZ**
 - **Firm sizes, history**
 - **Fertilizer use in TZ**

Do you want me to add anything based on our discussion?

Appendix 4: Erklärung zur Dissertation

Hiermit versichere ich an Eides statt, dass ich die vorliegende Dissertation selbstständig und ohne die Benutzung anderer als der angegebenen Hilfsmittel und Literatur angefertigt habe. Alle Stellen, die wörtlich oder sinngemäß aus veröffentlichten und nicht veröffentlichten Werken dem Wortlaut oder dem Sinn nach entnommen wurden, sind als solche kenntlich gemacht. Ich versichere an Eides statt, dass diese Dissertation noch keiner anderen Fakultät oder Universität zur Prüfung vorgelegen hat; dass sie - abgesehen von unten angegebenen Teilpublikationen und eingebundenen Artikeln und Manuskripten - noch nicht veröffentlicht worden ist sowie, dass ich eine Veröffentlichung der Dissertation vor Abschluss der Promotion nicht ohne Genehmigung des Promotionsausschusses vornehmen werde. Die Bestimmungen dieser Ordnung sind mir bekannt. Darüber hinaus erkläre ich hiermit, dass ich die Ordnung zur Sicherung guter wissenschaftlicher Praxis und zum Umgang mit wissenschaftlichem Fehlverhalten der Universität zu Köln gelesen und sie bei der Durchführung der Dissertation zugrundeliegenden Arbeiten und der schriftlich verfassten Dissertation beachtet habe und verpflichte mich hiermit, die dort genannten Vorgaben bei allen wissenschaftlichen Tätigkeiten zu beachten und umzusetzen. Ich versichere, dass die eingereichte elektronische Fassung der eingereichten Druckfassung vollständig entspricht.

Teilpublikationen:

Tups, G, & Dannenberg, P, (2021). Emptying the Future, Claiming Space: The Southern Agricultural Growth Corridor of Tanzania as a Spatial Imaginary for Strategic Coupling Processes. *Geoforum*, 123, 23-35.

Hartmann, G, Mwaka, I, & Dannenberg, P, (2021). Large investments, small farmers: A financialisation perspective on value chains in a development corridor. *Development Southern Africa*, 38(1), 122-138.

Tups, G. Dannenberg, P. Global Suppliers, Intangible Assets, and Power in Global Value Chains: Explaining Governance from the Supply-Side of the Fertilizer Chain (*Manuskript*)

Gideon Tups

Köln, den 15.11.2021



Appendix 5: Addendum

As the third thesis article (Tups & Dannenberg 2023) has been per reviewed and published after thesis submission, the title and contents of chapter 9 have changed slightly during the reviewing process. In the published version of the thesis, the prior manuscript version of chapter 9 has been replaced by the published article with the following reference:

Tups, G. Dannenberg, P. (2023) Supplying lead firms, intangible assets and power in global value chains: Explaining governance in the fertilizer chain. *Global Networks*, <https://doi.org/10.1111/glob.12431>