



# Nucleus-outgrower schemes as an alternative to traditional smallholder agriculture in Tanzania – strengths, weaknesses and policy requirements

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## Abstract

The public debate about the right type of agriculture for Sub-Saharan Africa (SSA) often constructs a dichotomy between smallholders and large-scale agriculture. This over-simplification ignores some important intermediary forms for organising agriculture, including nucleus-outgrower schemes (NOSs). NOSs promise to combine the benefits of both while potentially reducing, though not avoiding, (part of) their drawbacks. This article analyses the conditions under which NOSs are feasible and beneficial for investors, outgrowers and rural development for selected value chains in Tanzania. It is based on an empirical study comprising 276 qualitative interviews with various stakeholders conducted in central Tanzania in spring 2015 on 10 NOSs in three subsectors (rice, sugar cane and tea) in different stages of realisation (planning, establishment, full production and failure or near-failure). The study examines why investments succeed or fail in different stages, the socio-economic impacts and various policies important for their fate. Findings show that there are many challenges to successfully implementing NOSs in Tanzania, including national policies on the business environment, on agriculture in general and on specific subsectors, and, especially, on land issues. Nevertheless, these schemes seem to have considerable potential to support local development, particularly by providing employment and salaries, incomes for outgrower farmers, infrastructure and corporate social responsibility (CSR) projects as compensation for loss of access to land for the community. The specific details of a particular business model influence the opportunities and risks, but no single model seems to be superior; much depends on the subsector structure and the services already available. In general, policies to attract and steer NOSs in Tanzania are not yet sufficiently developed, coordinated or implemented.

**Keywords** Nucleus-outgrower schemes · Large-scale agro-investments · Smallholders · Contract farming · Tanzania · Rural development

## 1 Introduction

There is widespread consensus that the development of agriculture is key to achieving broad-based development in Sub-Saharan Africa (SSA), in particular to reducing

poverty and improving food security (African Union 2014). There is, however, also agreement that agricultural development on the continent is difficult to achieve, since there are multiple constraining factors, which impede growth and productivity improvements. These include

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lack of infrastructure (particularly in rural areas but also along the value chain into urban areas), technology, energy and knowledge; inundations and shortages of water; high pressure of pests and diseases; low availability and quality of inputs such as fertiliser and pesticides, of labour supply (in certain periods of the year) and mechanisation; poor product quality and access to markets; low levels of risk-taking capacities by farmers and insufficient risk-coping options; lack of access to capital and credit; weak administrations and public support organisations; and weak and overlapping formal and informal institutions (Hazell et al. 2007; Jayne et al. 2014; African Union 2014; OECD and FAO 2016; Alliance for a Green Revolution in Africa 2017).

An overarching challenge is that these constraints are usually multiple and interdependent. In consequence, the array of options for improvement of SSA agricultural production and thereby of poverty and food insecurity is either very reduced in ambition or highly complex since many options – particularly those with substantial improvement potential but dependent on external inputs and services – depend on the simultaneous improvement of several factors. They need complex interventions to become beneficial to smallholder farmers, often with an array of external actors and/or with the need for collective actions of farmers (compare Hazell et al. (2007) for a modern dispute about the challenges and future of smallholder farmers in developing countries, and Okem and Stanton (2016) for a discussion of cooperative approaches).<sup>1</sup>

These challenges have led to a sometimes fundamental dispute about alternatives to isolated smallholder support (i.e. supporting smallholders or their associations as independent actors without formally integrating them with other actors in the agricultural value chain) in developing agriculture in SSA. Two fundamental alternative options frequently named are large-scale farming and contract

farming. These promise to overcome some (though not all) of the challenges of isolated smallholder farming. Since both have important caveats, another approach has emerged that is the focus of this paper: Nucleus Outgrower Systems (NOSs), a combination of the former two models.<sup>2</sup> The pros and cons of the three models are briefly elaborated below.

Proponents of large-scale farming, such as Collier and Dercon (2014) or FAO (2009), argue that these can take up modern technologies more easily, due to lower risk aversion, higher levels of professional knowledge and capital, and better access to new knowledge and capital. This has been a long-standing explanation for the existence of large farms for crops such as sugar cane and beet, palm oil, bananas, perishables for industrial processing, and others (Deininger and Byerlee 2012). With the evolution of modern technologies such as precision farming and automation it is to be expected that such favourable conditions for large farms will further increase. On the other hand, some substantial risks and negative impacts are put forward by critics of this model, the most severe of which concern the acquisitions of large tracts of land. These are said to foster (or even said to be identical with) land grabbing and violation of human rights (De Schutter 2009). Independent farmers are converted to dependent workers or forced to migrate. Labour conditions and ecological standards are often considered to be very poor on such large farms, particularly in poor countries with low labour and environmental standards and/or weak law-enforcement mechanisms. Labour conditions can refer to labour and health safety, child labour, right to unionise, gender inequality and special women's rights, labour insurance, salaries, conditions of travel to and from work, etc. (Brüntrup 2012). There are also concerns about food security and nutrition impacts (Kennedy et al. 1992; De Schutter 2009; Cotula et al. 2011; Robertson and Pinstrup-Andersen 2010), loss of food sovereignty (Borras Jr et al. 2011; Twomey et al. 2015), inequality and power imbalances including in gender relations (Peters 2004; Tandon 2010; Exner et al. 2015), and social conflict (Peters 2004; Hall 2011; Cotula et al. 2011). Ecological impacts refer

<sup>1</sup> The Trans-SEC project and this special section focus on improving food security of smallholders in Central Tanzania by participative action research to address many of these constraints (Sieber et al. 2017). Many of the interventions require relatively few external inputs and market linkages and therefore can and are supposed to be implemented by individual farmers, such as manual tied ridging (Mwinuka et al. 2017). Others such as fertilizer micro-dosing, however, require external inputs or stable output markets and therefore need more complex intervention strategies, including access to inputs, credit, market access or specialized advice (Mwinuka et al. 2017). For many innovation and adoption strategies, “the importance of promoting policies that enable effective vertical and horizontal integration of smallholder farmers into traditional agricultural value chain activities for enhanced food security and improved livelihoods” has been stated (Kissoly et al. 2017). This importance is even more urgent for innovations that require external inputs and non-traditional crops. The present research was initiated in parallel with the main Trans-SEC project by a member of the Trans-SEC consortium to look into alternatives to traditional value chain development as pursued by Trans-SEC.

<sup>2</sup> In these, the Nucleus is a large farm unit (plantation, large-scale farm) which guarantees a certain minimum provision of raw material for a large-scale processing plant or other downstream aggregation use, while the other part of the raw material is procured from smallholder farmers who are linked through contractual arrangements to the nucleus (Glover 1984; Brüntrup and Herrmann 2010). These contractual arrangements can vary in intensity from relatively loose purchasing contracts for agricultural output of otherwise independent farmers on an annual base (simple contract farming) over arrangements which combine contracts with various input and service delivery (seeds, fertiliser, herbicides, machinery, water) and indefinite (since physically dependent) linkages to a system where land is owned by the nucleus and rented out to farmers. In any case, the contractor is also producing himself, thus has a far better knowledge of cropping of the contracted crop than other types of contractors. For this paper, all these forms of smallholders linked to a nucleus contractor are subsumed under the term “outgrowers”.

to negative landscape changes due to large monocultures and clearing of valuable ecological niches, use of pesticides and mineral fertilisers, excessive water abstraction, inappropriate mechanisation leading to soil compaction and exposure of soils to wind and water erosion. Cultural heritages in the landscape may also be at risk (Chiesura and De Groot 2003). According to a meta-analysis of 66 cases in 21 countries in Africa, Latin America, Southeast Asia, and Eastern Europe (Oberlack et al. 2016), “adverse livelihood outcomes arise most frequently from processes of (1) enclosure of livelihood assets, (2) elite capture, (3) selective marginalisation of people already living in difficult conditions, and (4) polarisation of development discourses, and less frequently from (5) competitive exclusion, (6) agribusiness failure, and (7) transient jobs.” More information on large-scale land acquisition investments is found, for instance, in Allen et al. (2012).

However, from the investor perspective, there are disadvantages in acquiring large tracks of land. Risks are associated with land acquisition per se, since, particularly in poor countries, land rights and land transactions are often surrounded by uncertainties and inconsistencies in formal and informal right systems, law enforcement risks, reputational risks in case of bad press and campaigns (Cotula et al. 2014; Brüntrup 2012). Further, large-scale agricultural production with high investments in machinery, construction and equipment as well as hired labour has more often than not proved to be more costly and less flexible than smallholder farming, due to difficult supervision, the high fixed cost of managing hired labour and, not least, to the self-exploitation of family labour which does not strive for a regular minimum salary and social benefits in exchange for higher self-determination, flexibility and transparent profit-sharing (Schmitt 1991; Hazell et al. 2007).

In outgrower schemes, farmers produce for up-taking companies under forward contracts for a part or all of their production. Contracts assure farmers of the future sale of their product, reduce investment risks and therefore encourage farmers to invest in production. Often, the contracts serve as entry points for further support from the nucleus or from third parties. There is a wide array of contractual arrangements (Glover 1984; Eaton and Shepherd 2001; Brüntrup and Peltzer 2006). If contracts stipulate a price or a price-finding mechanism (which is often but not always the case), there is an even higher planning security. Often, farmers are also provided with inputs, and often these are provided on a credit base since the recovery of debts is easy when farmers deliver the product to the company. Sometimes, the contracts can also serve as security for credits from independent financial service providers. This is done either in formal arrangements, with the credit being directly subtracted by the contract buyer from the amount paid to the supplier of the goods on delivery of the product (strong guarantee), or as a record from whom (and when) the payment is due, with the farmer using liquidity from the sale of the goods to repay the creditor (weaker guarantee).

Farmers remain independent and can in theory switch to other clients or other crops if contracts become unattractive. The landscape, the production structure and – at least in the short run – the social structure remain unchanged. However, outgrower models also bear disadvantages and risks for farmers. The price-finding arrangements are less flexible than in an open market, which can be to the disadvantage of the farmer if the spot market at the time of delivery is higher than the contractual price. Independent farmers become dependent on contracts for their produce, technology, inputs and access to credit, so that a free switch to other markets and crops is difficult in practice.

Again, the investor perspective reveals additional challenges (Brüntrup and Peltzer 2006; Sartorius and Kirsten 2007; Li 2015): organising the procurement from a large number of farmers means high efforts and high costs if these are not already well organised. These costs can increase further if other services and inputs are to be provided. Companies are often not well equipped and experienced in dealing with these situations. The most widespread risk in contract farming is side-selling, where farmers sell to another buyer for various reasons – better price, avoidance of repayment of credits, better (i.e. more rapid) payment conditions, and social obligations. In addition, the reliance on a smaller region for procurement, while reducing transport and communication costs, increases risks from crop failures due to local adverse weather or pest events, even more so if farmers do not have means such as irrigation, knowledge or access to pesticides to control at least a part of these production risks.

In NOSs, the Nucleus is a large farm unit (plantation, large-scale farm) which guarantees a certain minimum provision of raw material for a large-scale processing plant or other downstream aggregation use, while the other part of the raw material is procured from smaller farmers who are linked through outgrower arrangements to the nucleus (Glover 1984; Brüntrup and Herrmann 2010). NOSs combine some advantages of the two other described models. Compared to pure large-scale farming, they are assumed to require fewer land acquisitions, distribute wealth more equitably, disturb rural social structures less radically, and have a higher support from governments (e.g. Glover 1984; Humado 2013). Compared to pure contract farming, procurement is less risky and internal transaction costs are lower (Eaton and Shepherd 2001). However, the disadvantages of the two models do not disappear; they are just reduced. Later in this paper, they will be reviewed comprehensively for the case study NOSs.

In summary, investors – which, finally, are the key to the establishment of large-scale agricultural production which could challenge the presently dominating smallholder model – will carefully examine whether the sector is interesting at all, and in which model to engage. Large-scale own production tends to be favoured over outgrower production when there is higher perishability of products in the value chain, high

transport costs (i.e. weight), high investment costs in processing or other specific fixed assets, high competition with other companies in local markets (increasing the risk of side-selling), low knowledge, skills and assets of farmers, as well as weak regulation of contracts and weak law enforcement. In contrast, high and uncontrollable production risks, variability of markets and flexibility of processing equipment and marketing outlets will tend to favour contract farming, since this allows the risk to be devolved onto the farmers without hampering business. NOSs, as a mixed form, could be preferred in less clear situations where both sets of arguments pertain. General and specific market and investment regulations and conditions, however, also have important implications for attracting or repelling investors and for which kind of production models are preferred. For comprehensive assessments of pros and cons of large scale versus smallholder agriculture see for instance Glover (1984), Eaton and Shepherd (2001), Brüntrup and Peltzer (2006), Hazell et al. (2007), Deininger and Byerlee (2012), and Collier and Dercon (2014).

This study aims to contribute to the debate by a closer examination of NOSs, a type of investment that has not yet attracted the same amount of research as the two extreme models (or is sometimes simply merged with large-scale land acquisitions, due to its land acquisition component). The study is based on an empirical assessment of 10 NOSs in three crop subsectors in Tanzania, each of which includes a new/emerging, a mature/producing, and a failed/struggling investment. It is thus able to take into account the entire NOS project cycle, from design and pre-investment, through the investment and operational stages – to the demise and failure of some investments. The study investigates progress in establishing such schemes, their socio-economic impacts, earlier policy efforts to steer development-friendly investments, and the outstanding needs at the policy level. It draws on lessons about how to make investments thrive economically and at the same time provide positive, and avoid negative, impacts on rural development. By selecting several subsectors and various stages of investment, we were able to look beyond the characteristics and fates of individual investments, which very often depend on unique combinations of entrepreneurial, subsectoral and other contextual particularities, to distil more general lessons. It is not a rigorous quantitative study but with 276 interviews with more than 320 persons we have a considerable empirical basis. Thus, it is more comprehensive than most other studies the authors know about.

The rest of the paper is organised as follows: Section 2 provides a short background on NOSs in Tanzania, in particular on recent attempts to foster them. Section 3 explains our concept and methodology. Section 4 presents the major results and Section 5 draws conclusions and elaborates the implications for politically guiding and privately managing NOSs.

## 2 Nucleus-Outgrower-Schemes in Tanzania

Tanzania is a good place to study NOSs in developing countries. Many sources note that the country possesses a considerable amount of arable land that is “idle” (a term that is frequently used locally) and/or is used but has very low productivity (Deininger and Byerlee 2011; URT 2015). Given the very low crop yields achieved at present, the agricultural land could be much more productive, for example through use of modern inputs and/or irrigation. Nevertheless, agricultural sector growth (4.2% between 2003 and 2013, MAFAP 2013) is low compared to population growth (3%) and overall growth of the economy (7% 2013).

The Government of Tanzania has recognised that agriculture is a significant driver of growth and is key to reducing poverty and food insecurity. The private sector plays an important but changing role in (agricultural) development strategies. Historically, during colonial and early post-colonial times, plantation farming played a prominent role in Tanzania’s agricultural development, but in the mid-1960s, following the Arusha declaration, most large farms were nationalised (Maghimbi et al. 2011; Gibbon 2011). These older government-owned farms have mostly been privatised (which means, since private land property does not exist, that public land is leased long-term) in the last 10 to 15 years, often due to inefficiency and a general shift in the assessment of state economic activities (URT 2001; URT 2009). In addition, new strategies seek to further increase investments in rural areas, including large-scale farming (URT 2009; URT 2015). The Tanzanian government has therefore launched several initiatives to attract more national and international investors to agriculture: The Tanzania Investment Centre (TIC) was established in 1997 as a ‘one-stop shop’ for foreign and domestic investors. It facilitates all procedures with government agencies, including arranging long-term leases for land for construction, and was also commissioned to establish a land bank for agricultural investments, extending and strengthening its agriculture mandate. The NOS model is not a requirement for foreign large-scale land acquisition investments, but it is recommended – particularly if public land is involved, which in the formal land lease procedures is usually the case. A more recent major instrument to support NOS is the Southern Agricultural Growth Corridor of Tanzania (SAGCOT), an innovative policy initiative to develop agricultural value chains by linking and coordinating public and private actors and activities in a large area (one-third) of the country. Initiated as a public–private partnership at the World Economic Forum (WEF) Africa summit in 2010, it strongly focuses on agro-industrial development. The blueprint document (SAGCOT 2011) describes developing 350,000 ha for large-scale farming, with smallholders linked as contract farmers (the NOS model) in several geographical clusters, with infrastructure and service provision intended to

complement the clusters. In 2013, finally, the Tanzanian presidency launched the Big Results Now (BRN) initiative to ‘fast-track’ certain sectoral initiatives, using a strong public, results-based management system; BRN made large-scale land acquisition investments one of its three agricultural focus areas and intended to implement 25 of such investments within the next three years (URT 2013; President’s Delivery Bureau 2016). Here, again, the preferred type is the NOS model.

Due to the natural resource endowment and the efforts of the government, the country was one of the top 10 countries for large-scale agro-investments in SSA in the early 2010s (Anseeuw et al. 2012; Schoneveld 2014). Many of these investments come in the form of NOSs. It seems, however, to be difficult to implement large-scale land acquisition investments, no matter what efforts are made to promote them. Citing Land Matrix data, Integrated Regional Information Networks (2013) reports that out of 27 deals signed in Tanzania since 2008, 11 projects were abandoned or had not yet started production more than a year after the contracts had been signed. Only eight projects were operational. Also, Sulle and Nelson (2013), Mwansasu and Westerberg (2014), and Exner et al. (2015) report high rates of failure. Cotula et al. (2014) complained that information was unavailable about the implementation of agro-investments in Tanzania, and that only one in seven investments was deemed fully implemented. In a recent analysis of the Land Matrix, Tanzania is no longer included in the top 20 (Nolte et al. 2016). There is, however, evidence that the term “implementation” is used quite differently by different authors, from “contract concluded” to “start of investment” or “full production”; compare Deininger and Byerlee (2011), and Cotula et al. (2014). The status of several investments we found in sources such as the Land Matrix or on local lists was not reported, while we found that several had not started at all or had failed already. Some older investments were struggling or had closed. By the time we conducted field research in summer 2015, none of the 25 investments planned under BRN had been established, and the two investments publicised later had only announced that the TIC secured the property rights (BRN n.d.). Generally, investor interest seems to be fading, making government plans to modernise agriculture via such investments increasingly obsolete. On the other hand, it seems that many smaller land investments (still often with some hundreds of hectares) are being made – unnoticed by observers, who are concentrating on international investors, who usually plan on a large-scale.

While there are many attempts to implement NOSs, little is known about their impacts in the short, medium and long run. Although there are many reports, most of them are more of an anecdotal, promotional or campaigning nature. Very often, they rely on very few cases and interviews or do not report details of methodology at all. Sometimes outgrowers are taken into account; sometimes only the large-scale land acquisition

in the narrow sense. For some authors, the existence of one or a few cases of human rights infringements already suffices to dismiss an investment; for others the broad average impacts are key to the assessment. Measurements of impacts are rarely quantitative and are often based on assumptions about the impacts of certain intermediate outputs such as credit use/indebtedness. This study tries to fill some of the knowledge gaps by providing a more systematic qualitative approach for a medium but significant number of case studies.

### 3 Methodology

This section presents the study’s methodological framework: research questions, our conceptual framework and how we implemented the research strategy in field research.

#### 3.1 Research questions

The overall research question was:

*R<sub>1</sub>: How can NOSs in Tanzania be promoted and managed to positively impact rural development?*

As there is no internationally accepted definition of NOSs in terms of size, we defined the nucleus aspect of the investments according to the frequently used international threshold of 200 ha for large-scale farming (e.g. Land Matrix 2017). We included foreign and domestic investments. When looking at the impacts of these investments, we mainly focused on how socio-economic effects could reduce poverty as one main dimension of rural development, and we specifically considered vulnerable groups. Although other, often ecological, dimensions are even more difficult to assess and not many data are available, we made some efforts also to collect information on these.

“Promotion” refers to activities and policies by state authorities, international organisations and business groupings that attempt to attract and facilitate agricultural investments in Tanzania (URT 2015; President’s Delivery Bureau 2016; SAGCOT 2011). In contrast, “management” refers to regulatory legislation and monitoring activities that aim to ensure positive impacts on rural development and mitigate any negative consequences of NOSs, and which are covered in the two international voluntary frameworks of the Committee on Food Security (CFS 2012; CFS 2014). We focus on public management because, although investors can tackle many issues at the project level, critical issues should not be left to investors’ good will: minimum requirements must be harmonised throughout the country. International regulations and standards have been shown to not suffice to manage these issues (Brüntrup et al. 2014). National regulation also protects investors from exaggerated expectations, creates a level playing field and prevents the spread of negative experiences. It is important to analyse

policies and formal institutions, as well as their applications in the field, where they interact with informal rural institutions – often causing partial or modified implementation (e.g. German et al. 2013).

In order to answer this overarching research question, three sub-questions were deduced:

*R<sub>1a</sub>: Which factors influence the success or failure of NOSs in Tanzania from the investor's perspective?*

*R<sub>1b</sub>: What are the impacts of NOSs on rural development for different rural population groups in Tanzania and what factors influence these impacts?*

*R<sub>1c</sub>: What is already being done and what is still needed to promote development-friendly NOSs at the policy and implementation levels?*

### 3.2 The conceptual framework

Discussions about large-scale land acquisition investments often concentrate on certain aspects or on individual cases, thereby obscuring the wider picture. It is indeed difficult to compare NOSs in different sub-sectors and with different institutional set-ups, which in any case need many years to establish and produce long-term impacts. The recent investments which are the object of the current “land grab” literature (see Introduction for some general literature and Discussion for Tanzania-specific literature) have not yet reached that stage, and many – as mentioned – did not materialise or have failed already. Older investments are most likely to be able to inform us about long-term effects of and issues for new green-field investments. On the other hand, they have developed under very different conditions from those that prevail today – lower population densities and land pressure, different laws, economic and political orders – thus, little (though still something) can be learned from them on issues about early phases of NOS implementation (e.g. land grabbing). And while the institutional and economic policies are assumed to be key drivers and instruments to support and manage NOSs, they have very different impacts on NOSs at different stages – for the recent ones they are factors of planning and investment decisions, while for the old ones they are de facto determining economic results and relations with other stakeholders.

Thus, a conceptual framework which wants to compare different NOSs at different points in time and stages of maturity and analyse the impact of policies on these needs a conceptual framework that classifies them according to phases. We developed a conceptual framework to interpret currently observable NOSs (and their recent histories) as pieces of the same puzzle – a stylised NOS life cycle (Brüntrup 2014). We assumed that most investments follow a similar project life cycle, regardless of their specific nature and design. The different stages are defined as follows:

1. The process of preparing the actual investment is what we call the “Planning Stage”.
2. In the second stage of the investment cycle, the “Investment Stage”, investors carry out their first on-the-ground activities.
3. In the “Operational Stage” projects actually begin to operate at (close to) full scale – with production, processing, packaging and selling.
4. During any of these three stages, the investment may well fail due to bad management or external shocks such as market-price fluctuations or extreme weather events. Hence, the period after an investment has failed is here considered separately as the “Crisis/Failure Situation”.

The three first stages represent an idealised investment process on the one hand, whereas on the other hand a crisis/failure situation is not necessarily the final stage but should be avoided. Unfortunately, the latter is (too) frequently observed, with massive consequences for many stakeholders including rural populations and therefore is or should be a very relevant facet of an analysis of NOSs. Actual investments may be more complex. They may start producing on a smaller scale, grow unpredictably, or be partly or temporarily abandoned or transferred to a new owner at any stage in the process. Furthermore, the lines between stages are blurry, with some defining features of a stage missing, especially if new investments are based on older ones (“brown-field” investments).

To further operationalise the research and focus on the relevant issues to investigate (mostly through stakeholder interviews), we reviewed the literature to learn more systematically about the major issues at each stage. We found three major dimensions that characterise the various stages of the investments:

- 1) the political and legal framework that governs the activities of the investor and other actors,
- 2) the activities themselves, which variously impact rural development, the local population and the national economy, and
- 3) the impacts.

These three dimensions and the four-stage model produce a four-by-three-cell matrix that depicts the institutional framework, investor activities and the impacts on rural development during each of the four investment stages.

### 3.3 Implementing the research strategy

NOSs were selected in three different subsectors/crops. We based our research on different crops in order to be able not only to draw sector-specific conclusions but also to make general recommendations that apply to all sectors. Because different crops have different requirements for cultivation,

storage and processing, and different market situations, the selection of a certain crop has important implications regarding the choice of a business model and the factors for success. Political support and interference also strongly vary from one sector to another, sometimes because of a subsector's characteristics, sometimes for historical or current reasons of political economy. Two crops (rice, sugar) were set *ex ante* because recent work of a colleague at the German Development Institute (Herrmann 2017) had examined quantitatively the socio-economic implications in two fully functional stage 3 NOSs. The third crop, tea, was selected because of the variety of existing NOSs and the excellent contacts and facilitation of one of the local counterparts in the sector. These contacts are extremely helpful in getting access to investors and workers; their inclusion was part of the requirements for selection. Yet, there are more typical NOS crops and speculations (sisal, palm oil, horticulture, forestry) which could not be taken into account for lack of capacity (already the present design absorbed more than 500 researcher days for fieldwork only).

When finally selecting our cases, we merged the first and second stages of our model because we discovered that the planning and investment stages significantly overlapped and we could not clearly differentiate them. Projects in a pure planning stage are mostly not publicly known and ready for an outsider's analysis. In the post-investment stage, it proved difficult to investigate investments that had actually failed (or were abandoned) because it was hard to make contact with the responsible investors and we wanted to study only investments for which we could interview the investor or at least the manager(s) because they have information about our areas of interest not available anywhere else. We thus chose cases for this stage that can be defined as struggling, and collected additional isolated observations from some other cases of collapsed investments in the vicinities of our case studies. To the nine investment sites initially identified, we added a tenth case (Mamboleo Farms) during our field research in Tanzania because of its interesting business model. Table 1 shows these 10 investments, and Fig. 1 their geographical distribution – they are all found along the SAGCOT area, which was another precondition of the selection process, since the SAGCOT was assumed to be an important element of the external political and economic environment, which we wanted to keep as constant as possible for the case studies.

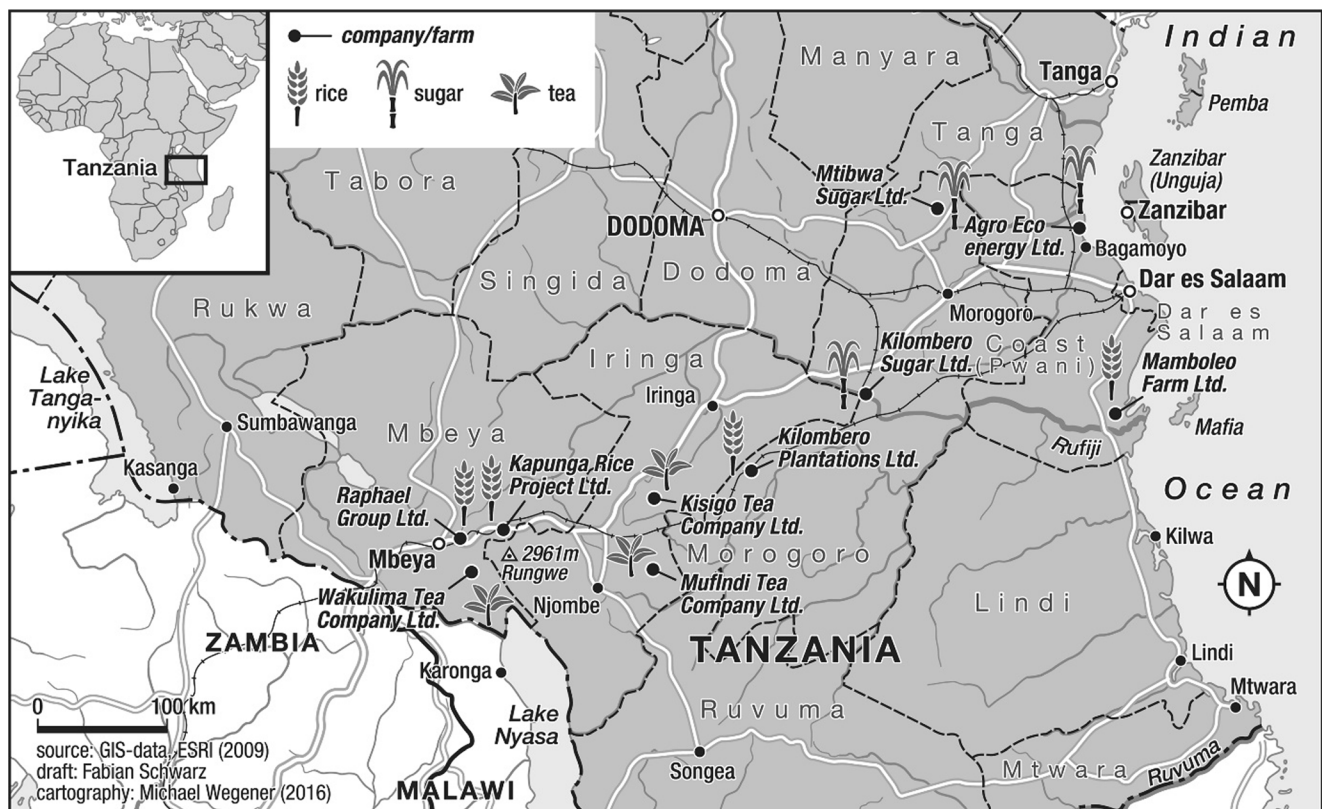
The investments analysed vary regarding the extent to which they include outgrower farmers. The two active investments in the sugar sector (Kilombero Sugar, Mtibwa) actively and largely work with outgrowers while EcoEnergy plans to do so. In the tea sector, Rift Valley Tea (Ikanga) and Wakulima rely strongly on outgrowers and only possess small own plantations, while Kisigo Tea also owns a large estate. In the rice sector, the picture is even more varied: Mamboleo Farms is not yet cooperating with outgrowers; up to now, it has relied exclusively on its own plantation, but plans exist to change that. Kilombero Plantations (KPL) works a lot with smallholder farmers (through the training programme for the System of Rice Intensification) but was not purchasing large amounts from them at the time of the survey. The Raphael Group, which only produces a little paddy and considers itself to be mainly a processor and purchaser, works closely with different smallholders. Kapunga has a very particular business model. On parts of their land, they propose creating a fully-fledged outgrower scheme, with irrigation and other inputs for farmers who deliver contractually agreed quantities of produce; other plots can be leased for fixed sums by farmers who operate independently but can, for example, rent machinery from the investor and also sell to the company on a non-contractual basis.

The field research was carried out between February and April 2015 in five regions (Iringa, Mbeya, Morogoro, Njombe, Pwani) of Tanzania, as well as in Dar es Salaam, by a team of six researchers from the German Development Institute (DIE). They were supported by a team from the University of Bayreuth, who collected data on the sugar sector, following the same methodology. Local cooperation partners were the Institute for Development Studies from the University of Dar es Salaam, and the Sokoine University of Agriculture. Preliminary results were presented at a workshop in Dar es Salaam at the end of April 2015, where numerous stakeholders provided feedback.

About 20 to 30 qualitative interviews and focus group discussions were conducted for each investment, along with about 30 interviews on policy issues with key informants at the national level – for a total of 282 interviews with more than 320 persons, 81 of them women. Interviews were conducted with all stakeholder groups potentially involved in investment processes:

**Table 1** Overview of Nucleus Outgrower Schemes analysed in Tanzania

	Rice	Sugar cane	Tea
New/emerging (Planning and Investment stages)	Mamboleo Farms and Raphael Group	EcoEnergy	Rift Valley Tea (Ikanga factory)
Operation stage	Kilombero Plantations Ltd. (KPL)	Kilombero Sugar	Wakulima Tea Company (WTC)
Crisis/failure	Kapunga Rice Project	Mtibwa Sugar	Kisigo Tea



**Fig. 1** Map of Tanzania, including all case studies in the rice, sugar cane and tea sectors. Source: The authors, based on 2009 GIS data from the Environmental Systems Research Institute (ESRI 2018)

- Investors and private sector representatives: 27 interviews.
- Local communities and employees: 174 interviews.
- State authorities: 45 interviews.
- Civil society and non-governmental organisations: 26 interviews.
- Development partners: 5 interviews.
- Experts and informed observers: 5 interviews.

Interviewee selection was partly systematic and partly random. We systematically interviewed the investor or management, and lead technical staff. In every case, we also interviewed a partially random selection of on-site workers, neighbouring farmers, representatives of the local and regional administrations, and key local informants. In addition, we specially searched for vulnerable and negatively impacted people who were particularly affected by losing land or access to land. Most farmers interviewed were selected based on recommendation by authorities or farmers' associations; some were selected randomly in order to avoid bias of recommendation.

For each group of stakeholders, a specific interview guideline was generated. During the course of the survey, questions that remained unanswered in previous interviews, as well as new questions, or such questions for

which particular triangulation was deemed necessary or helpful, were collected and specifically added to the interview guidelines of people deemed knowledgeable about them.

Some interviews were transcribed, and for all interviews summary protocols were established and analysed using a qualitative text analysis programme (Atlas.ti). A list of about 140 codes was established, distinguishing major topics tackled in the interview and some analytical trends of the assessments of the interviewees – e.g. “policy environment, regulation“, “land“, “problematic” and “non-problematic” or “impact“, “loss of land“, “cultivation” and “home”. All interviews were then coded by the team of DIE, one researcher per interview. For the analysis, for which topics were distributed among researchers, for any coded topic the quotes could be easily and rapidly assembled and, thus, clusters of issues and even assessment trends could be detected. We could even count quotations on certain topics and assessments, but we did not exploit this route since this would overstretch the accuracy and rigour of the interviews which, for reasons of time or patience and knowledge of the interviewees about the subject, were not as systematic as a questionnaire.



## 4 The main results

### 4.1 The planning stage

During the planning stage, many issues play a role in the decision making process which leads an investor to finally conclude formal arrangements with central government, communities and financial partners, and start investment, or to stop and cut their losses early on. Many institutions decisive for later stages are regarded here too, since they determine the future expectations of costs, benefits and risks. These considerations are made by the investor as well as by the other stakeholders, in particular communities and affected farmers.

#### 4.1.1 The institutional framework

Many policies and initiatives in the agricultural sector influence the present-day planning of new NOS investments, including trade and investment policies, and general agricultural and special subsector policies and regulations – as well as infrastructure for production, transport and import/export. The overall evaluation of framework conditions in Tanzania by interviewees, particularly by investors, revealed many criticisms. Many emphasised that the policies are not bad: the real problem is their implementation, enforcement and coordination. Insufficient government resources were repeatedly named as a major problem: the many different initiatives lacked the funding needed to be successful. As a consequence, promises made at the national level often cannot be fulfilled at the local level. For instance, the regulations for land planning, water resources management, supporting local infrastructure, tax alleviation and refunding schemes, and extension services all lack serious implementation. Several investors perceived the policies as unstable, confusing and inconsistent, and said that it was difficult to operate in such a policy environment. Another common criticism was that policies are made in top-down processes that lead to a lack of local ownership, knowledge and competencies.

As mentioned above, several policy initiatives such as SAGCOT and BRN focus on stimulating agricultural growth by attracting NOSs. Some interviewees, particularly from the NGO community, criticised this focus in general and claimed that the current policies are not, or not necessarily, benefiting smallholder farmers, who should be the focus of ongoing agricultural reforms. Critics also claimed that attracting foreign investors and introducing mechanised agriculture would harm local farmers. Several NGOs raised accusations of ‘land-grabbing’. On the other hand, some interviewees claimed that these initiatives, as was the case with most others, saw no follow-up and implementation on the ground.

Tanzania’s overall business environment remains challenging for investors. Bureaucratic processes are

described as inefficient, lengthy and sometimes costly, and promises are viewed as unreliable. The idea of setting up the TIC as a one-stop shop for investors was seen as positive. But the TIC cannot change the rules, so there is mixed appreciation of its mandate and ability to improve the overall business climate. A deficient transport infrastructure and unreliable or complete lack of electricity in rural areas further hinder both investors and smallholder farmers. Notwithstanding this situation, local and international respondents alike laud the political regime’s stability and the good security situation.

Two sets of institutions are particularly important for the planning of any NOSs, regardless of crop: land governance and environmental and social impact assessments (ESIAs). Land governance is regulated through a combination of modern, traditional and customary laws, which overlap and are inconsistent. Formally, only public and village land is distinguished, but in practice most land is “owned” (and is inherited, leased or sold) through customary rules by private persons. Large international investors have to go through TIC to obtain public land for leasing; village land has to be converted to public land before becoming accessible for investors. However, unclear, partly contradictory rules for formal and informal land and users, as well as human rights concerns, create uncertainty regarding access to land for investors. Government officials as well as investors recognise that land governance does not provide sufficient security for present land owners and users, as well as inhibiting (speedy) identification, negotiation and transfer of land to investors. Although there are laws, procedures and programmes to survey land and to provide land titles, we found few sites around the investigated NOSs where farmers possessed one. At the time of our investigation, the TIC land bank, which is supposed to offer available plots to potential investors, was barely functioning, and had registered and secured very few plots (mostly government estates) that could be leased to investors. Former attempts to establish a national land bank were qualified as naïve, ignoring the fact that visible non-cultivation of a piece of land or declaration of such status through local authorities were usually untenable – most land is informally owned and somehow used by somebody. As to ESIAs, the national legislation has become more comprehensive and rigorous. For all large-scale (and theoretically, also all medium-sized) investments an ESIA must be carried out, and if no assessments of a given production or processing site have ever been made, this must also study the history. Many social and environmental impacts can, in principle, be anticipated, mitigated, monitored and negotiated through ESIAs. However, interviewees stated that current assessments focus much more on environmental than on social implications, often lack expertise and are based on deficient information.

### 4.1.2 Activities

During the planning stage, the first activities with regard to future investments are to identify a site for production and processing, commissioning ESIA's and running information and consultation processes with local communities.

Although most communities and people generally welcome NOSs, land acquisition processes were found to be lengthy and cumbersome. This is true both for investment on public as well as for private land. The investments on public land in our sample (all sugar estates, KPL, Kapunga, Kisigo) were on old, often abandoned, government estates. The treatment of squatters who have regularly occupied these estates, often with acknowledgement of local authorities, has caused conflict, costs and very long delays. The other investments took place on village land. In cases where village land was promised by the central government to investors, acquiring the communities' consent proved to be lengthy and conflictual, burdened by local disputes about village boundaries, internal power struggles, expectations of large compensation packages and community benefits, and the engagement of external actors (usually when foreign investors are involved also foreign NGOs intervene). A striking example is EcoEnergy, which started negotiations in 2006 and had still not been given the land lease in 2016. It seems to be easier to negotiate directly with communities for smaller tracts (several hundreds of hectares) of village land than with central authorities for large tracts of public land. For foreign investors, however, the first option is legally not viable, but for local investors it is. Smaller tracts are more feasible for tea and rice than for sugar, with its larger minimum requirements for economic viability. Our investigations revealed that all investors had organised village meetings to present their plans at some point in the process, and that local authorities also seemed to play an important role in disseminating information. However, individuals who had not received this information were found at most investment sites. In some cases, households that were to be resettled had not been informed – a clear violation of their right to information. In cases where land was bought directly from community members, interviewed smallholder farmers and community representatives agreed that they had not only been informed but also that all title-deed holders had been consulted. Consultations, however, revealed a problem: although information was distributed easily enough, most interviewees said there were few real consultation processes.

### 4.1.3 Impacts

At the planning stage of the investment processes, impacts tend to be small at the local level. Nevertheless, insecurity can arise in the community as a result of inadequate information processes about how the investor's plans will affect daily life. Conflict can occur between investors and communities, as

well as individuals who were excluded during the planning and later stages. Again, EcoEnergy is a striking case in point. Several individuals have gone to court against the enterprise and/or against the government; within the government there is dispute about parts of the land (and its waters) which have been (correctly or not) assigned to the Saadani National Park; international NGOs are campaigning against the investment. The whole area is paralysed by these litigations. Also, Mamboleo farm, investing on private land, is threatened by disputes about land, with uncertainties about size and type of ownership of various tracts.

In general, though, local communities tend to have positive attitudes towards future investors and express high expectations of social and economic development. Many interviewees expected compensation for loss of land in the form of future employment, provision of social infrastructure (schools, hospitals, police, roads, electricity, water, etc.) or enhanced processing capacities. Such expectations can mainly be satisfied during the exploitation stage, when jobs are created and incomes generated – although even then not all will be satisfied. Exaggerated expectation creates the basis for later disappointment. Thus, managing expectations and promises on the one hand and fear and scepticism on the other during investment preparations represents a major challenge for all investors.

## 4.2 The investment stage

### 4.2.1 The institutional framework

At the investment stage, issues concerning the existing institutional framework are similar to those at the planning stage.

### 4.2.2 Activities

The activities at this stage are dominated by clearing, planting and building. In most cases, labour migration started during the investment stage, when investors stressed their need to fill mid- and high-level positions with more skilled and experienced staff than are found locally. Three issues were revealed to be particularly important for local impacts: resettlement activities, compensation and the setting up of dispute-resolution mechanisms.

We learned about official resettlement activities in only two of our case studies: KPL and EcoEnergy. Both were investments on formerly idle state land where, over time, families had informally settled and started to cultivate the land. Interestingly, possibly as a result of Tanzanians' experience with resettlement under Julius Nyerere's post-independence socialist regime, many interviewees did not claim to be emotionally attached to particular plots of land and did not reject resettlement *per se*. Instead, dissatisfaction with resettlement was related to inadequate compensation.

While few people were found who claimed to have been affected but not compensated, complaints were repeatedly made over the form and amount of compensation, as well as the negotiation process. Many interviewees complained about the lack of consultation regarding compensation and opaque compensation modalities. Typically, farmers had been compensated with one-off cash payments, but they often did not understand how the amounts had been calculated. In fact, it seems that the compensation rules for agricultural land are not clear. Where formal land assessments were made, sometimes high urban rates applied, sometimes a much more modest valuation of present crops and trees was made. In EcoEnergy, speculation with compensation claims seems to play a role. In KPL, some people complained about cash compensation which was levelled and did not suffice to buy enough land of good quality, or had to confess that they did not use the compensation money for its intended purpose.

Conflicts around many issues (see Impacts, below) require dispute mitigation and resolution mechanisms. However, both investors and locals often considered the practice of local political authorities serving as mediators to be inefficient, as they were accused of favouring one side or the other. Alternative mechanisms, however, were rarely set up; where it was the case, they were said to perform better than the formal ones (KPL).

#### 4.2.3 Impacts

The study confirmed that, at the investment stage, mostly impacts that were negative for the local population materialised, particularly those resulting from land redistribution and labour migration. These largely outweighed the positive impact of short-term employment during this stage.

Negative impacts particularly occurred where families affected by land redistribution were left with less fertile land or none at all. This was due to low compensation, lack of alternative fertile land elsewhere or the fact that the families did not purchase fertile land out of a decision they later regretted. In some cases, interviewees claimed that their food security had been negatively impacted. Other interviewees criticised their reduced access to social infrastructure, such as when schools had been destroyed and rebuilt at a distance.

There was a high likelihood of conflict beginning the moment the investment materialised, particularly with regard to resettlement and compensation procedures. This was the case, for example, with Mamboleo and Kapunga, where particularly heavy and violent conflicts were reported in newspapers and on television on several occasions. Communities often regarded labour migration sceptically: they complained of discrimination regarding particular regions (and ethnic groups) and favouritism, and sometimes also blamed labour migrants for a higher incidence of diseases such as HIV/AIDS. Another detrimental effect related to their uncertainty about the future,

specifically the fear that more land might be taken. This fear was found where the investor did not provide clear information and thus inspired little trust. Also, (perceived) breaches of promise over collective compensation and early Corporate Social Responsibility (CSR) activities, such as construction of schools, police stations, health centres or roads, disappointed expectations (see above) and gave rise to conflict. Some interviewees asserted that in some cases proposed NOSs were used to fuel other conflicts (Ikanga, Wakulima), or that NOSs revealed silent conflicts, such as disputed village boundaries (e.g. Kisigo, Kapunga). Theft by workers or villagers was explicitly reported as a problem in three NOSs. Also, delayed payment of wages, working conditions and lack of information from the investor caused conflicts. A lack of functioning dispute mitigation and resolution mechanisms (see above) exacerbated these conflicts.

### 4.3 The operational stage

At this point in the project cycle, the medium- and long-term effects of NOSs unfold from production and value chain activities.

#### 4.3.1 The institutional framework

At the operational stage, new issues usually become relevant at the national level, which were unforeseen at the time of planning: changes in trade policies, prices, taxes and fees. Interviewees in all subsectors complained about the instability and levying of import and export tariffs, as well as arbitrary trade and commercial restrictions, such as export bans or regulations on transport and export. For instance, in 2016 illegal rice imports via Zanzibar flooded the Tanzanian market and depressed rice prices and export opportunities to neighbouring countries, which imposed import tariffs as a reaction. Similarly, repeatedly high volumes of licensed sugar imports for the beverage industry dampened sugar prices and sales options and challenged the business models of sugar estates. On the other hand, heavy regulations in the tea sector, which, for instance, stipulate outgrower contracts and the way that extension is provided, were seen as bureaucratic, sometimes as lengthy, but also as creating a level playing field for stakeholders. Furthermore, investors described the Tanzanian taxation system as highly complex, opaque and corrupt, with many different taxes, levies and fees that have to be paid to different entities. Nevertheless, there was consensus that several agricultural subsectors in Tanzania still need to be protected because local producers cannot compete with low prices on the international market.

### 4.3.2 Activities

The main activities at this stage are related to the production, processing and marketing of produce, as well as the investor's CSR initiatives. In the tea and sugar subsectors, where production and processing are technically and financially challenging, large-scale investors often provided valuable or unique processing and marketing opportunities for smallholder farmers. Also, in isolated sites, investments created smallholders' access to markets. Investor support also addressed the major challenges of inadequate financial services, inputs, technology, and training and education. In-kind loans such as inputs, equipment or seedlings are most commonly provided, sometimes coupled with training activities. These loans must be repaid – either with produce or deductions from payments for their raw material deliveries. Investors also bridge gaps in transaction costs between smallholders and financial institutions by providing cash loans themselves or through their own financial organisations, or by serving as farmers' guarantors for third-party financial institutions. Technology is also transferred by renting/providing large machinery, in particular for soil preparation and harvesting, and providing small technological innovations through loans or grants. Nevertheless, many farmers stressed that processing their crops themselves would often be more profitable than selling them. While farmers sometimes criticise the modalities of support, investor support does fill a crucial gap that state authorities have failed to deliver – either wilfully or because they lack capacity.

It is important to note the diversity of functional support services found. The actual amount of support or collaboration depended partly on how it would help the investor to capture the smallholder production – whether assistance would create vertical integration, proximity and trust, or competition from other buyers. This depends *inter alia* on the crop, the transaction costs and market situation. For sugar, where the local factory is a *de facto* monopoly because of the high transport costs of bulky and perishable sugar cane, smallholder-investor ties are particularly close, and the government hardly intervenes in services such as research, extension, input supply or credit. In tea, where local factories almost, but not absolutely, constitute a monopoly, since tea needs to be transported within a few hours of harvesting, close ties and contracts exist. Technical advice is provided by specialised government agencies that were financially or technically supported by investors. In some instances, technical support was provided directly by investors in addition. In some rice production cases, investors did not follow the nucleus-outgrower model to the letter (pledging to buy the produce) but instead provided training, technical services and/or financial linkages (only). The background to this is that rice is not perishable and buyer competition exists, side-selling is therefore easy and contracts difficult to enforce.

CSR initiatives and publicly used infrastructure construction are other investor activities that occur during this stage. Almost all investors contributed to building or maintaining social and often also physical infrastructure to benefit the local population, such as by building schools, dispensaries and hospitals, which sometimes were part of compensation schemes. Most investors became active in constructing and maintaining roads; a few also became involved in producing electricity and feeding it into local grids. In areas of tea cultivation, investors paid the district a road maintenance levy.

### 4.3.3 Impacts

Employment creation and benefits from services for smallholders or infrastructure provided by the investor have the most substantial and positive impacts of NOSs on local communities. In almost all cases, investor activities were closely related to improving job opportunities and increasing income for at least some of the people. An investor's presence and diverse activities usually led to considerable increases in productivity and yields that raise the income of outgrowers. Higher incomes and productivity lead to higher food security for these groups. It also made it easier for people to save more – and also spend more on basics such as education and health care.

For these impacts to emerge, investment design is very critical: technologies on the nucleus farm that save a lot of labour in production and processing also wipe out lots of positive income effects for workers. Where investments create a high demand for labour, there is clear in-migration, triggering the mentioned conflicts with local populations. Some investors foresee a scarcity of rural labour and choose to gradually introduce labour-saving technologies, such as simple hand tools for tea harvesting. The share of products procured from outgrowers determine the size of this impact channel. The level of income increase is hard to determine through qualitative interviews, and obviously varies over time. Many tea outgrowers complained about low remuneration, and some even complained that estate workers earn more than they did. However, the interviews took place during a period of depressed world market prices, and investor margins were being squeezed while worker salaries were not being reduced. Similarly, rice and sugar cane growers, and also investors, were suffering from low national prices due to unsupportive trade policies.

With regard to local food security other than for directly profiting workers and outgrowers, our findings suggest that investments do not necessarily impact negatively; on the contrary, they are often beneficial. This seems to be due to the fact that most farmers continued to practise food production for subsistence and for local markets as they began to cultivate cash crops. Sometimes spillovers from the cash crop (capital, technology and entrepreneurial spirit), or from increased

purchasing power in the region have encouraged and helped them to foster food production. The tea areas, for instance, though very remote from most national markets, thrive economically. Local food price increases have been reported – more because of increased demand than reductions in local food production. Observations from the rice and tea subsectors indicate that the direct competition of several investors positively affects income. Local business activity, money circulation, trade and the availability of new products increased around the NOSs, creating secondary employment opportunities and overall positive economic effects.

Despite these positive impacts, however, some farmers and employees voiced criticism about problematic contract conditions and negotiations, particularly opaque and late payment of salaries and the fact that few permanent jobs were created. The investment's overall benefits were often perceived as insufficient, and inputs provided by the investor as in-kind loans, too expensive. As for business models, many investors tend to prefer their own production instead of having to depend on outgrowers, particularly where the product properties (tea, sugar) or the size of the investment in fixed capital for processing (sugar, tea) claim stronger vertical integration of production and processing. Yet investors continue to work with smallholder farmers because they lack capital for a large plantation or because of local conditions such as the unavailability of land. A few exceptions, particularly in the rice sector and to a lesser extent in tea, indicate that when there is a sufficient supply of raw product for sale on free markets, processing enterprises are willing to rely more on smallholder producers but are less willing to support them. The very existence of these free markets is often a result of previous decades of plantation production, where technologies and knowledge have been developed which later trickle downwards to smallholders. Explicit government efforts to expand smallholder production, as happened in the tea sector, support this trickle down.

NOSs' environmental impacts during the exploitation stage, which particularly concern water (for irrigation), did not seem to strongly influence the population's overall perception of the investments. However, if, for example, small dams used for irrigation on tea plantations lead to restrictions on access to bodies of water on the plantations, they are criticised. In KPL, a conflict about drift of insecticide from aerial spraying was reported. The tea sector has a regulation that requires that wood be used from local (re)forestation projects, which reduces pressure on open forests, increases local biodiversity and probably stabilises water flows. Sometimes, investors provide environmental training, but for smallholders to be willing and able to sustainably implement the improved practices, they must receive premium prices for their products. There is a general lack of knowledge about the environmental effects of large agro-investments, and it is also often difficult to judge which counterfactual is applicable (smallholder

farming, forests and pastures) and the environmental status of various natural resources and environmental factors.

The results of this study suggest that different groups in the affected communities benefit very differently from fully operational investments. For example, while hard work on plantations such as harvesting sugar cane is largely reserved for younger men, women often have good or better access to some jobs, such as tea picking or processing. Using culturally framed gender-specific roles in agriculture, women interviewees cautioned that increased mechanisation around investments could increase men's dominance, and some reported sexual abuse by supervisors on the investment site. Assessments by farmers, stakeholders and experts were sometimes contradictory about how women's income affects family food security. Some of the smallest and poorest farmers were not eligible for training or other investor support programmes, and they were excluded through some rules improving supply chain management for the investor such as minimum delivery amounts. Small producers who receive no investor support have had to organise in groups to commercialise their tea and sometimes have had difficulties accessing producer organisations. Pastoralists, who are not represented by any interest groups, are usually not consulted during the planning stage of an investment. However, pastoralists were not affected everywhere – for example, by agro-ecological conditions in the tea sector, or by the local situation at some sugar and rice sites. The differentiation of impacts by subgroups generally also depends on the socio-economic environment, such as access to education and the existence of savings, alternative investments and income-generating options.

Conflicts that occur at this stage are often over distributional effects. In particular, they were often as a result of price changes, some of which were provoked by government activities or by its failure to intervene, such as by imposing trade restrictions or not being able to reduce harmful imports. Labour unions and outgrower organisations have helped to mediate some issue-specific conflicts (e.g. mutual mistrust regarding prices, measurements or quality). At the national level, institutions such as commodity boards can mitigate collective conflicts.

#### 4.4 The crisis/failure situation

None of the cases investigated in this study fulfilled all the criteria defined in our conceptual framework. Rumours abound regarding abandoned NOSs, but it is difficult to find knowledgeable informants and accurate information. However, analyses of the three struggling investments, interviews at the domestic policy level, as well as less systematically collected information about several failed investments, provided some valuable insights into the relevant institutional framework, activities and impacts. In

addition, EcoEnergy can be almost seen as a non-implemented failed investment.

#### 4.4.1 The institutional framework

There are either no, or poorly communicated, regulatory frameworks for failing or failed NOSs – especially regarding land redistribution and commitments made by previous investors. Even interviewees in top government positions could not provide detailed and consistent information about standard post-investment processes regarding land use and related contractual conditions.

Two regulations about land were repeatedly mentioned: (i) investors are allowed to resell their land to other investors who must assume the existing conditions and (ii) should an investor abandon a site, the land automatically reverts to government administration. Only under certain conditions, e.g. existence of land use plans, does it go back to the village. If the initial investor pulls out, a village thus risks losing all influence on any future use of that land: what was once theirs becomes government land that can only be redistributed to the village if the national government chooses to do so. It is the government or the TIC, which have legal rights to the land, and who will have to attract new investors.

#### 4.4.2 Activities

Activities during or after failure of an NOS are dependent on the context that was determined by earlier stages of the investment process as well as by local dynamics. They often resemble those of the planning stage, but the rights of the communities are much more restricted and burdened with problems of the past. In many cases, years of deteriorating business, unpaid labourers, outgrowers and business partners, mutual indebtedness and court hearings accompany a failing project. It is extremely difficult to disentangle such protracted cases and locate new investors. If a new investor assumes the existing contractual conditions, there may not be many significant changes compared to the old status quo. However, often factories and/or land lie idle for years, and a new investor will not take over without changing important conditions, some of which have presumably contributed to the failure. Records of old, failed government investments show that during such a process, estate land is often squatted.

#### 4.4.3 Impacts

When an investment project is temporarily halted for maintenance or because of disputes among stakeholders, it becomes clear that local communities depend on certain investments to generate income and facilitate market access. A project's pause is particularly troublesome if the products are difficult to trade and transport, and market access depends on local

processing, as in the tea and sugar cane subsectors. Competitors and the cultivation of alternative crops help to reduce the severity of the impacts, while shared infrastructure such as large-scale irrigation, which can only be handled by an investor (or maybe by a community structure which would have to be created), causes greater negative impacts. In at least one case, land redistribution and readjustment issues triggered long-lasting conflicts. In one case, even co-ownership structures with the farmers as shareholders, a recommendation that has been widely seconded including in Tanzania, did not protect against such risks. The demise of a large investment seems to cause the entire community to suffer, including many of the most disadvantaged people.

## 5 Discussion and conclusions

This study qualitatively investigated a sample of 10 NOSs in three subsectors and three stages of the project life cycle within the SAGCOT region to understand how such investments can be promoted and managed to have a positive impact on rural development in Tanzania. Compared to the about 30 large-scale land acquisition investments registered since 2008 in the Land Matrix (not all NOS type) (Integrated Regional Information Networks 2013), this is a significant number, though we are not aware of the total number of NOS (including older ones and those not registered in that database). We believe we have made one of the most comprehensive studies about the overarching question of how to deal with such NOSs in Tanzania, but are unable to make too many general conclusions as we lack information on important sectors and regions. The discussion follows the three research sub-questions.

We find that NOSs span a large variety of forms of combining large scale farming with processing and associating smallholder farmers into common schemes. The extent and the intensity of large-scale farming and of smallholder association seems to be the individual choice of each scheme to a certain degree, depending on the investor, the previous history of the site (land ownership and previous arrangements), but also pressure of national and local authorities. The preference for own production for the own processing factory decreases from sugar (perishable raw material with difficult logistics to organise raw material supply, large investment in fixed capital, difficult procurement from smallholders) over tea (perishable, but easier to organise logistics) to rice (easy to store and transport, relatively low investment in processing, smallholder production readily available though there are quality issues). In consequence, for relatively low volumes of sugar procurement from smallholders, considerable efforts are made by nucleus firms, while in rice these efforts can be relatively small yet allowing procurement of most of the rice from smallholders. Still, it is evident that even under the latter conditions

(of less intensive linkages between nucleus and outgrowers) the combination provides clear benefits for both.

Our first discussion cluster regards the first research question ( $R_{1a}$ ) as to the factors that influence the success and failure of NOSs from an investor's point of view. Our research confirms the serious problems Tanzania has in attracting and keeping new large-scale agro-investments, in particular through the recent BRN and SAGCOT initiatives. Our investigation revealed several major factors.

The lack of available land under the existing local realities and prevailing institutional procedures is the most important problem for establishing NOSs. First, the narrative of plenty of available land that many Tanzanian politicians and organisations promote abroad, supported by TIC's superficial land bank exercise and various reports, has certainly attracted many investors and triggered a first wave of investment intentions. But deeper investigation reveals an abundance of idle land to be a myth. Not only is village land almost never un-utilised, government-owned public land (abandoned state farms) is often used by local people and/or has historic claims (compare Mwami and Kamata 2011; Action Aid 2015; Greco 2016). Even so, 'underused' land is still widely available. Secondly, the unclear and conflicting national and local land regulations and institutions, and a high level of participatory power of communities, make it extremely difficult and lengthy to access land. According to the Village Land Act from 1999, local communities have a right to be informed and consulted about an investment and its potential impacts on their lives (Isaksson and Sigte 2010). But Vermeulen and Cotula (2010) find that "in Tanzania and Mozambique, which have arguably among the most progressive legislation in Africa regarding community consent to land transfer, relevant procedures are implemented partially rather than fully." Our findings confirm these statements. For domestic investors, direct access to village land informally or (semi-) formally "owned" by individuals and families may be a viable alternative to formal land acquisition via TIC, but then difficulties in the longer run are frequent. However, this is hardly an option for international investors.

One other major hindrance to NOSs from the investors' point of view is the difficult business environment in Tanzania, particularly in rural areas in all stages of the investment cycle: abusive bureaucracy, taxation, communication with central authorities, inconsistent and particularly weakly implemented sector policies and so forth. The TIC does not seem to be competent enough to perform as a one-stop shop that quickly concludes investment deals including large tracts of arable land. Our findings are supported in general by findings of the "Doing Business" report (World Bank 2015), which puts Tanzania's overall performance at 139 (out of 189), with even lower ranks for paying taxes (150) and cross-border trading (180) (compare Michael and Aikaeli 2015, and those of Li 2015 for agricultural investors in particular). Such negative

experiences are closely observed by other investors and tarnish Tanzania's reputation as a good place for large-scale land acquisition investments.

The willingness of authorities and the population as a whole are less of a handicap for NOS implementation. The central government has proven, with its TIC, SAGCOT and BRN initiatives, that they wish for more investors, particularly of the NOS type, even though Arora et al. (2013) claim that the government's view of land acquisitions has become more negative. Many of our interviewees revealed that local authorities and communities also have generally positive attitudes towards NOSs and are willing to provide land. The literature confirms this (e.g. Sulle and Nelson 2013; Sunderlin et al. 2014; Locher and Müller-Böker 2014), and qualitative and quantitative research shows that many Tanzanian communities are able to, and actually do, accept desired – and reject unwanted – investors (Sunderlin et al. 2014; Pedersen 2016). Also, the ESAs do not seem to pose a major hindrance for NOS investments.

The support of local communities and individuals for NOSs in their vicinity leads us to the second research sub-question – that of their impacts ( $R_{1b}$ ). Although there were clear differences as to the degree of inclusion of the villagers, most interviewees seemed to have generally positive impressions of the impacts. In general, incomes of workers and outgrowers seem to be favourable compared to other options. The few quantitative, empirical socio-economic impact assessments support our findings that NOSs can have positive impacts for the average household during the investment and operational stages (Van Eijck et al. 2014; Herrmann 2017 for Tanzania; compare Robertson and Pinstrup-Andersen 2010; Tyler and Dixie 2011; Cotula et al. 2011 or Thornhill et al. 2016 for international evidence that large scale investments can indeed be designed so as to create positive impacts for local rural development).

A difficult issue to assess and judge is the NOSs' risk of creating greater socio-economic inequality between those in a rural community who are able to benefit from the new investments, children's education, etc., and those who cannot. This is not necessarily an argument against NOSs, since secondary effects also create opportunities for indirect beneficiaries, and mature, labour-intensive NOSs increase general welfare. However, inequality creates risks of social discontent and unrest and must be taken seriously. But which level of inequality versus general growth is acceptable is finally a matter of personal and social preferences that cannot be appreciated scientifically.

Specific CSR initiatives for the whole community (water services, schools and health centres) are highly appreciated in light of the government's incapacity to provide quality infrastructure and public services. The role of these community services and investments is rarely systematically analysed in the literature, which concentrates on the early stages of NOSs, particularly on the land acquisition, when few CSR projects have been implemented. CSR initiatives should be viewed as part of the land deal, not as an

investor's voluntary decision (Makwarimba and Ngowi 2012).

However, some groups are particularly vulnerable to negative impacts, such as women, pastoralists (who are not found everywhere, though), socially weak members of the communities and individuals who are not sufficiently compensated for lost land or other livelihood components, or who do not wisely use their compensations. Quantitative research partially supports this (Osabuohien et al. 2015a, b). The negative impacts on particular groups of rural people is particularly highlighted by NGO-commissioned studies, such as Tandon (2010), Land Rights Research and Resources Institute (2010), Benjaminsen and Bryceson (2012), Oakland Institute (2012), Action Aid (2015), Twomey et al. (2015) and Oakland Institute et al. (2015). The human rights approach highlights individual negative cases, particularly those affecting the weakest parts of the communities. However, the obvious disregard of positive impacts and the lack of rigorous sampling procedures makes it difficult to compare these results with ours, and we think we present the more complete picture.

Environmental issues were rarely indicated to be serious problems, but we have to recall that knowledge of the interviewees on these issues may have been low, that there are few data available, and that it was not our emphasis in this study. However, water could become a problem in the longer run, if not for individual NOSs then for aggregated water extraction along rivers, particularly if compounded by water use for energy, livestock and wildlife.

Particularly critical situations for individual groups and entire communities regarding a NOS that are rarely addressed in the literature are failure and abandonment. We think that these should be taken more strongly into consideration when discussing NOSs. Van Eijck et al. (2014) are among the few authors who acknowledge this problem. Several studies mention the loss of incomes and jobs mainly due to the failure of biofuel (*Jatropha*) investments (e.g. Romijn and Caniels 2011; Habib-Mintz 2010; Sulle and Nelson 2013). These studies were conducted during the investment stage, and thus do not even reflect the impacts of the failure of fully operational investments. Even when the project fails in an early stage of the investment, the damage can include the definitive loss of land (according to Tanzanian property law) and the extent of the collective damage in case of failure is likely to be larger the longer the NOS is in shaping a rural area. How CSR projects and other obligations of the investor of an original land lease are to be transferred to a new investor has not yet been sufficiently and clearly regulated.

We conclude that NOSs can, in principle, combine economic success for the investor and positive outcomes for rural development. The cases we investigated – which had widely varying degrees of economic success and contributions to development – may be exceptions: there may be

more NOSs that do not return these outcomes. It is more likely, however, that large agro-investments only survive in the long run *because* they exhibit this successful combination, while other investments have been abandoned and can no longer be studied because they created no benefits for the investor or for the communities and could not withstand the resulting social resistance and lack of support over time (compare Hall et al. 2015). This is because the local population's support for the NOSs does seem to positively depend on the inclusiveness of the investment in all stages – from effective consultation to benefit-sharing, and because no investment can be successfully implemented without local community support. This statement was confirmed by all the investors and many other stakeholders. Since NOSs are very long term and need continuous adjustments and reconfigurations, that support is needed not only during planning and investment stages but also during the operational stage. Lack of support from the local population also creates conflicts with the investor that can disturb implementation or influence the national and international discourse surrounding the investment, causing financial backers to withdraw. These general statements should not overlook that various stakeholder groups benefit or suffer differently from NOSs. Among the particularly vulnerable groups are pastoralists, women and ethnic minorities – although there may be other criteria for differentiation, which may also change over the NOS's life cycle. Weaker groups and individuals may not be able to make their concerns heard. Strengthening their voices can affect overall community consent and support. A few more systematic, long-term studies confirm that in the long run, the advantages of large-scale agriculture may outweigh their drawbacks (Tyler and Dixie 2011; Dixie 2014).

However, success of NOSs is certainly not automatic, and it cannot be expected that every investor voluntarily strives for a good outcome, not only for itself, but for the communities it is operating in and for vulnerable individuals. Policies and institutions go a long way to shape the NOSs in a developmental-friendly way. In addition, more can and should be done to attract more development-friendly NOSs ( $R_{fc}$ ). Incoherent policies and a lack of implementation of good policies definitely hinder the promotion and management of development-friendly NOSs. The array of relevant policies includes land policies, a large number of policies and regulations regarding the general business environment, and other policies on agriculture and the specific subsector. The relevant policies may be obvious in the planning stage, but their importance can change over the investment's life cycle. There are inherent conflicts between some policies and regulations that seek to improve developmental outcomes and facilitate investment: these conflicts cannot be totally resolved, they need to be carefully addressed. Many of the negative impacts and



conflict potential mentioned here are not inevitable and could be mitigated.

In summary, NOSs, with all their risks, can offer great opportunities for rural development, at least under certain conditions. They would be appropriate for certain value chains, in particular those that require or favour a larger investor to establish large-scale production and, in particular, processing facilities in circumstances where pure large-scale land acquisition investments are infeasible or unwanted. An individual investor can successfully design such a NOS; however, government regulation and its implementation has to ensure that any investment at least avoids the worst impacts (human rights infringements), keeps negative impacts as small as possible, and clarifies the rules. Additional assistance should be provided to communities and the local population to negotiate favourable outcomes.

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### Compliance with ethical standards

**Conflicts of interest** The authors declare that they have no conflicts of interest.

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### References

- Action Aid. (2015). *Take Action: Stop EcoEnergy's land grab in Bagamoyo, Tanzania*. <http://www.actionaid.org/sites/files/actionaid/stopecoenergy.pdf>. Accessed 12 Jan 2016.
- African Union. (2014). *Malabo declaration*. [https://au.int/sites/default/files/documents/31006-doc-malabo\\_declaration\\_2014\\_11\\_26-.pdf](https://au.int/sites/default/files/documents/31006-doc-malabo_declaration_2014_11_26-.pdf). Accessed 17 Sept 2017.
- Allen, T., Keulertz, M., Sojamo, S., & Warner, J. (Eds.). (2012). *Handbook of Land and Water Grabs in Africa*, Routledge International Handbooks (pp. 104–119). Milton Park: Routledge.
- Alliance for a Green Revolution in Africa. (2017). *Africa agriculture status report: the business of smallholder agriculture in Sub-Saharan Africa*. Nairobi. <https://www.agra.org/wp-content/uploads/2017/09/Final-AASR-2017-Aug-28.pdf>. Accessed 21 June 2018.
- Anseeuw, W., Boche, M., Breu, T., Giger, M., Lay, J., Messerli, P., & Nolte, K. (2012). *Transnational land deals for agriculture in the global South*. Analytical report based on the Land Matrix database, CDE/CIRAD/GIGA, Bern/Montpellier/Hamburg, Number 1, April.
- Arora, S., Romijn, H. A., & Caniels, M.C. (2013). *Governed by history: institutional analysis of a contested biofuel innovation system in Tanzania. Industrial and corporate change*. <http://icc.oxfordjournals.org/content/early/2013/06/14/icc.dtt017.short>. Accessed 12 Jan 2016.
- Benjaminsen, T. A., & Bryceson, I. (2012). Conservation, green/blue grabbing and accumulation by dispossession in Tanzania. *Journal of Peasant Studies*, 39(2), 335–355.
- Borras Jr., S. M., Hall, R., Scoones, I., White, B., & Wolford, W. (2011). Towards a better understanding of global land grabbing: an editorial introduction. *The Journal of Peasant Studies*, 38(2), 209–216.
- BRN. (n.d.). [http://www.tzdp.org.tz/fileadmin/documents/dpg\\_internal/dpg\\_working\\_groups\\_clusters/cluster\\_1/agriculture/3\\_Ag\\_BRN/Annual\\_report\\_release\\_-\\_docs/2\\_BRN\\_brochure.pdf](http://www.tzdp.org.tz/fileadmin/documents/dpg_internal/dpg_working_groups_clusters/cluster_1/agriculture/3_Ag_BRN/Annual_report_release_-_docs/2_BRN_brochure.pdf). Accessed 16 Sept 2017.
- Brüntrup, M. (2012). Detrimental land grabbing or growth poles? Determinants and potential development effects of foreign direct land investments. *Technikfolgenabschätzung-Theorie und Praxis*, 20(1), 3–12.
- Brüntrup, M. (2014). Large-scale land acquisitions: challenges, conflicts and partial solutions in a project lifecycle perspective. In I. Christopolos & A. Pain (Eds.), *New challenges to food security: from climate change to fragile states* (pp. 85–108). London: Routledge.
- Brüntrup, M., & Herrmann, R. (2010). New paths for biofuels in Africa. *Rural 21*, 44(6), 17–20. [https://www.rural21.com/fileadmin/migrated/content\\_uploads/rural\\_2010\\_6\\_25-28\\_01.pdf](https://www.rural21.com/fileadmin/migrated/content_uploads/rural_2010_6_25-28_01.pdf). Accessed 21 June 2018.
- Brüntrup, M., & Peltzer, R. (2006). *Outgrowers—a key to the development of rural areas in sub-Saharan Africa and to poverty reduction*. Deutsches Institut für Entwicklungspolitik (DIE), Bonn. [https://www.die-gdi.de/uploads/media/Outgrowers\\_sub-saharan-african\\_rural\\_areas.pdf](https://www.die-gdi.de/uploads/media/Outgrowers_sub-saharan-african_rural_areas.pdf). Accessed 17 Sept 2017.
- Brüntrup, M., Scheumann, W., Berger, A., Christmann, L., & Brandi, C. (2014). What can be expected from international frameworks to regulate large-scale land and water acquisitions in Sub-Saharan Africa? *Law and Development Review*, 7(2), 433–471.
- CFS. (2014). Principles for responsible investment in agriculture and food systems; CFS 2014/41/4; Rome. <http://www.fao.org/3/a/ml291e.pdf>. Accessed 17 Sept 2017.
- CFS (UN Committee on World Food Security). (2012). *UN voluntary guidelines on the responsible governance of tenure of land, fisheries and forests in the context of national food security (2012)*. Rome: CFS.
- Chiesura, A., & De Groot, R. (2003). Critical natural capital: a socio-cultural perspective. *Ecological Economics*, 44(2–3), 219–231.
- Collier, P., & Dercon, S. (2014). African agriculture in 50 years: smallholders in a rapidly changing world? *World Development*, 63, 92–101.
- Cotula, L., Vermeulen, S., Mathieu, P., & Toumlin, C. (2011). Agricultural investment and international land deals: evidence from a multi-country study in Africa. *Food Security*, 3(Suppl 1), 99–113.
- Cotula, L., Oya, C., Codjoe, E. A., Eid, A., Kakraba-Ampeh, M., Keeley, J., Lokaley Kidewa, A., Makwarimba, M., Michago Seide, W., Ole Nasha, W., Owusu Asare, R., & Rizzo, M. (2014). Testing claims about large land deals in Africa: Findings from a multi-country study. *The Journal of Development Studies*, 50(7), 903–925.
- De Schutter, O. (2009). *Large-scale land acquisitions and leases: a set of core principles and measures to address the human rights challenge*. Briefing note. Geneva: UN Office of the High Commissioner for Human Rights.
- Deininger, K. W., & Byerlee, D. (2011). *Rising global interest in farmland: can it yield sustainable and equitable benefits?* World Bank Publications, World Bank: Washington DC. <https://elibrary.worldbank.org/doi/abs/10.1596/978-0-8213-8591-3>. Accessed 21 June 2018.
- Deininger, K. W., & Byerlee, D. (2012). The rise of large farms in land abundant countries: Do they have a future? *World Development*, 40(4), 701–714.
- Dixie, G. (2014). *The practice of responsible investment principles in larger scale agricultural investments Implications for Corporate*

- Performance and Impact on Local Communities*. Washington, DC: World Bank.
- Eaton, C., & Shepherd, A. W. (2001). *Contract farming, Partnerships for growth (No. 145)*. Food & Agriculture Org. Rome: FAO.
- ESRI. (2018). <https://www.esri.com/de-de/home>. Accessed 24 Jan 2018.
- Exner, A., Bartels, L. E., Windhaber, M., Fritz, S., See, L., Politti, E., & Hochleithner, S. (2015). Constructing landscapes of value: capitalist investment for the acquisition of marginal or unused land—the case of Tanzania. *Land Use Policy*, 42, 652–663.
- FAO (Food and Agriculture Organisation). (2009). *From land grab to win-win. Seizing the opportunities of international investments in agriculture*. Rome: FAO.
- German, L., Schoneveld, G., & Mwangi, E. (2013). Contemporary processes of large-scale land acquisition in Sub-Saharan Africa: legal deficiency or elite capture of the rule of law? *World Development*, 48, 1–18.
- Gibbon, P. (2011). Experiences of plantation and large-scale farming in 20th century Africa (No. 2011: 20). DIIS Working Paper, Copenhagen, Denmark.
- Glover, D. J. (1984). Contract farming and smallholder outgrower schemes in less-developed countries. *World Development*, 12(11–12), 1143–1157.
- Greco, E. (2016). Farmers or squatters? Collective land claims on sisal estates, Tanzania (1980s–2000s). *Journal of Agrarian Change*, 17(1), 166–187.
- Habib-Mintz, N. (2010). Biofuel investment in Tanzania: Omissions in implementation. *Energy Policy*, 38(8), 3985–3997.
- Hall, R. (2011). Land grabbing in Southern Africa: the many faces of the investor rush. *Review of African Political Economy*, 38(128), 193–214.
- Hall, R., Edelman, M., Borrás Jr., S. M., Scoones, I., White, B., & Wolford, W. (2015). Resistance, acquiescence or incorporation? An introduction to land grabbing and political reactions ‘from below’. *The Journal of Peasant Studies*, 42(3–4), 467–488.
- Hazell, P. B., Poulton, C., Wiggins, S., & Dorward, A. (Eds.). (2007). *The future of small farms for poverty reduction and growth (Vol. 42)*. Washington D.C.: International Food Policy Research Institute.
- Herrmann, R. (2017). Large-scale agricultural investments and smallholder welfare: A comparison of wage labor and outgrower channels in Tanzania. *World Development*, 90, 294–310.
- Humado, K. (2013). *Outgrower nucleus schemes key to agric productivity increase*. <https://www.ghanabusinessnews.com/2013/05/29/outgrower-nucleus-schemes-key-to-agric-productivity-increase-humado/>. Accessed 16 March 2018.
- Integrated Regional Information Networks. (2013). *Analysis: the poisoned chalice of Tanzania's land deals*. <http://reliefweb.int/report/united-republic-tanzania/analysis-poisoned-chalice-tanzania%E2%80%99s-land-deals>. Accessed 17 Dec 2015.
- Isaksson, R., & Sigte, I. (2010). *Allocation of Tanzanian village land to foreign investors: conformity to Tanzania's constitution and the African charter on human and peoples' rights*. Umeå: Umeå University. [http://www.jus.umu.se/digitalAssets/52/52924\\_ida-sigte-rebecka-isaksson-hit09.pdf](http://www.jus.umu.se/digitalAssets/52/52924_ida-sigte-rebecka-isaksson-hit09.pdf). Accessed 12 Jan 2016.
- Jayne, T. S., Chamberlin, J., & Headey, D. D. (2014). Land pressures, the evolution of farming systems, and development strategies in Africa: A synthesis. *Food Policy*, 48, 1–17.
- Kennedy, E., Bouis, H., & Von Braun, J. (1992). Health and nutrition effects of cash crop production in developing countries: a comparative analysis. *Social Science & Medicine*, 35(5), 689–697.
- Kissoly, L., Faße, A., & Grote, U. (2017). The integration of smallholders in agricultural value chain activities and food security: evidence from rural Tanzania. *Food Security*, 9(6), 1219–1235.
- Land Matrix. (2017). <http://www.landmatrix.org/en/about/>. Accessed 17 Sept 2017.
- Land Rights Research and Resources Institute (2010). *Accumulation by land dispossession and labour devaluation in Tanzania: the case of biofuel and forestry investments in Kilwa and Kilolo*. [http://www.hakiardhi.org/index.php?option=com\\_docman&task=doc\\_download&gid=102&Itemid=80](http://www.hakiardhi.org/index.php?option=com_docman&task=doc_download&gid=102&Itemid=80). Accessed 12 Jan 2016.
- Li, T. M. (2015). Transnational farmland investment: A risky business. *Journal of Agrarian Change*, 15(4), 560–568.
- Locher, M., & Müller-Böker, U. (2014). “Investors are good, if they follow the rules”—power relations and local perceptions in the case of two European forestry companies in Tanzania. *Geographica Helvetica*, 69, 249–258.
- MAFAP (Monitoring African Food and Agricultural Policies) (2013). Review of food and agricultural policies in the United Republic of Tanzania. MAFAP Country Report Series, FAO: Rome. [http://www.fao.org/fileadmin/templates/mafap/documents/Tanzania/URT\\_Country\\_Report\\_Jul2013.pdf](http://www.fao.org/fileadmin/templates/mafap/documents/Tanzania/URT_Country_Report_Jul2013.pdf). Accessed 17 Dec 2015.
- Maghimbi, S., Lokina, R. B., & Senga, M. A. (2011). *The agrarian question in Tanzania?: a state of the art paper*. Nordiska Afrikainstitutet: Uppsala.
- Makwarimba, M., & Ngowi, P. (2012). Making land investment work for Tanzania: Scoping assessment for multi-stakeholder dialogue initiative, final report. <http://www.tnrf.org/LBI-report.pdf>. Accessed 20 Dec 2016.
- Michael, I. M., & Aikaeli, J. (2015). Determinants of private investment in Tanzania. *African Journal of Economic Review*, 2(2), 39–52.
- Mwami, A., & Kamata, N. (2011). Land grabbing in a post investment period and popular reaction in the Rufiji River Basin1. A research report for HakiArdhi. [http://www.hakiardhi.org/index.php?option=com\\_docman&task=doc\\_download&gid=155&Itemid=80](http://www.hakiardhi.org/index.php?option=com_docman&task=doc_download&gid=155&Itemid=80). Accessed 18 Sept 2017.
- Mwansasu, S., & Westerberg, L. O. (2014). Biofuel potential and land availability: The case of Rufiji District, Tanzania. *Journal of Ecology and the Natural Environment*, 6(11), 389–397.
- Mwinuka, L., Mutabazi, K. D., Graef, F., Sieber, S., Makindara, J., Kimaro, A., & Uckert, G. (2017). Simulated willingness of farmers to adopt fertilizer micro-dosing and rainwater harvesting technologies in semi-arid and sub-humid farming systems in Tanzania. *Food Security*, 9(6), 1237–1253.
- Nolte, K., Chamberlain, W., & Giger, M. (2016). International land deals for agriculture. Fresh insights from the Land Matrix: Analytical Report II, Bern, Montpellier, Hamburg, Pretoria: Centre for Development and Environment, University of Bern; Centre de coopération internationale en recherche agronomique pour le développement; German Institute of Global and Area Studies; University of Pretoria, South Africa; Bern Open Publishing.
- Oakland Institute. (2012). *Land deal brief: Tanzanian villagers pay for sun biofuels investment disaster*. <http://www.oaklandinstitute.org/land-deal-brief-tanzanian-villagers-pay-sun-biofuels-investment-disaster>. Accessed 17 Dec 2015.
- Oakland Institute, Greenpeace Africa, & Global Justice Now (2015). *Irresponsible investment Agric's broken development model in Tanzania*. <http://passthrough.fw-notify.net/download/695512/>, [http://www.oaklandinstitute.org/sites/oaklandinstitute.org/files/OI\\_Report\\_Irresponsible\\_Investment.pdf](http://www.oaklandinstitute.org/sites/oaklandinstitute.org/files/OI_Report_Irresponsible_Investment.pdf). Accessed 21 Dec 2015.
- Oberlack, C., Tejada, L., Messerli, P., Rist, S., & Giger, M. (2016). Sustainable livelihoods in the global land rush? Archetypes of livelihood vulnerability and sustainability potentials. *Global Environmental Change*, 41, 153–171.
- OECD (Organisation for Economic Co-operation and Development), & FAO. (2016). *OECD-FAO Agricultural Outlook 2016–2025*. Paris: OECD Publishing.
- Okem A.E., Stanton A. (2016) Contextualising the Cooperative Movement in Africa. In: Okem A. (eds) *Theoretical and Empirical Studies on Cooperatives*. Springer Briefs in Geography. Cham: Springer. [https://doi.org/10.1007/978-3-319-34216-0\\_2](https://doi.org/10.1007/978-3-319-34216-0_2).
- Osabuohien, E., Herrmann, R., Efobi, U., & Gitau, C. (2015a). Female labour participation and large-scale land investments in Tanzania:

- macro-micro evidences, paper presented at The 10th Anniversary Conference of Poverty Reduction, Equity and Growth Network (PEGNet), 8th and 9th October 2015, Berlin, Germany.
- Osabuohien, E., Efobi, U., & Gitau, C. (2015b). Youth unemployment and large-scale land deals in Tanzania: Situating indigenous institutions and local, paper presented at the International Conference on Youth Unemployment in Africa, 26th to 27th February, Harare, Zimbabwe.
- Pedersen, R. H. (2016). Access to land reconsidered: The land grab, polycentric governance and Tanzania's new wave land reform. *Geoforum*, 72, 104–113.
- Peters, P. E. (2004). Inequality and social conflict over land in Africa. *Journal of Agrarian Change*, 4(3), 269–314.
- President's Delivery Bureau. (2016). *Agriculture NKRA overview*. <http://www.pdb.go.tz/?q=node/24>. Accessed 21 Dec 2015.
- Robertson, B., & Pinstrup-Andersen, P. (2010). Global land acquisition: neo-colonialism or development opportunity? *Food Security*, 2(3), 271–283.
- Romijn, H. A., & Caniels, M. C. J. (2011). The *Jatropha* biofuels sector in Tanzania 2005–2009: Evolution towards sustainability? *Research Policy*, 40(4), 618.
- SAGCOT. (2011). *Investment Blueprint. AgDevCo/Procurista*. Available at: <http://www.sagcot.com/>. Accessed 17 Sept 2017.
- Sartorius, K., & Kirsten, J. (2007). A framework to facilitate institutional arrangements for smallholder supply in developing countries: an agribusiness perspective. *Food Policy*, 32(5), 640–655.
- Schmitt, G. (1991). Plenary paper 2: Why is the agriculture of advanced western economies still organized by family farms? Will this continue to be so in the future?. *European Review of Agricultural Economics*, 18(3–4), 443–458.
- Schoneveld, G. C. (2014). The geographic and sectoral patterns of large-scale farmland investments in sub-Saharan Africa. *Food Policy*, 48, 34–50.
- Sieber, S., Graef, F., Amjath-Babu, T. S., Mutabazi, K. D., Tumbo, S. D., Faße, A., Paloma, S. G. Y., Rybak, C., Lana, M., Ndah, T. H., & Uckert, G. (2017). Introduction to a Special Issue: Regional Food and Nutritional Security in Tanzania—Methods, Tools and Applications. *Food Security*, 9(6), 1143–1145.
- Sulle, E., & Nelson, F. (2013). *Biofuels investment and community land tenure in Tanzania*. <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.641.2352&rep=rep1&type=pdf>. Accessed 12 Jan 2016.
- Sunderlin, W. D., Larson, A. M., Duchelle, A. E., Resosudarmo, I. A. P., Huynh, T. B., Awono, A., & Dokken, T. (2014). How are REDD+ proponents addressing tenure problems? Evidence from Brazil, Cameroon, Tanzania, Indonesia, and Vietnam. *World Development*, 55, 37–52.
- Tandon, N. (2019). *Land investments are wholesale sell-outs for women farmers*. <https://www.pambazuka.org/gender-minorities/land-investments-are-wholesale-sell-outs-women-farmers>. Accessed 21 June 2018.
- Thornhill, S., Vargyas, E., Fitzgerald, T., & Chisholm, N. (2016). Household food security and biofuel feedstock production in rural Mozambique and Tanzania. *Food Security*, 8(5), 953–971.
- Twomey, H., Schiavoni, C. M., & Mongula, B. (2015). *Impacts of large-scale agricultural investments on small-scale farmers in the Southern Highlands of Tanzania: A Right to Food Perspective*. <https://www.misereor.de/fileadmin/publikationen/study-a-right-to-food-perspective-2015.pdf>. Accessed 21 Dec 2015.
- Tyler, G., & Dixie, G. (2011). *Investments in agribusiness: a retrospective view of a development bank's investments in agribusiness in Africa and East Asia*. Washington, D.C.: World Bank.
- URT. (2009). *The Kilimo Kwanza Resolution*. Dar es Salaam.
- URT. (2013). *BIG RESULTS NOW! (BRN)*. Presentation to PER Annual Review Meeting, 4th October 2013, Power Point Presentation. Retrieved from [http://www.tzdpd.or.tz/fileadmin/documents/external/Aid\\_Effectiveness/PER\\_2012\\_-\\_2013/BRN\\_Overview\\_-\\_PER\\_Working\\_Group-4.pdf](http://www.tzdpd.or.tz/fileadmin/documents/external/Aid_Effectiveness/PER_2012_-_2013/BRN_Overview_-_PER_Working_Group-4.pdf). Accessed 21 Dec 2015.
- URT. (2015). *Agricultural sector development programme 2 (ASDP-2), transforming the agricultural sector; DRAFT 0*. Dar es Salaam.
- URT (United Republic of Tanzania). (2001). *Agricultural sector development strategy*. Dar es Salaam.
- van Eijck, J., Romijn, H., Smeets, E., Bailis, R., Rooijakkers, M., Hooijkaas, et al. (2014). Comparative analysis of key socio-economic and environmental impacts of smallholder and plantation based *Jatropha* biofuel production systems in Tanzania. *Biomass and Bioenergy*, 61, 25–45.
- Vermeulen, S., & Cotula, L. (2010). Over the heads of local people: consultation, consent, and recompense in large-scale land deals for biofuels projects in Africa. *The Journal of Peasant Studies*, 37(4), 899–916.
- World Bank. (2015). *Ease of doing business in Tanzania*. <http://www.doingbusiness.org/data/exploreeconomies/tanzania/>. Accessed 21 Dec 2015.



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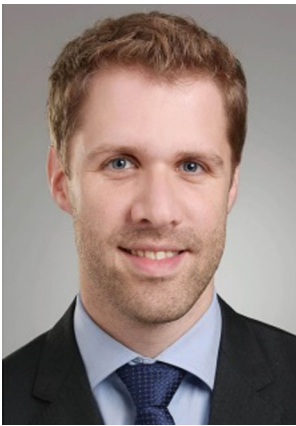


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