

How and why large-scale agricultural investments induce diverse trajectories of regional development in Kenya, Madagascar and Mozambique

Extended Summary

Markus Giger^{*+}, Christoph Oberlack^{1,2*}, Ward Anseeuw^{3,4}, Camilla Adelle^{3,5}, Magalie Bourblanc³, Perrine Burnod^{3,6}, Sandra Eckert¹, Eve Fouilleux^{3,7,8}, Sheryl L Hendriks⁹, Boniface Kiteme¹⁰, Sara Mercandalli³, Aurélien Reys³, Maya da Silva¹¹, Michael Van Der Laan¹¹, Julie G Zähringer¹, Peter Messerli^{1,2}

⁺ Presenting author

^{*} Corresponding authors: markus.giger@cde.unibe.ch, christoph.oberlack@cde.unibe.ch

- ¹ Centre for Development and Environment (CDE), University of Bern, Switzerland
- ² Institute of Geography, University of Bern, Switzerland
- ³ French Agricultural Research Centre for International Development (CIRAD), France
- ⁴ International Land Coalition (ILC), Rome, Italy
- ⁵ Centre for the Study of Governance Innovation, University of Pretoria, South Africa
- ⁶ Malagasy Land Observatory, Madagascar
- ⁷ UMR CEPEL (University of Montpellier), France
- ⁸ Centre National de la Recherche Scientifique (CNRS) Montpellier Cedex 5, France
- ⁹ Department of Agricultural Economics, Extension and Rural Development and the Institute for Food, Nutrition and Well-being, University of Pretoria, South Africa
- ¹⁰ Centre for Training and Integrated Research In ASAL Development (CETRAD), Nanyuki, Kenya
- ¹¹ Department of Plant and Soil Sciences, University of Pretoria, South Africa

Changes to the global agro-food-energy system (e.g. changing consumption patterns in the North, Europe's Climate and biofuel policies) over the past few years have led to a renewed interest in agriculture and a rush to acquire land (Cotula, 2012; Anseeuw et al, 2013). The impacts of this rush on sustainability are not always evident as its assessments focus on the short-term and generally remain at a case study level, without considering the broader agrarian and socio-economic transformations it entails (Borras et al. 2012).

If a consensus emerges regarding the necessity of additional investment into agriculture (FAO, 2010), it is less evident whether large-scale agricultural investments (LAI) are a vector for broader agrarian and socio-economic transformations in a sustainable manner (Borras et al. 2012, Deininger and Byerlee 2011; Collier and Dercon 2014). Despite a growing literature, most assessments of LAI impacts tend to remain local, in the form of specific case-studies, and are often short term without broader contextualization (Fairhead et al., 2012, White et al., 2012, Cotula 2014). Efforts to overcome these limitations through different types of meta-analysis have been undertaken (Oberlack et al., 2015, Schoneveld 2014, Schoneveld 2017, Dell'Angelo et al. (2017)). However, a more empirical

understanding of the diverse changes and impacts at various levels is necessary for reflecting on visions for the planetary land system.

Against this backdrop, this paper presents the results of a study aiming, on one hand, at assessing the changes and impacts of LAIs at various (individual, household, regional) levels within target regions, and on the other hand, at a nuanced account of how and why LAIs subsequently induce diverse regional development trajectories in these regions. We focus on LAIs in Kenya, Madagascar and Mozambique. Specifically, this study provides a cross-national comparative analysis of business models, land-use changes, governance dynamics of LAIs and their socio-economic, food security, and environmental impacts in Kenya, Madagascar and Mozambique. It brings together the individual results on these aspects, which were generated in the Afgroland project (www.afgroland.net). The following research question guides this analysis: What are recurrent patterns of socio-ecological impacts of LAIs in Kenya, Mozambique and Madagascar? What are the contextual and governance factors that determine these impacts on land-use, local livelihoods, food security, and the environment? And how and why do business models of LAIs conjointly with contextual and governance factors affect impacts of LAIs in target regions differently?

Methodologically, this study utilizes a set-theoretic methodology for a case-based comparative analysis. It responds to calls for the use of robust empirical methodologies to provide reliable evidence on the impacts of LAIs and to expand the use of comparative methods to attribute LAI impacts to causal factors. This method allows us to organize and analyse data collected in different work packages of the project, by researchers working in different disciplines and applying different specific research methodologies. This includes data collected in six study areas in the three countries by means of household surveys with more than 1500 households, more than 200 additional interviews on perceived impacts of LAIs, in-depth interviews with business managers, policymakers, households, development agencies, and NGOs; as well as remotely sensed data, and document analysis. Data analysis involved mixed qualitative and quantitative techniques.

A first set of tentative results shows that LAIs induce diverse regional development trajectories with distinct sustainability impacts. We find four distinct impact patterns: (1) Employment, no loss of smallholder land access, but high conflict incidence, (2) employment, no loss of smallholder land access, and low conflict incidence, (3) large employment effects but at costs of smallholder land access and environment, and (4) loss of land access and widespread hostility. Furthermore, we show how each impact pattern is driven by a particular configuration of factors related to land-use changes, business models, governance and social-ecological contexts.

Impact Pattern 1: “Moderate employment, no smallholder land access loss, and high conflict incidence”

Four cases are characterized by impact pattern 1. All four cases are in Kenya and are greenhouse horticulture farms with an operational size between 28-87 ha. Residents did not experience losses of land access (0% of households) by LAIs in these cases. Nonetheless, conflict incidence is fairly large, as on average 54% household report conflict incidence. These may be related to frequent incidences of perceived air pollution (between 40 and 70% of households affected), reported chemical exposure (35% of households affected in one LAI case) and water pollution (25% of households affected in one LAI case). Similarly, water consumption, energy consumption, pesticide use, eutrophication potential, acidification potential, and global warming potential are highest for pattern 1 cases among all 16 LAI cases. Despite frequent conflict incidences, only about half of the households (on average 24%) prefer investors to leave the area. These findings may be related to the fact that the farms of pattern 1 create between 493 and 600 jobs. They recruit workers in the whole study region and outside. Employment

effects were reported in 8-26% of households in the adjacent area. Food security situations of employed households tend to be slightly better than those of non-employed households in the LAI zones and households in the counterfactual zone. However, there are spreading outcomes in terms of coping strategies (i.e. more households applying strong coping strategies, i.e. skipping meals, but also more households who apply only mild strategies, i.e. borrow food compared to non-engaged households and the counterfactual area) and women's dietary diversity. Absent incidences of land loss may be related to the fact that all contemporary LAIs were created on land previously used for a large farm. Comparatively large employment and food security effects may be related to comparatively large rates of land utilization (62-100% of leased land is actually used) and business models with large labour intensities (6.9-20 jobs/ha). Furthermore, LAIs are just one livelihood option among alternatives in the study area, as indicated by comparative frequent use of alternative livelihood and employments (34-66%).

Impact Pattern 2: “Moderate employment, no smallholder land access loss, and low conflict incidence”

Similar to the first pattern, the three cases of pattern 2 – one in Kenya and two in Madagascar – involve LAIs that involve no loss of smallholder land access (0% of households) as well moderate employment effects (6-10% of households in targeted area) and positive effects for engaged households on most food security indicators. In contrast to the first pattern, however, the LAIs of pattern 2 involve clearly smaller incidences of conflicts (4%, 8%, and 20%, respectively). The lower conflict incidences may be related to lower environmental impacts of LAI. Further, two of three LAIs feature widely perceived infrastructure benefits (80-81% of affected households). Two of the three cases feature farms with comparatively smaller farm sizes (125-256 ha), large labour intensities (7-10 jobs/ha), and they were established on previous large farms. The third case is a LAI that was abandoned by the time of research.

Impact Pattern 3: “Large employment effects vs. smallholder land loss”

The two cases of impact pattern 3 – both in Mozambique – involve LAIs of large size (2500-3000 ha operational size). These LAI involve a sisal and a tea plantation with low degrees of mechanisation and low to medium levels of input intensity. Even though land utilization rates tend to be lower than in the patterns 1 and 2 (42-59% of acquired land used), the mere size of the plantation make them the main employer for residents in their adjacent areas (wage-labour of at least one household member for the majority of households (63-67%) in the area). However, wages are below 2 US-\$ for most employees (83% resp. 90%), and most jobs are non-permanent. In contrast to the first pattern, about a quarter of sampled households experienced loss of access to land (Gurué 22%, Ruacé 45%, Reys et al 2018). Evidence on the food security situation is mixed. Engaged households tend to have better assets but worse food provision as well as similar food consumption and coping strategies compared to non-engaged and counterfactual households.

Impact Pattern 4: “Widespread loss of land access, high conflict incidence and widespread hostility”

The seven cases of impact pattern 4 – six in Mozambique and one in Madagascar are large farms (700-6000ha operational size). These are farms producing cereals, oilseeds, cotton and in one case, macadamia. They involve those cases, in which households in the adjacent areas experienced most widespread loss of access to land (average 53%; 25-79%). They involve those cases with highest and most varied reported conflict incidences between communities and LAIs (average 74%; 71-95% for five cases, two outliers with 18% and 33%) and/or preference for LAIs to leave (average 67%; 62-85% for five case, two outliers with 20% and 42%). Employment effects in households in the adjacent area are on average higher than in impact pattern 1 (29% vs. 15%), but highly variable in absolute numbers. The improvements in infrastructure vary widely (0-89%). The food security situation is inconclusive. Households are fairly food secure, but no differences in their food security status between employed,

non-engaged and counterfactual has been found. Agricultural expansion is consistently present in this pattern, and the land was used previously by smallholders. They involve land uses with medium to high levels of mechanisation and input intensity. Acquired farm sizes are notably large (850-10'000 ha) with varying levels of utilization (15-97%), but labour intensities range are comparatively much smaller than in cases of other patterns (0.07-0.4 jobs/ha). Most of the created jobs (61-90%) are non-permanent.

Taken together, this set-theoretic analysis shows that the operational farm size, labour intensity, experience in local agriculture or domestic origin of investors, and prior land uses are the factors that shape most significantly these impact patterns.

A second set of results then shows how the same international drivers can have divergent impacts, with local-level outcomes which can differ significantly in terms of land use change, ecological impacts, food security, and livelihoods. These divergences are determined by national politics and policy frameworks, land tenure rights, business models, land and water resource endowments, and path-dependencies regarding investment and business practices. As such, in Kenya, and more particularly in the Nanyuki region characterised by long-standing LAIs, characterized by sharp divide between large scale ranches and wheat farms, labour intense production systems mainly in the flower and horticultural sectors and smallholder production. Better established land and labour rights, some (very limited) technology transfer and relatively good infrastructure leads presently to a relatively dynamic local economy with subsequent creation of employment opportunities – so far however with modest improvement of livelihood status of the rural population in the area. In Mozambique, these regional dynamics are minimal however, albeit indirect through basic infrastructural and service development. On contrary, through land loss and increased land pressures, labour extensive crops and production models, and not well developed labour rights, major fractions of the local populations tend to be affected negatively. Lastly, in Madagascar, for the few investments that are still operational, they tend to function on an enclave model, with very little – if any – interactions and impacts on the regional economy and local populations.

We conclude our presentation with highlighting the diversity of impacts of LSLAs in the three countries, In policy debates, LAIs are frequently justified with the argument that LAIs would create new flows of investments to capital-poor regions; create new employment and enhance agricultural productivity. Critical voices emphasize the land that is lost for local small scale producers. Our empirical results show the impacts can indeed be very different, and cannot be generalized in one typical patterns. Our set-theoretic approach has enabled us to identify and study at least 4 typical impact patterns and the causal factors that contribute to generate these impacts. However, the number of cases that we could study in this project has remained limited. Future research could aim at enlarging the sample, either through empirical data collection or by adding more cases from the literature.

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