

Agrarian modernization through "ideal agricultural subjects": a lost cause for smallholders in Rwanda?

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Abstract

Many countries in sub-Saharan Africa have recently gone through agricultural transformations towards increased production of commercial crops, primarily for export, to promote national economic growth. Rural populations are often at the center of such transformations as intended targets of State policies, though their roles in strategies for rural development and poverty alleviation are contested. We approach these changes not as a simple opportunity for accumulation, but rather as an instance of 'rupture', through which opportunities, risks and impacts are experienced differentially by the targeted farmers. With an example from Rwanda, we ask how the State's policy strategy and attempts to construct "ideal agricultural subjects" resonate with the actual changes experienced by farmers themselves. We present three different empirical examples to show that a) when opportunities from agricultural transformation initially arise, only the wealthiest can capture them, and even then the government is seen as the main beneficiary; b) some priority crop growers experience an increase in income and savings due to higher productivity and better prices, while those who do *not* grow priority crops face land scarcity and lack of employment opportunities; c) requirements to upscale livestock production do not align with the strategies or capacities of many smallholders. We show that only endowed farmers with sufficient land and ability to engage in priority crops or livestock production can take advantage of the opportunities presented by agricultural transformation, while smallholders with constraints to their adoption of promoted changes face vulnerability to dispossession and poverty. We relate these findings to our broader conceptual frame, and encourage further research to explore the integration, modification, resistance to and impacts of idealized policies in Rwanda and across sub-Saharan Africa.

Keywords: ideal subjects; agricultural policy; rural communities; land tenure; crop specialization; livestock production

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Résumé

De nombreux pays d'Afrique subsaharienne ont récemment connu des transformations agricoles visant à augmenter la production de cultures commerciales, principalement pour l'exportation, afin de promouvoir la croissance économique nationale. Les populations rurales sont souvent au centre de ces transformations en tant que cibles visées par les politiques de l'État, bien que leur rôle dans les stratégies de développement rural et de réduction de la pauvreté soit contesté. Nous abordons ces changements non pas comme une simple opportunité d'accumulation, mais plutôt comme une instance de «rupture», à travers laquelle les opportunités, les risques et les impacts sont vécus de manière différenciée par les agriculteurs ciblés. À l'aide d'un exemple tiré du Rwanda, nous nous demandons comment la stratégie politique de l'État et ses tentatives de construire des «sujets agricoles idéaux» résonnent avec les changements réels vécus par les agriculteurs eux-mêmes. Nous présentons trois exemples empiriques différents pour montrer que: a) lorsque des opportunités de transformation agricole se présentent, seuls les plus riches peuvent les saisir, et même dans ce cas, le gouvernement est considéré comme le principal bénéficiaire; b) certains cultivateurs de cultures prioritaires voient leurs revenus et leur épargne augmenter grâce à une meilleure productivité et à de meilleurs prix, tandis que ceux qui ne cultivent pas de cultures prioritaires sont confrontés à la pénurie de terres et au manque d'opportunités d'emploi; c) les exigences d'augmentation de la production animale ne correspondent pas aux stratégies ou aux capacités de nombreux petits exploitants. Nous montrons que seuls les agriculteurs dotés de suffisamment de terres et de capacités pour s'engager dans les cultures prioritaires ou la production de bétail peuvent profiter des opportunités présentées par la transformation de l'agriculture, tandis que les petits exploitants ayant des contraintes à l'adoption des changements promus sont vulnérables à la dépossession et à la pauvreté. Nous établissons un lien entre ces résultats et notre cadre conceptuel plus large, et nous encourageons la poursuite des recherches pour explorer l'intégration, la modification, la résistance et les impacts des politiques idéalisées au Rwanda et dans toute l'Afrique subsaharienne.

Mots clés: sujets idéaux; politique agricole; communautés rurales; régime foncier; spécialisation des cultures; production animale.

Resumen

Con el fin de promover el crecimiento económico nacional, recientemente muchos países del África subsahariana han experimentado transformaciones agrícolas hacia una mayor producción de cultivos comerciales, principalmente para la exportación. Las poblaciones rurales suelen estar en el centro de estas transformaciones focalizadas por políticas estatales, aunque su papel en las estrategias de desarrollo rural y alivio de la pobreza es cuestionado. Nosotros vemos estos cambios no como una simple oportunidad de acumulación, sino más bien como una forma de "ruptura", a través de la cual las oportunidades, los riesgos y los impactos son diferencialmente experimentados por los agricultores objeto de la política. Tomando el caso de Ruanda, indagamos cómo la estrategia política del Estado y los intentos de construir "sujetos agrícolas ideales" resuenan con los cambios reales experimentados por los propios agricultores. Presentamos tres ejemplos empíricos diferentes para demostrar que: a) cuando surgen inicialmente las oportunidades de la transformación agrícola, sólo los más ricos pueden aprovecharlas, e incluso el gobierno es considerado el principal beneficiario; b) algunos cultivadores de cosechas prioritarias experimentan un aumento de sus ingresos y ahorros debido a una mayor productividad y mejores precios, mientras que los que no cultivan cosechas prioritarias se enfrentan a la escasez de tierras y a la falta de oportunidades de empleo; c) los requisitos para aumentar la producción ganadera no se ajustan a las estrategias o las capacidades de muchos pequeños agricultores. Demostramos que sólo los agricultores dotados de suficiente tierra y capacidad para dedicarse a los cultivos prioritarios o a la producción ganadera, pueden aprovechar las oportunidades que ofrece la transformación agrícola, mientras que los pequeños agricultores con limitaciones para adoptar los cambios promovidos se enfrentan a la vulnerabilidad de la desposesión y la pobreza. Relacionamos estos resultados con nuestro amplio marco conceptual y animamos a que se realicen más investigaciones para explorar la integración, la modificación, la resistencia y los impactos de políticas idealizadas en Ruanda y en toda el África subsahariana.

Palabras clave: sujetos ideales; política agraria; comunidades rurales; tenencia de la tierra; especialización de cultivos; producción ganadera

1. Introduction

Transformation of the agricultural sector, as the primary livelihood and contributor to GDP, is viewed by governments of developing countries (and many international donors) as the primary route to enhanced macro-economic growth and development (e.g. Dorward *et al.*, 2004). While taking place in different regional contexts, at different times and at a different pace, these agricultural transformations share some common features. The strategies aim consistently to connect rural land uses to global commodity markets through both inputs and outputs, promoting intensification through use of modern seeds, fertilizers and pesticides to produce crops that have been selected to maximize commercial yield from international export and national markets (Dorward *et al.*, 2004; Ellis & Biggs, 2001; Timmer, 1988). However, some critical unresolved tensions exist in the logics, objectives, governance and implementation of these agricultural policies as they proliferate globally. Although such efforts to commercialize rural smallholders are often assumed to be effective vehicles for rural development and poverty alleviation at the same time as macro-economic growth, the processes through which they impact different kinds of rural inhabitants are often overlooked (Flachs & Richards, 2018). Crucially, their inclusiveness towards and impacts on the poor, vulnerable and minorities, normally the targets of 'development' policies and programs, is rarely given the attention it deserves. This form of agricultural policy, and the rapid economic and rural transformation they envision, are well illustrated by the striking example of Rwanda, which this article explores through three interdisciplinary case studies.

Similar to many other developing countries, whilst Rwanda's recent economic growth has been impressive, the redistribution of this growth (measured by consumption level) has not been consistent across urban and rural areas and amongst the economic strata (Cioffo *et al.*, 2016; McKay & Verpoorten, 2016; Government of Rwanda [GoR] 2018). With a predominant conception of development as a fast-paced and forward-bound transformation (Purdeková, 2008), the Rwandan government has established and implemented agricultural policies to reorient and focus production towards a small number of identified crops for export and domestic markets and to facilitate this through highly centralized control of land use, including land consolidation (GoR, 2018b).

An agricultural transformation, like the one experienced in Rwanda, should arguably be viewed (rather than as simple, linear economic advances experienced similarly by all) as a moment of social, economic and political "rupture", where risks and opportunities emerge and multiply, and where authority is reproduced through property rights and memberships (Lund, 2016; see Section 2). In such moments of rupture, it becomes crucial what kinds of opportunities can be seized, by whom, who is at risk of missing out on potential development benefits, what parts of the previous system may be dismantled, and the ways in which peoples' lives may be negatively impacted (cf. Scott, 1998).

In this article, we apply the concept of the "ideal subject" to agricultural development, to elucidate the characteristics and behavioral changes expected of rural Rwandan farmers by the State authorities (alongside supporting donors and private companies) in their proclaimed agricultural transformation. With a focus on Rwanda, we exemplify the idealized farmers the State seeks to define through agricultural visions and policies. We compare the desired characteristics and livelihood changes of these idealized policy subjects with the agricultural transformation experienced by the farmers themselves. This enables a critical analysis of the form of development produced by the strategy of centrally orchestrated rural commercialization, particularly the impacts on poverty and quality of life among rural communities and smallholders.

Our example draws on three separate studies, which investigate how the livelihoods of rural households have changed during a centrally driven agricultural transformation, in which farming cooperatives are promoted and so-called 'crop specialization' is exercised through top-down selection of areas and farmers to plant priority crops (tea and rice) or rear livestock intensively. This evident "rupture" – with clear distinctions among farmers and abrupt changes in livelihoods – offer a unique opportunity to study the differentiated outcome of the transformation. Specifically, we do so by examining changes in rural livelihoods as perceived by different social groups exposed to agricultural transformation, and we compare these perceived changes to the stated policy objectives of enhanced productivity, rural incomes and food security. We use empirical data collected between 2011-2015 to draw important lessons for examining and evaluating current and future transformational "ruptures" resulting from environmental, production and/or development policies. We argue

that our conceptual frame and empirical examples add new elements to studies in political ecology, human geography, environmental justice and beyond, that address policy discourses and how they relate to the surrounding natural environment, shaping smallholder economies and livelihoods.

The article is organized as follows. Section 2 outlines the concept of "ideal agricultural subjects" in contexts of recent rupture. We introduce the historical and contextual background of the agricultural transformation processes in Section 3, before we describe our empirical approaches in Section 4. In Section 5, we present results from our three empirical examples from Rwanda and tie our findings to our conceptual frame. In Section 6, we discuss the lessons from our study and the usefulness of "ideal agricultural subjects" as an analytical concept.

2. Conceptual backdrop: the making of "ideal agricultural subjects" in moments of rupture

Our conceptual point of departure comes from Christian Lund's "Rules and ruptures" (2016). Lund describes ruptures as "open moments", where opportunities and risks multiply, when the scope of outcomes widens, and when new structural scaffolding is erected. It is a form of change, which is more important than any incremental transformation, and ruptures can give rise to profound reconfigurations of policies, institutions, norms, and the prevailing social contract. In moments of rupture, as when agricultural societies transform, Lund claims that:

... political authority is (re-) produced through the process of successfully *defining and enforcing rights to community membership and rights of access* to important resources. [...] The *ability to entitle and disenfranchise people with regard to property*, and to establish the conditions under which they hold it – together with the ability to *define who belongs and who does not*, and to establish and uphold rank, privilege, and social servitude in its many forms – is constitutive of state power. (Lund, 2016, p. 1199, emphasis added)

Such moments of rupture provide the context for our conceptualization, in this case in terms of the openings and changes happening under an agricultural transformation. Ruptures are conceptually related to Khan's "critical moments" defined as "[a] conspicuous and sensitive moment that offers a specific insight into the interplay and autonomy of the actors involved in an event, one that illustrates or informs a political ecology analysis" (Khan, 2013, p. 460).² According to Khan, "critical moments" may help expose the nature of actors' participation in environmental (and development) projects, and he calls for further research into the *impacts* on the functions of such projects and their declared objectives since "the operational reality may be very different from the stated goals" (p. 468) and since different priorities among participating actors might apply. Instead of strictly following Lund's conceptualization by examining the actual *process* by which political authority is (re-)produced through definition of property rights and memberships, we take the farmers' perspective to investigate how their livelihoods have changed as a consequence of this process. We compare these changes with the idealized agricultural visions of the State.

The term 'ideal agricultural subjects' springs out of distinct yet related concepts, namely "environmental subjects" or "environmentality" coined by Agrawal (2005), the idea of the construction of an "ideal local citizen" from Lendal (2017), and the forging of "perfect development subjects" proposed by Purdeková (2008). As argued below and discussed in Section 4, a combination of these three concepts is complementary, and extends their individual scope of inquiry. The inspiration drawn from Agrawal in particular, and contributes to the "multiple environmentalities" in political ecology (Fletcher, 2010) by stretching these broad conceptual notions beyond conservation debates into spheres of agricultural transformation.

² Interestingly, as proposed in this article, Khan (2013) also advocates for a theoretically elective approach and he discusses "environmentality" (Agrawal, 2005) in his conceptualization.

In the context of Indian nature conservation, Arun Agrawal (2005) describes how a person can undergo a transformation towards greater environmental concern. This transformation is a response to changes in ownership and management produced by a new policy, and it manifests in those individuals who become *involved* in practices of environmental regulation; for instance, they express a greater desire to protect forests if they participate in monitoring, than if they do not participate. Reconsidering this where agricultural systems are in transformation, we would expect that farmers will develop a more positive attitude to the State's visions, if they involve in those strategies. In her study of local governance, authority-making and citizenship in Colombia, Nina Lendal (2017) refers to the way local people self-categorize as a response to external factors in the governance system. She shows how villagers sought to categorize themselves as 'good' or 'ideal' citizens in order to be recognized by the State (Lendal, 2017, 85). When comparing policies and outcomes of an agricultural transformation, central elements from Lendal's work can be used to discuss the relation between the idealization of farmers and their recognition by the State. The writings on "perfect development subjects" by Andrea Purdeková (2008) focus on the specific characteristics of groups targeted for development, as desired by the State. She describes how the official discourse in Rwanda focusses on "unity" and "reconciliation", creating ideal development subjects who can contain symptoms of disorder, who are flexible to changes in mentality or mindset in a desirable direction, and who strive for collective goals and prescribed targets (of development). As such, this third source of inspiration focuses more on personal traits and behaviors than Agrawal or Lendal, and also connects to our empirical example.

A person who engages in State policies, lives up to the expected ideals, and holds the specific characteristics desired to seize opportunities and receive recognition is shown in Figure 1, building on Agrawal's environmentalism, Lendal's ideal citizen and Purdeková's development subjects in contexts of rupture.

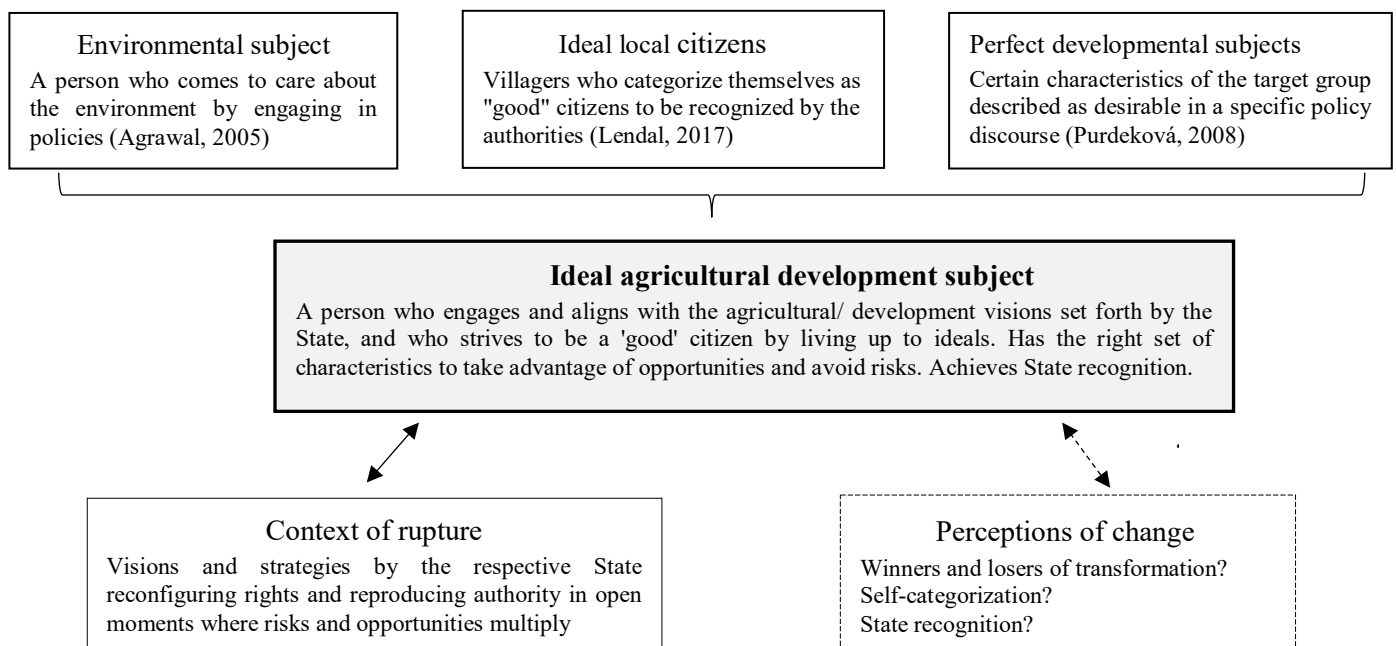


Figure 1: General conceptual approach bringing together "environmental subjects" (Agrawal, 2005), "ideal local citizens" (Lendal, 2017) and "perfect development subjects" (Purdeková, 2008) in a context of rupture (Lund, 2016). The dashed textbox (lower right) opens up for a comparison between the idealized subjects, and their own perception of change.

In a similar fashion, Ansoms & Cioffo (2016) draw on Lund (2016) and Purdekowá (2012) to analyze the way in which the discursive practices of Rwandan state authorities utilize the concept of "exemplary citizens" to reinforce policy adherence. These authors focus on the production of subjects in the process of state formation with attention to the discourses and practices that make subjectivities "political" in the way they both *receive* domination and at the same time *influence* outcomes of governance through a continuum of resistance. Here, "exemplary citizenry" is used to characterize those who insert themselves into the authorities' re-engineering project (p. 1254).

While our data does not allow us to discuss whether and how farmers act or categorize *themselves* to gain recognition (or resist), we adapt central elements from both Ansoms & Cioffo (2016) and Lendal (2017) to discuss the idealization of farmers and the consequent recognition or lack thereof. Taking a slightly different route, we leave space open in our conceptual diagram (lower right) to contrast the idealized subjects to the farmers' perceptions of change, including the distribution of opportunities and risks, which we exemplify below.

3. Rwanda's vision of agricultural transformation and the "idealization" of subjects

Rwanda's vision and narrative of agricultural transformation is underpinned by land use intensification, greater productivity, modernization and development (Desrosiers & Thomson, 2011). Rising population density and the increasing pressure on arable land use (to grow more staple crops for food security and livelihoods versus export crops for state revenue) have always been at the crux of the development debate in Rwanda – from the colonial administration era through to the present (Huggins, 2017). Since the ending of the 1994 Genocide and reconstruction efforts spearheaded by the Rwandan Patriotic Front (RPF) regime, the government has sought to drive modernization processes across all sectors in Rwanda (Hasselskog, 2015).

The theory of change driving development through commercial intensification of agriculture is strongly supported by donors, multinationals, and scientists at the regional scale, notably through the Alliance for Green Revolution in Africa (AGRA; Dawson *et al.*, 2016). However, there are questions regarding the congruence between the 'national' and 'local' ownership of the policy interventions, the extent to which adoption of reforms is beneficial to local Rwandan communities and whether it respects or contrasts with their own local knowledge systems. There is also doubt about the extent of downward accountability for potential social harms (Hasselskog & Schierenbeck, 2015). Indeed, Rwandan smallholders and rural communities have developed practices and knowledge systems over many generations to support their wellbeing in the face of environmental constraints and climatic variation. Until the current government's intensification policies (i.e. during the 2008 national agricultural survey) those systems could be characterized as locally-oriented polyculture, with 95% of farmers using traditional polyculture techniques to cultivate more than sixty types of edible crops (NISR 2010, WFP 2009). A large diversity of foods were produced within a small area based on fine-scale environmental gradients, sharing of labor, providing informal and rotating land access, and exchanging produce within active local economies (de Lame, 2005; Verdoodt & Van Ranst, 2006). The following section unpacks more in detail how agricultural intensification plans and trends have unfolded nationally.

A plethora of policy packages: productivity and professionalization

Through the 1990s, a donor-led market-oriented agricultural strategy dominated in Rwanda, emphasizing export-oriented production. Coffee and tea were particularly targeted, as well as greater import substitution via higher production of sugar, wheat and rice. However, production of all crops dropped noticeably after 1990 due to the war. Following other African nations receiving loans from multilateral donors, Rwanda entered a Poverty Reduction Strategy Paper (PRSP) process in 2000 (Ansom, 2008). The first program (PRSP-1) was implemented from 2002-2005 and was elaborated in a post-conflict environment where the main emphasis was on managing a transition from emergency relief (flowing in during the second half of the 1990s) to rehabilitation and reconstruction. The second program (Economic Development and Poverty Reduction

Strategy – EDPRS) was drafted in 2006 and was implemented during the 2008-2012 period. International financial institutions and bilateral donors were the main donors for both programs.

The PRSP and the EDPRS are set within the broader framework of the government's overarching long-term strategy and program formulated in the Vision 2020 (GoR, 2000, Table 1)³, which subsequently has served as a reference point for a series of medium-term strategic plans during the first decade of the new millennium. With the overall aim to transform Rwanda from an agrarian to a knowledge-based economy, a central part of the vision is directly targeted at transforming agriculture "[...] into a productive, high value, market-oriented sector" (GoR, 2000, 3). This is considered necessary as the sector is seen as unproductive (with little use of fertilizers) and is still dominated by subsistence production with further fragmentation of arable land and associated environmental degradation. The sector used to account for nearly 90% of the country's labor force up until the early 2000s, but the ongoing structural shift in the economic and labor base from subsistence agriculture towards non-farming sectors has rapidly reduced the share of employment in the agricultural sector (63% in 2019), in line with the government's strategic plan for agricultural transformation (GoR, 2018; World Bank Data, 2019). Productivity growth is considered essential and should be reached by institutional and legal land reforms (private ownership and land markets), expansion of rural infrastructure (including research services and financing schemes), a focus on high-value crops and livestock, and through the development of new agri-businesses.

In accordance with the Vision 2020, the PRSP also included rural development and agricultural transformation as a main component for poverty reduction. Despite relatively strong aggregate economic growth, poverty only fell during the PRSP-1 period by 2.2% percentage points, and more than half of the population continued to live below the consumption poverty line. Extreme poverty fell by 4.4% percentage points between 2001 and 2005, but still affected more than one third of the population. Income inequality remained high and rose from 0.47 to 0.51 measured by the Gini coefficient (MINICOFIN, 2013). Some observers (Ansoms, 2008; Ansoms *et al.*, 2018; Desiere *et al.*, 2016) argue that these rather disappointing results were unsurprising: only one of the 17 sub-programs had a clear pro-poor character and allocations for this particular pro-poor initiative were relatively insignificant (about 1% annually over the period). Modest attention was paid towards the needs of the most vulnerable groups and, furthermore, the understanding of who are vulnerable is fairly restricted; for instance, near-landless farmers were not included (Ansoms, 2008). We return to the pro-poorness of these strategies in our final discussion (Section 4).

The Economic Development and Poverty Reduction Strategy (EDPRS) (2008-2012) marked a distinct change in the approach to development as it became much more oriented towards production and economic growth as a means for poverty reduction. Two frameworks served as blueprints for the elaboration of the EDPRS policy. The main elements of the period's National Agricultural Policy for agricultural transformation were elaborated and operationalized in the Strategic Plan for Agricultural Transformation (PSTA-1 [French acronym]) from 2004, later to be upgraded into PSTA-2 covering the period 2009-2012 and through to the most recent, PSTA-4, covering 2018-2024. The most important program (in terms of relative budget allocation) aims at an intensification and development of sustainable production systems, primarily by increasing the supply and use of fertilizers and mechanization.

Overall, PSTA-1 prioritizes maximum output growth specifically hinged on export potential and domestic market development, a strategy consistently followed through to the current PSTA-4. According to Ansoms (2008), this plan was more conducive for medium to large commercial farmers who can invest in new, high-potential production systems while the needs of small-scale farmers are often inadequately addressed, where they lack access to capital and modern farming techniques. The government tries to counter this problem through public-private partnerships (Booth & Golooba-Mutebi, 2014). For example, in the horticulture sector, private investors would work with farmers organized in cooperatives, providing inputs, extension services, and coordinated production and marketing. Although membership of cooperatives could be positive in theory, the impacts are heterogeneous and unevenly felt between land-rich and land-poor, raising the question of their

³ Vision 2020 is now continuing as Vision 2050, to attain an agricultural transformation with priorities such as "modern inputs and technologies to maximize productivity" (RoR, 2020, 10).

inclusiveness and effectiveness (Verhofstadt & Maertens, 2015). Another related concern about contract farming arrangements is the collaborative and coercive nature of public and private commercial interests who are using smallholder farmers' land and labor (Huggins, 2014). Finally, there is very little detail about the general aim of Vision 2020 to reduce the share of the population that is agriculture-dependent in rural areas to about 50%, and creating better conditions for transitioning into the secondary and tertiary sectors.

A summary of agricultural transformation policies and programs in Rwanda	
Vision 2020^a	<p>An overarching development program to transform from agrarian to a knowledge-based economy through promotion of productivity-led growth and intensification:</p> <ul style="list-style-type: none"> - institutional and legal land reforms (private ownership and land markets), - expansion of rural infrastructure (including research services and financing schemes), - high-value crops and livestock, - development of new agribusinesses - increase in the use of fertilizers - increased diversification - privatization of export crop (tea, coffee) and dairy production facilities
Land law and policies^b	<ul style="list-style-type: none"> - land transfers according to customary tradition and related informal land rights are not accepted any longer – title to land can only be acquired via formal registration documented by ownership certificates - consolidation of small plots into larger landholdings for cultivating regionally specific and prioritized crops - private ownership on leasehold basis government assuming control rights over the modalities for land use consolidation
Strategic Plan for Agricultural Transformation^c	<p>Boosting production and economic growth as a means for poverty reduction:</p> <ul style="list-style-type: none"> - intensification and development of sustainable production systems, primarily by increasing the supply and use of fertilizers and mechanization - institutional development mainly focusing on management capability and organizational reforms - promotion of the professionalization of producers, farmers' organizations, and producers' capacities - promotion of horticultural commodity chains and development of new agribusinesses by increasing competitiveness (smallest budget allocation) <p>Overall, PSTAs prioritize maximum output growth specifically hinged on export potential and domestic market development and to create better conditions for secondary and tertiary activities in rural areas to cater for employment needs</p>
Crop specialization & intensification program (2007)^d	<p>To ensure efficiency and comparative advantage:</p> <ul style="list-style-type: none"> - smallholders in the same local area are asked to plant the same crop (selected by the Ministry of Agriculture) - at the same time, farmers are required to register their land, to join cooperatives, to buy approved seeds and fertilizer, and to cultivate the approved crop in adjacent fields
Livestock Master Plan^e	<ul style="list-style-type: none"> - with expectations that the dairy subsectors could generate more value additions in the supply chain, hence, higher growth and economic contributions to gross domestic product - as the majority of dairy farmers operate small-scale and informally, there is considerable room for improvement in milk quality and investment in production and marketing - consumption of milk and milk products is essential in the local diet, and therefore, increasing the dairy consumption and production at home, through a livestock-in-kind program such as Girinka, is promoted for both poverty alleviating and social protection purposes

Table 1: Rwanda's agricultural transformation strategies. ^a *Rwanda Vision 2020*, revised in 2012; ^b *Organic Land Law on use and management* (GoR, 2005) and on governance (GoR, 2013); ^c PSTA-1 (2004), PSTA-2 for 2009-12 (2009), PSTA-3 for 2013-17 (2013) [French

acronyms]; ^d PSTA-2 for 2009-12 (2009), *Strategies for sustainable crop intensification* (GoR, 2011) and *Farm land use consolidation* (GoR, 2012); ^e *National Dairy Strategy* (2013) and the *Girinka one-cow-per-poor-family* program (2006).

Land laws and crop choices: smallholders at risk?

The grand vision for agricultural transformation is also visible in the new land policies and land law. The latter was adopted in 2004. It aims to formalize land rights through official titling (Pottier, 2006; Ansoms, 2008). Customary rights are accepted as a legitimate basis for acquiring official rights to land but the owner needs to have the land formally registered with the local authorities. Land transfers according to customary tradition and related informal land rights are not accepted any longer – title to land can only be acquired via formal registration documented by ownership certificates. A major purpose of expanding the scope of secure official land titles is to create a market for land and to promote private investments in land.

Also targeted in the land law is the perceived problem of land fragmentation and unproductive use of land. In contrast to the previous legislation from 1976 there is no upper limit for the buyer's total landholding – even though this restriction basically did not have any impact on informal land transfers (Pottier, 2006; Pritchard, 2013). In the 2005 legislation, no land parcel of one hectare or less can be divided and for land holdings between one and five hectares, the owner must apply to the local land commission for authorization to sell. Hence, smallholders with less than one hectare of land can no longer sell portions of their land in periods where cash is desperately needed and buy it back later in better times – they have to sell it all with a high risk of becoming permanently landless. Notably, the average landholding for rural households was about 0.75 in 2000 (Pottier, 2006) on an average of four plots (Booth & Golooba-Mutebi, 2012).

Furthermore, the local authorities may confiscate land if it not adequately conserved or utilized properly for three consecutive years. The land can then be entrusted to others in need or those who are able to document that they are able to manage it as prescribed. It is up to the discretionary and subjective decision of local authorities as there are no fixed criteria for judging a person's abilities. Also, local authorities are obliged to secure consolidation of small plots into landholdings suitable for what is perceived as efficient land management and production. Large, consolidated plots under single ownership are promoted in order to ensure economies of scale of farming units ready for modern intensive techniques and better equipped to team up with agri-business.

Consolidation of small landholdings is a crucial element of the National Agricultural Policy as an integral part of a strategy for 'crop specialization.' Essentially, smallholders in the same local area are asked to plant the same crop selected according to an evaluation by the Ministry of Agriculture of the most suitable crops for the particular bioclimatic zone. The Ministry selects the crops according to three categories of commodities namely export products, domestic (food) products, and new industry products (PSTA-2, 2009). Hence, crop specialization is the preferred means to ensure what is believed to create an efficiency and comparative advantage within the national territory. Crop specialization is taking place at the same time as land registration and farmers are required to join cooperatives, buy approved seeds and fertilizer, and cultivate the approved crop in adjacent fields.

Thus, to live up to the State's objectives for the agricultural transformation and to the Government's ideals, smallholders should follow the visions and strategies laid out (Table 1), such as intensification through increased use of fertilizers, efforts to professionalize and organize, increase efficiency through 'crop specialization', and developing new agribusinesses and off-farm income activities. As a major challenge to attain these ideals, smallholders are facing risks of becoming landless due to the 2005 land legislation, and they are moreover under the power of local authorities, who have been given the discretionary rights to confiscate land if not perceived as properly cultivated and to push for land consolidation and 'crop specialization.' While there is no systematic data that reports land confiscation by authorities, anecdotal stories from our case studies and other researchers have documented incidences of threats and use of fines and sanctions on farmers who failed to conform to the official guidelines (Huggins, 2009).

In the following sections, we focus on smallholders' perception of change in order to contrast the outcome of the agricultural transformation from the perspective of the target group with the characteristics and actions of the "ideal agricultural subject" envisioned by the Rwandan state.

4. Empirical approaches

The first example (Example A) is based on a mixed-method study in Gatare sector in Nyamagabe District in the Western province (Figure 2) between October 2011 and May 2012. This example relies on socio-economic data and qualitative perceptions related to the designation of priority crops for Gatare. Gatare is a relatively remote area, with no paved roads, limited transport links and few employment opportunities. Much of the land is used for subsistence farming, with only 50% of the 40 participating households stating they commonly trade crops and 53% stating they suffered regular food insecurity, going at least one day per month without a single meal. The study was conducted at the early stages of the crop specialization program and therefore provides insights into the initial impacts on land use, distribution and the experiences, hopes and fears of the rural inhabitants whose lives were to be affected. The crop specialization program began to influence the rural area in this study from 2008/9, with tea production prioritized. Tea takes three to four years to reach first harvest and requires care such as regular weeding up to that point. In Gatare, tea growers were expected to join a cooperative at a small cost. Members were offered loans to provide them with cash to pay laborers to manage the young plants, to buy fertilizers and to cover other household costs, while not gaining revenue in pre-harvest years. Two focus groups and forty semi-structured interviews with rural inhabitants explored changes in wellbeing over the previous ten years for different kinds of people, and examined the influence of policies employed to promote agricultural modernization. Focus groups comprised five to seven male and female participants and semi-structured interviews were then conducted with respondents from more than 10% of households in each village (20 in each of 2 villages in Gatare, Nyamangabe, 40 in total). All participants were selected randomly by researchers from lists of households held by local administrators. Interviews were conducted with either adult male or adult female in that household.

In Example B and C, the scene is set in rural Rwanda around the year 2015, where permanently cultivated agricultural land covered around 50% of the total surface area of the country. Example B is based on a study conducted in two districts, namely Bugesera located in the Eastern province and Nyabihu in the Western province, where growers of priority crops (rice and tea, respectively) are known as they are grouped in cooperatives. Cooperative member lists were used to randomly select 150 respondents in each district (Table 2).

	Bugesera (rice)	Nyabihu (tea)	Total	%
Growers of priority crops	76	99	175	58.3
Non-growers of priority crops	74	51	125	41.7
Total	150	150	300	100.0

Table 2: Overview of survey respondents (Example B) from a field survey in 2015 (conducted August 12th to August 22nd). The settlements of growers and non-growers of priority crops are not isolated from each other.

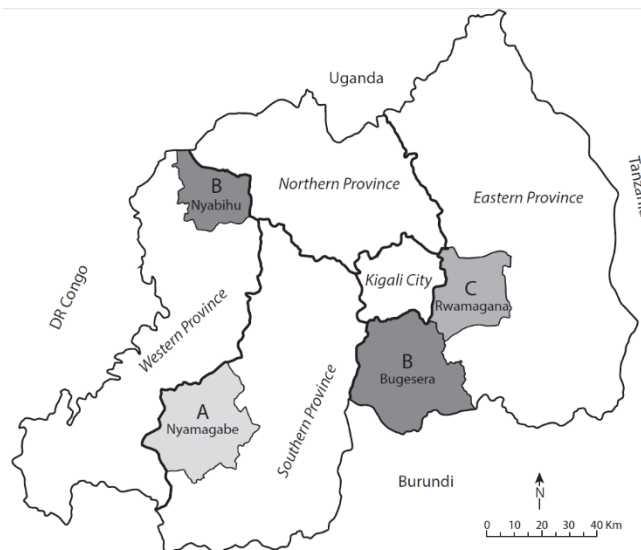
With the overall aim of comparing growers and non-growers of priority crop in the two districts, a household survey was conducted with the purpose of:

- identifying the key changes in agricultural production among rural households in the region in terms of crop output, input usage, land allocation to crops, as well as livestock ownership;
- comparing rural smallholders average annual income, expenditure and savings; and,

- identifying sources and use of credit among rural households.

The quantitative data collected for the survey was analyzed using IBM SPSS software and MS Excel, and thematic coding of responses was used for the qualitative data specifying how and why households had experienced changes over the past decade.

The third example (Example C) is based on fieldwork conducted in 2015 at the district of Rwamagana in the Eastern Province. Rwamagana district is one of the rapidly urbanizing regions with strong potential for agri-business development and well-established dairy market. Two village sites – one in the peri-urban and one in the rural zone – were identified and selected for assessing the influences of intensification policies on crop and livestock production systems and household food security and livelihoods. Because there was no complete list of houses available at the district office, village census data were gathered with the permission of the village leaders ($N_{\text{village1}}=170$; $N_{\text{village2}}=136$). Based on the livestock ownership characteristics and excluding absentees as well as non-farming households, a stratified random sample population of 169 farming households ($n_{\text{total}}=169$) was drawn: 89 from the peri-urban village ($n_{\text{village1}}=89$) and 80 from the rural village ($n_{\text{village2}}=80$). The household surveys were carried out to assess the diverse rural livelihood characteristics, asset ownership and access to various resources and services. For the livelihood analysis, the sampled households were classified using asset-based principal component analysis (PCA) to estimate their wealth ranking (Sahn and Stifel 2003).⁴ Furthermore, a follow-up of 47 in-depth life history interviews with farmers owning different types and sizes of livestock herd helped highlight the differences in the meanings and values and associated costs (perceived risks and liabilities) of commercial livestock production. Additionally, semi-structured interview data from 42 farmers without livestock was collected to uncover potential constraints inhibiting livestock-based asset development for the socioeconomically disadvantaged members of the community. The data from the farmers' life history and semi-structured interviews are used to illustrate how livestock intensification



commercialization policies had nuanced and discriminate impacts to the households belonging to different economic strata.

⁴ For more detailed technical explanation on how principal components work in the construction of an asset index, see Filmer and Pritchett (2001).

Figure 2: Geographical location of fieldwork sites. Empirical example B draws on data collected in two districts, namely Bugesera and Nyabihu, while data for Examples A and C, respectively, is collected in a single district. Map by Kent Pørksen

5. Results: Three examples – one pattern of accumulation and dispossession

The three examples use different methodological approaches and were conducted in different geographical locations in Rwanda at different stages of the transformation. The examples are therefore not intended as comparative studies or as an evaluation of a chronological agricultural transformation process. Instead, they constitute three vignettes of the transformation in time and place, all illustrating a mismatch between how the State prescribes and describes the agricultural transformation, and how those subject to the transformation experience the changes it brings on their livelihoods. The three examples tie to the concept of "idealized agricultural subjects" in a time of rupture, where gains and losses largely depend on the farmers preconditions and a re-production of property.

Example A: Crop specialization is devised for the wealthiest to participate and to benefit the State

The results from Example A show a pronounced division between households adopting tea as their primary crop and those who did not, with wealth being a clear explanatory factor for involvement. There are also broadly negative opinions about the impacts of the policy across tea growers and others.

Of the 40 interviews conducted, 13 households had changed to cultivate tea as their primary crop, rather than potatoes, sweet potatoes, beans, maize or another edible crop, while 27 households had not. Land size was a clear and statistically significant determinant (T test, $p = <0.001$) with no overlap between groups, i.e. no household owning less than a hectare of land began to grow tea. Among the 13 tea growing households, average land size was 3.15ha (range 1ha to 8ha, standard error 0.67), whereas average land size for those not growing tea was just 0.25ha (range 0 to 1ha, standard error 0.05). All of those cultivating tea were either formally employed in a professional position, such as civil servants and teachers, or ran their own business as shop owners, builders, drivers or timber traders. None of the 17 households reliant on sporadic labor opportunities as their main source of income began to grow tea on their land, suggesting that implementation of crop specialization is specifically geared towards those already endowed with land, income from employment and resources – and not towards poorer rural smallholders at all.

In addition to wealth, interview responses suggest that social capital and political agency play a part in who was allocated land for growing tea. For instance, one respondent said:

What can we do? We can't force anyone to put us on the list for land allocation. We were told we weren't on it. I did ask and I was told that we wouldn't be strong enough to be able to

manage it. So we didn't get any land. The people who were eligible for land were those who will be able to pay laborers and to afford fertilizer.

Another claimed that the allocation of land for tea growing "was about who you knew and what you had", and supported the notion that "people who already had land got more." This reallocation of land does not relate simply to surplus land, of which there is very little in the densely populated hills of Rwanda, but it directly and adversely impacts less wealthy or powerful families. Two poorer households, subsistence farmers earning income only through occasional labor employment, had seen their land taken without compensation and reallocated to wealthier households because they presumably would not be able to manage the crop through the first three to four years until harvest. This shows how implementation of the land consolidation and crop specialization policies caused severe tenure insecurity among many of the rural inhabitants, particularly poorer households focused on subsistence. One family, for example, had decided to swap their land in the initial area designated for tea before the government could reallocate it, in exchange for a plot half its size so that they could continue cultivating for subsistence crops. Many others feared that they may soon be evicted from their lands or likewise need to sell because it had been announced several times at local meetings that the government instruction to grow tea rather than any subsistence crops would be extended across the majority of land in the area.

Although the thirteen households with the largest land holdings had begun to grow tea, only one of the entire 40 interviewees spoke positively about the directive, and (in keeping with the pattern) this was the largest landowner with 8 hectares. Overall, 25 of the 40 individuals interviewed stated that tea was negatively affecting their household wellbeing, through direct losses, lost labor opportunities, disruption of local food production, higher food prices and extreme tenure insecurity (the remaining 14 of 40 respondents either said they were as yet unaffected, or did not give a clear opinion).

Perhaps most surprisingly, 11 of the 13 respondents who cultivated tea reported negative experiences and opinions, based on the high costs, debt incurred, nature of the work, uncertainty of returns and perception that if they do not perform well, they may have the land taken and reallocated by the state. This suggests that those adhering to the policies are pulled – against their own preference, attitude to risk, values and sense of control – into this sudden livelihood change by the authorities and their vision of modern rural subjects contributing to national economic progress.

For people harvesting tea even, there is no gain from growing it. They are struggling for the government. The government benefits from the tea, not the owner of it. All of the money is spent on weeding, labor payments and transport as well as fertilizers. You don't get anything out of it as the owner.

The findings presented above show how some farmers feel left out from progress, missing an opportunity, while those who fit the government's ideals for economic development, unwillingly adhere to the assigned policies and feel both constrained and burdened. In the end, none of the two groups perceive benefits from the transformation, and the State is seen as the main beneficiary.

Example B: Those able to grow priority crops gain more land and income, while non-growers appear vulnerable

Example B is based on data collected in Bugesera and Nyabihu districts in 2015. The results show perceived changes in income, saving and expenditures, and cropland across growers and non-growers of tea and rice, and illustrate how risks and opportunities are unevenly distributed across those subject to agricultural transformation.

Land distribution in Bugesera among priority crop growers (rice) versus non-growers was quite even with the most notable difference that more non-rice-growers than rice-growers have less than 0.1 hectares or 1000 m². In Nyabihu, priority crop growers (tea) have about twice as much land as non-growers on average, and four tea-growers have more than 3 hectares compared with only one among non-growers. These findings are in line with Example A above showing a highly unequal and unjust land allocation process for crop specialization towards tea production.

LAND	Bugesera (rice, Ha)	Nyabihu (tea, Ha)
Priority crop growers	Average 0.53 21% has < 0.1 12% (9 farmers) have ≥ 1	Average 0.37 16% has < 0.1 2% (4 farmers) have > 3
Non-growers	Average 0.3 35% has < 0.1 15% (11 farmers) have ≥ 1	Average 0.13 22 % has < 0.1 0,85 (1 farmer) has > 3

Table 3: Land distribution among growers versus non-growers of priority crops. N = 300.

Note: Original data in m², converted into Ha (1 ha =10,000 m²) and rounded by authors

Overall, our data shows that income has improved over the past ten years for growers compared to the non-growers of priority crops ($p < 0,05$), while there is no significant change in land owned, rented or borrowed. The improved income for priority crop growers is also reflected in the annual saving per household presented in Table 4, as more growers seem to be able to put a larger amount of money aside than non-growers are able to (most evident in Bugesera). Interestingly, the annual expenditures among the two respondent groups in each district are quite similar, indicating that the extra income earned by growers of priority crops is perhaps saved rather than spent, creating an important economic buffer to balance the risks and investments of crop changes. More likely, however, the growers' surplus is used to pay back loans for crop investments.

TOTAL SAVINGS Amount (RWF)	Bugesera				Nyabihu			
	Rice growers	Non rice growers	Total	%	Tea growers	Non Tea growers	Total	%
< 5000 (US\$ 7)	37(50%)	51 (70%)	88	60	34 (36%)	14 (28%)	48	33
5000 - 10000	4 (5%)	5 (7%)	9	6	9 (9%)	9 (18%)	18	12
10000 - 30000	10 (14%)	5 (7%)	15	10	22 (23%)	14 (28%)	36	25
30000 - 50000	10 (14%)	3 (4%)	13	9	9 (9%)	7 (14%)	16	11
50000 - 100000	9 (12%)	7 (10%)	16	11	12 (13%)	5 (10%)	17	12
>100000 (US\$ 14)	4 (5%)	2 (3%)	6	4	9 (9%)	1 (2%)	10	7
Total	74	73	147	100	95	50	145	100

Table 4: Total savings per household per year. In Bugesera, rice growers appear to save up more money than non-growers, while in Nyabihu, the saving across groups are more similar with slightly higher savings for some tea growers (also when considering almost twice as many tea-growing respondents). N = 292. Source: Field survey 2015. Note: Conversion rate in 2015 went from 1US\$ = 850RWF in January to 1US\$ = 750RWF in December.

Many growers of priority crops across rice and tea explain their increased income with higher productivity, use of fertilizers (increasing yields/productivity), better prices and salaries, while many of those who experienced a decrease in income complain about low productivity due to disease or bad weather.

For non-growers of priority crops, many of the same reasons for changes in income and crops are stated; however, climatic factors and land shortage (little or declining cropland) seem to play a greater role. For instance, 11% non-growers (versus 8% of growers) state weather-related causes, and 5% explain their changing income by land shortage (versus 1% among priority crop growers). Notably, more non-growers speak of lack of jobs (7% compared with 1% among growers of priority crops).

Interestingly, growers and non-growers alike and across the two districts relate their income and/or crop changes to the government's land consolidation program (10% of respondents), e.g. the State-prescribed abandonment of sweet potatoes, sorghum or maize. Non-growers also refer to low productivity to explain crop changes away from cassava, peanut, bean and sorghum, which they say are abandoned due to diseases, weather, or shortage of land. Based on this data and in line with Example A, it is tempting to suggest that growers of priority crops are more often "pulled" into changing crops as they seize the opportunities presented by the agricultural transformation, while the non-growers are mainly "pushed" to change their livelihoods as they face risks largely beyond their immediate control.

Example C: Requirements for commercial investment and specialization in livestock production are out of reach for most smallholders

Commercial dairy processing and marketing are central to the government's economic development plan (GoR 2017). Investment in dairy production would not only allow the dairy industry to become more competitive (TechnoServe 2008, Abdulsamad and Gereffi 2016), but the increase in dairy production is expected to positively contribute to household nutrition (specifically for children) and help the rural poor obtain more income and accumulate assets (LID 1999, Alary *et al.* 2011, Njuki and Sanginga 2013). Thus, the government sees livestock sector development as crucial for household food and nutrition security, national economic growth and poverty reduction (Table 1).

Example C examines how farmers engaged in commercial dairy development and investment in the district of Rwamagana. The study found various dairy production models ranging from one-cow and zero-grazing to large-scale management of pasture grazing. There are a number of factors involved in dairy production including individual (a cow's breed and its genetic makeup), systemic (the conditions of production environments) as well as managerial (motivation and aspiration and technical capability of livestock keepers). When considered together, these production factors have varying effects on costs and outputs depending on the types of livestock and scale of production (Kim and Sumberg 2015).

In order to further examine these factors and how they align with government policies, three key indicators of livestock production – namely, the amount of cultivated land, number of economically active family members and their activities, and the number of livestock held – were compared across the sample population in each village (Table 5).

	Rural village				Peri-urban village		
	Low (n=24)	Middle (n=32)	High (n=24)	‡	Low (n=27)	Middle (n=35)	High (n=27)
Farming characteristic							
Family							
-average family size (person)	3.8	5.3	5.8	*	5.3	5.2	6.8 *
-gender of household head (1 = female)	0.58	0.25	0.29	*	0.44	0.26	0.19 *
-proportion of family members							

<i>farming</i>	76%	91%	86%		76%	60%	41% *
<i>non-farming</i>	0%	2%	9%	*	11%	20%	41% *
<i>casual laboring</i>	24%	8%	5%		6%	13%	17%
Land							
-average land holding (Ha)	0.22	0.72	1.18	**	0.22	0.44	0.65
Livestock ownership							
-average number of cow(s)	1.0	1.9	1.5		0.4	1.0	1.2
<i>improved breed (%)</i>	17%	34%	54%	*	15%	34%	30%
<i>local breed (%)</i>	13%	22%	0%	*	7%	3%	7%

‡ household wealth ranking ranges from Low (the bottom 30th percentile), Middle (31-70th) to High (71-100th)

Table 5: Factors of livestock production in a rural village and peri-urban village in Rwamagana
* (*p*-value significant at $\leq .05$) ** (sig. $\leq .001$)

There are significant differences in the family size and the gender of the head of household amongst the rural sample population (Table 5). The families in the lowest-ranked group tended to be smaller in number and more often led by women. Such features are distinctively disadvantageous for farming households who rely mainly on family labor. Similarly, significant distinctions between the households were found in the size of landholding and the proportions of family members' working status. The average distribution of the dairy cow in the rural village was more evenly spread – thanks to the *Girinka* program (one-cow per poor family) that recently donated 30 cows to the eligible families in the village (GoR, 2018c).⁵ However, there were significantly more households in the wealthier sub-groups that owned high-yielding dairy breeds than the lower groups. Currently, the government is promoting artificial insemination to replace the local breed (Ankole) with high-yielding breed such as Friesian and Jersey cows in an effort to raise productivity (Shapiro, Gebu *et al.* 2017). However, even if poorer farmers received such cows, their yield often remains low because farmers cannot afford to intensively feed and offer regular veterinary care that these cows require. In other words, the genetic improvement strategy is contingent upon the conditions of production, and it disproportionately works in favor towards the farmers with better economic means. What is worse, the higher maintenance costs of these cows could exacerbate the economic disadvantage of poorer families.

The farming characteristics in the peri-urban setting (Table 5) reflect a somewhat different reality than its rural counterpart. While a smaller family size and more female-headed households were features of the impoverished families, the better-off households participated more in non-farming occupations. In contrast, the poorest households relied on farming as their primary means of livelihood. The differences between the average landholding sizes amongst the subgroups are relatively small (0.22, 0.44 and 0.65 hectares, respectively), which indicates two dominant trends. The first is that there is less available land for farming in the fast-urbanizing zone and that despite the greater access to arable land, the wealthier families tend to engage less in farming activities than the other groups. Livestock ownership patterns show no statistically significant differences in the average number of cattle, nor the types of breed found in the peri-urban sample population. Despite having better access to services and markets, farmers are keeping only one or two cows and are not investing more in commercial dairy production. This is mainly because most people follow an intensive zero grazing regime where cows are permanently kept and fed in a shed with forage grass and other commercial feeding. Therefore, in peri-urban areas, the greatest constraint in dairy production under zero-grazing (where land for grass production is at a premium) is the purchasing power of animal feed.

⁵ Through the national livestock-transfer program – called the *Girinka* or "One-cow per poor family" – the government and their affiliated public and private donors have distributed cows to nearly 300,000 families since 2006.

There were, however, a handful of dairy producers with over ten cows who kept their herd in a pasture grazing system. Pasture grazing or ranching is more economical and profitable for producers who have access to large tracts of land. As we mentioned earlier, land is at a premium and thus, intensification through pasture grazing is only possible for a selective group of (wealthy) people. These people are, strictly speaking, not farmers – they are agro-business entrepreneurs and investors who can take advantage of their secure jobs (in the public and private sectors) and stable income flows and who can mobilize capital for investment in specialized dairy and crop production. These large-scale rural entrepreneurs seem to fit well the characteristics of ideal agricultural subjects; they are eager and willing to join the government initiatives, programs and training, and they employ casual laborers. However, trying to emulate their model among the rest of the population would most likely result in failure. Not because the majority of farmers are unwilling to intensify, but because the challenges that arise from small-scale production under a zero-grazing regime are not adequately recognized and supported by the current policy agenda. Instead of a singular vision of ideal dairy production that centers on an intensive commercial model, more flexible and refined models of production would help more smallholders to improve and achieve their production potential.

6. Discussion: the pro-poor and the too-poor in Rwanda's agricultural rupture

Our findings show that despite the adverse outcomes associated with government interventions, farmers seem nonetheless to attempt compliance with the official policy strategy. This observation may seem to suggest that Rwandan farmers lack agency, and simply adhere to the top-down pressure from the government. However, it is important to recognize that overt disapproval and resistance to government policy is risky and dangerous in post-1994 Rwanda (Newbury, 2011), and therefore, it is important to assess farmers' expressions and decisions through subtle forms of everyday politics and practices in a nuanced context of support, compliance, modification – and evasion and resistance (Tria Kerkvliet, 2009).

Winners and losers in a centralized, market-driven agricultural transformation

Our three empirical examples clearly demonstrate that the Rwandan agricultural transformation is not pro-poor nor inclusive. By assessing the gains and losses for those who engage in crop or livestock specialization and those who do not, we found that those with little land, or inadequate resources to successfully engage in specialization and intensification, face higher vulnerabilities in terms of insecure tenure, lack of alternative employment, and exposure to risk of food insecurity due to restrictions on subsistence livelihoods. In contrast, those with sufficient land, advantageous social networks, and an ability to afford inputs, plant priority crops or raise livestock (while tolerating inherent risks) and can take advantage of the opportunities presented by the commercialized intensification strategy and, in some cases, accumulate capital or resources from it. Even then, we see in all three examples that those who do engage in government policies still take high risks and may suffer great losses. The agricultural policy in itself (see Table 1) appears unjust and to exacerbate inequality, given that many smallholders are unable to join the transformation and are left to await uncertain trickle-down effects, such as off-farm employment.

Figure 3 connects our conceptual frame (see Section 2, Figure 1) with our three empirical examples to illustrate the 'ideal agricultural subject' in Rwanda. From the perspective of the State, the ideal farmer lives up to being a good farmer in the sense that he/she engages in and aligns with, and is supportive of the agricultural transformation. By holding the desired characteristics, the farmer achieves the goals of the government's agricultural policies by embracing changes through unity (via cooperatives) and reconciliation (cf. Purdeková, 2008). In return, the farmer can seize opportunities arising (from crop specialization or livestock production) and achieve recognition from the State. For the less fortunate, risks will multiply if failing to fit the idealized picture. Even those subjects who seem "ideal" and engage as prescribed, the risks and losses might be too high to achieve persistent livelihood improvements.

Given Rwanda's policy focus on larger farmers and land consolidation, Ansoms foresaw in 2008 that productivity gains would not be equally distributed across groups of farmers. There was a high risk that the rural policy measures will be at the expense of the large mass of small-scale peasants, who face institutional constraints, such as lack of access to markets, credit and risk-insurance opportunities, or fertilizers, coupled

with a highly volatile and uncertain availability of informal money-for-work jobs in rural areas. In 2009, Huggins claimed that "forced commoditization of household production will result in winners and losers", where the principal winners will be those in a favorable position to negotiate with the State (e.g. for the rights to purchase the harvest on beneficial terms), while the losers will be the rural poor, for whom an increased level of uncertainty can mean immediate food insecurity or financial loss. A more recent study by Dawson *et al.* (2016) shows negative impacts for the majority of rural households because their subsistence practices were disrupted, their local systems of knowledge, trade, and labor were impaired, and because their land tenure security and autonomy were curtailed. In that sense, the continued practice of diversified production is a form of "modification and evasion", that is, given the immediate food needs and lack of alternative means of livelihoods, farmers have no alternative but to maintain household food security through diversified production (and not intensification). Our three empirical examples confirm these predictions and findings:

- a) crop specialization is devised for the wealthiest, and appears to exacerbate landlessness and inequality for poorer rural inhabitants
- b) those who do not specialize, who have comparatively smallholdings and risk losing land, appear more vulnerable to weather conditions, crop performance, and work scarcity, compared with priority crop growers
- c) the requirements to upscale livestock production do not align with the preconditions that smallholders face.

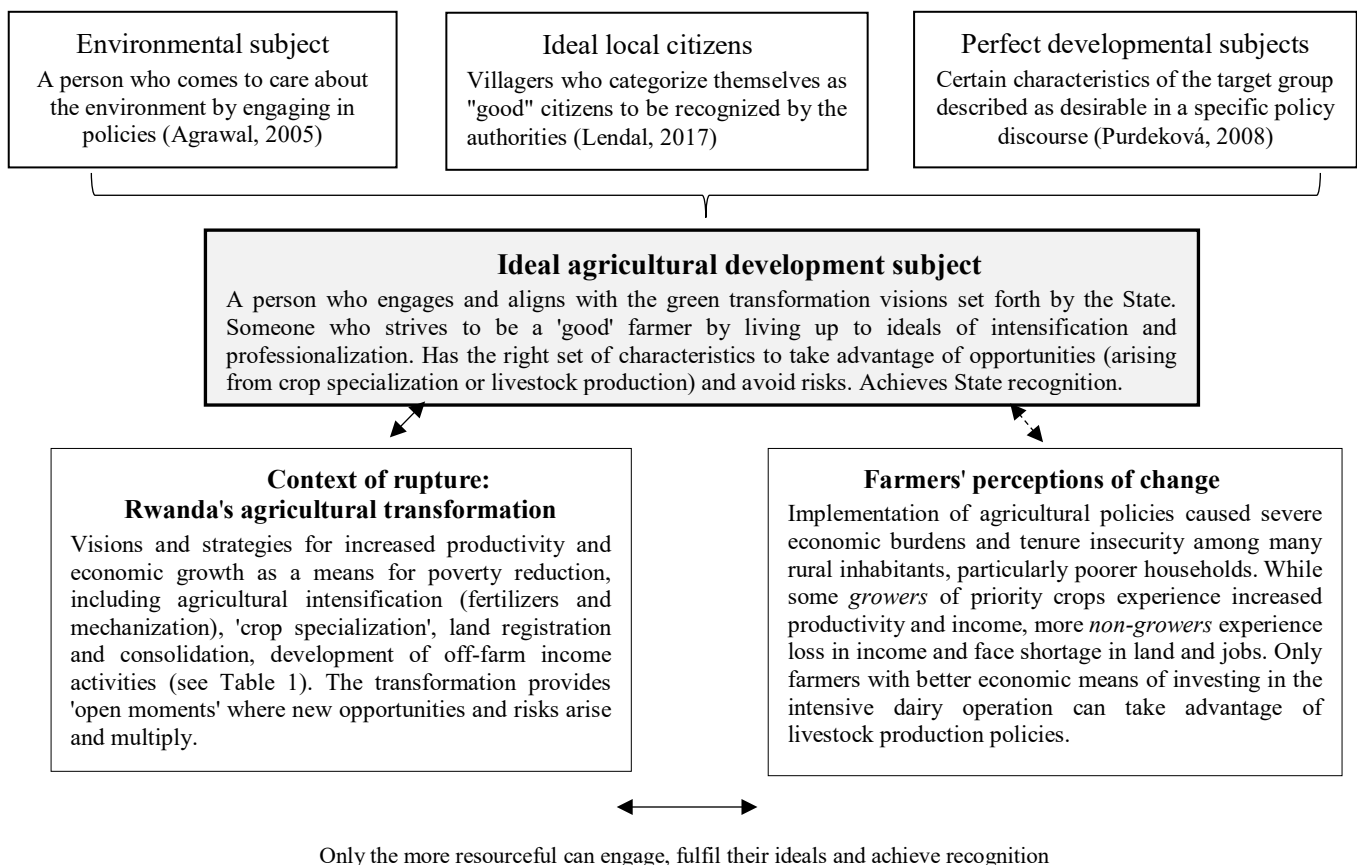


Figure 3: The 'ideal agricultural subject' in the Rwandan agricultural transformation. The diagram springs out of the general conceptual diagram presented in Figure 1; however, the lower

text boxes in Figure 2 relate specifically to the three examples from Rwanda and thereby add the contextual components of ideals and rupture, as well as an empirical component by contrasting the idealized subject with farmers' perceptions of change.

Across our examples we show that even for those willing and able to adhere to government policies, risks and losses may overtake initial investments and gains, if the financial backup is not resilient enough.

Connecting to the 'idealized agricultural subjects' in Rwanda (Figure 3), the agricultural transformation strategies seem to be better-fitted for larger farmers whose ability to unite in cooperatives and to cope with the uncertainties of crop changes and livestock production allow them to invest in new and more robust systems. These potentials are nearly impossible to realize for risk-averse smallholders (cf. Scott, 1976) and even hard to maintain for risk-seeking entrepreneurs if they lack sufficient land and financial capital to uphold their investments. The State attributes the smallholders' lack of capacity to embrace 'modernized' farming to a 'wrong mentality' (Ansoms, 2008). From the State's perspective, this mentality goes against an anticipated flexibility to change one's mindset in a desirable direction to achieve the prescribed targets, as described by Purdeková (2008). Similarly, the idealization of unity materializes in the making of cooperatives, while the institutional barriers the smallholders face are largely disregarded or unrecognized. Our examples more clearly articulate the position of many rural smallholders and the choices they face. The majority of rural Rwandans are focused on subsistence farming and have access to less than a hectare or even half a hectare of land, making them largely unable to buffer the risks and losses and provide the necessary investments for radically changing their livelihood strategies as prescribed by the State.

Since small-scale, non-commercial peasants might not be able to confine themselves to the prescribed crops, they will not be inclined to take on crop specialization or new livestock breeds, but instead opt for a livelihood diversification strategy based on risk-averse considerations. In other words, those who cannot bear the (potential) costs, and/or face institutional barriers because they are in a vulnerable position already, cannot take the risk of specializing, even if potential gains seem plausible. These farmers do not fit within the commercial model promoted by the State and cannot perform exemplary citizenship (Ansoms & Cioffo, 2016). Thus, any claims that Green Revolution policies promote development for the poor and vulnerable are unrealistic in this case. Rwanda's agricultural strategy, and similar 'Green Revolution' policies adopted across sub-Saharan Africa and beyond, envision a transformation in the national economic interest based on smallholders altering their practices, by investing in new inputs to maximize yields from new crops (or livestock breeds) for commercial sale. This reorientation necessarily involves a sudden reduction in subsistence practices and traditions, as well as tenure and sharing systems and local trade patterns. In turn it is highly predictable that negative impacts will occur as some (primarily the poorest) smallholders face food insecurity, lose customary or informal tenure, need to sell land and livestock to meet basic needs (or lose land under state duress), in addition to the obvious social and cultural harms.

Similar policy designs and social harms to vulnerable smallholders can be seen in numerous other countries in sub-Saharan Africa (Santpoort, 2020; Vercillo *et al.*, 2020; Kansanga *et al.*, 2019; Isgren & Andersson, 2021). This raises a need to monitor these multifaceted impacts and react to them, and to include social safeguards and social protection mechanisms from the outset in any policies promoting 'Green Revolution' style transformations. Mitigation and, as a last resort, compensation need to be available for those in need. Beyond this, we would argue that agricultural policies should seek to harness community-led forms of development that recognize the agency, capacity, knowledge and cultural identities of rural smallholders and foster the empowerment of Indigenous Peoples and local communities in all stages of decision-making related to their lands and livelihoods (Altieri *et al.*, 2012; Schlosberg & Carruthers, 2011; Seufert, 2013; Wily, 2011). The Rwandan government is not solely culpable for overseeing harms to the wellbeing of the poorest as these forms of Green Revolution policies are systemic, part of a globally designed model, and are promoted by international agencies, philanthropists, multinational agribusiness interests and donor states (Huggins, 2014; Moseley *et al.*, 2015; Wilson, 2014).

7. Conclusion

In this article, we show how the pro-poor visions of agricultural policy in Rwanda remain largely rhetorical, as they can introduce or even reinforce institutional barriers for many, while facilitating access and enhancing opportunities for the few. Indeed, an agricultural transformation is a rupture creating open moments of change, where opportunities and risks multiply. The 'ideal agricultural subjects' – as portrayed by the Rwandan state – are those positioned to take advantage of the new opportunities, namely those ready and able to organize in cooperatives, and to professionalize and produce while buffering risks and losses. The process of defining and enforcing rights to land resources (priority crops) and to community membership (in cooperatives) re-produces political authority in pursuit of fast-paced development. Idealizing certain farmers over others indirectly defines who belongs and who does not belong (as good/ideal Rwandan citizens/farmers), irrespective of the barriers that makes the pro-poor visions fade into mere rhetoric, and they push the poorest smallholders to a peripheral position on the State's radar of recognition.

We show that it is possible to combine previously unrelated concepts derived from empirical research in India (Agrawal, 2005), Colombia (Lendal, 2017), and Rwanda (Purdeková, 2008). There is analytical value in connecting perspectives across disconnected places and people about socioeconomic and political processes and mechanisms at work. For the broader readership, we hope that our general conceptual diagram can provide inspiration for other studies investigating the dissonance between idealized agricultural, environmental and developmental subjects and these subjects' own perception of change in moments of rupture across different contexts. Our conceptual frame invites other scholars to advance this line of thinking and shed further light on the role of the State (Loftus, 2020) with complementary investigations into, for example, historical or sociological explanations by asking what shapes a particular idealization and why, and whether is it internalized or not. In particular, more ethnographic research is needed into self-categorization of those subject to agricultural, environmental and/or development policies, exploring the idealized self-images people pursue – and/or that they oppose through hidden transcripts (Scott, 1990) and a continuum of other resistances (Ansoms & Cioffo, 2016). This may include innovative studies of how these self-images match the dominant idealized environmental discourses extensively criticized across the foundational political ecology literature (Agrawal & Gibson, 1999; Blaikie, 2010; Li, 2002; see also de Vries, 2010), and the implications of this (mis)match in terms of recognition and equity (see for instance Lund [2011] on upland-lowland distinctions in Laos). Such studies can bring new and needed dimensions to understand rural livelihoods in a rapidly changing world.

Bibliography

- Abdulsamad, A., & Gereffi, G. (2016). *Dairy value chains in East Africa*. Duke Center on Globalization, Governance, and Competitiveness.
- Agrawal, A. (2005). [Environmentality - Community, intimate government, and the making of environmental subjects in Kumaon, India](#). *Current Anthropology*, 46(2), 161-190.
- Agrawal, A., & Gibson C. C. (1999). Enchantment and disenchantment: The role of community in natural resource conservation. *World Development* 27, 629-49. [https://doi.org/10.1016/S0305-750X\(98\)00161-2](https://doi.org/10.1016/S0305-750X(98)00161-2)
- Alary, V., Corniaux, C., & Gautier, D. (2011). Livestock's contribution to poverty alleviation: How to measure it? *World Development*, 39(9), 1638-1648. <https://doi.org/10.1016/j.worlddev.2011.02.008>
- Altieri, M. A., Funes-Monzote, F. R., & Petersen, P. (2012). Agroecologically efficient agricultural systems for smallholder farmers: contributions to food sovereignty. *Agronomy for Sustainable Development*, 32(1), 1-13. <https://doi.org/10.1007/s13593-011-0065-6>
- Ansoms, A. (2008). Striving for growth, bypassing the poor? A critical review of Rwanda's rural sector policies. *Journal of Modern African Studies*, 46(1), 1-32.
- Ansoms, A., & Cioffo, G.D. (2016). The exemplary citizen on the exemplary hill: the production of political subjects in contemporary rural Rwanda. *Development and Change*, 47, 1247-1268. <https://doi.org/10.1111/dech.12271>

- Ansoms, A., Cioffo, G., Dawson, N., Desiere, S., Huggins, C., Leegwater, M., Murison, J., Bisoka, A. N., Treidl, J., & Van Damme, J. (2018). The Rwandan agrarian and land sector modernisation: confronting macro performance with lived experiences on the ground. *Review of African Political Economy*, 45(157), 408-431.
- Blaikie, P.M. (2006). Is small really beautiful? Community-based natural resource management in Malawi and Botswana. *World Development*, 34, 1942-1957.
- Booth, D., & Golooba-Mutebi, F. (2012). Developmental patrimonialism? The case of Rwanda. *African Affairs*, 111(444), 379-403. <https://doi.org/10.1093/afraf/ads026>
- Cioffo, C. D., Ansoms, A., & Murison, J. (2016). Modernising agriculture through a 'new' Green Revolution: the limits of the Crop Intensification Programme in Rwanda. *Review of African Political Economy*, 43(148), 277-293.
- Dawson, N., Martin, A., & Sikor, T. (2016). Green Revolution in Sub-Saharan Africa: Implications of imposed innovation for the wellbeing of rural smallholders. *World Development*, 78, 204-218. <https://doi.org/10.1016/j.worlddev.2015.10.008>
- de Lame, D. (2005). *A hill among a thousand: Transformations and ruptures in rural Rwanda*. University of Wisconsin Press.
- Desiere, S., Staelens, L., & D'Haese, M. (2016). When the data source writes the conclusion: Evaluating agricultural policies. *The Journal of Development Studies*, 52(9), 1372-1387.
- Desrosiers, M. E., & Thomson, S. (2011). Rhetorical legacies of leadership: projections of 'benevolent leadership' in pre-and post-genocide Rwanda. *The Journal of Modern African Studies*, 49(3), 429-453.
- DeVries, S. (2010). Swallowed: Political ecology and environmentalism in the Spanish American "Novela de la Selva". *Hispania*, 9(4), 535-546.
- Dorward, A., Kydd, J., Morrison, J., & Urey, I. (2004). A policy agenda for pro-poor agricultural growth. *World Development*, 32(1), 73-89.
- Ellis, F., & Biggs, S. (2001). Evolving themes in rural development 1950s-2000s. *Development Policy Review*, 19, 437-448. doi:10.1111/1467-7679.00143
- Filmer, D., & Pritchett, L. H. (2001). Estimating wealth effects without expenditure data—or tears: An application to educational enrollments in states of India. *Demography*, 38, 115–132. <https://doi.org/10.1353/dem.2001.0003>
- Flachs, A., & Richards, P. (2018). Playing development roles: the political ecology of performance in agricultural development. *Journal of Political Ecology*, 25(1), 638-646. <https://doi.org/10.2458/v25i1.23089>
- Fletcher, R. 2010. [Neoliberal environmentalism: towards a poststructuralist political ecology of the conservation debate](https://doi.org/10.4103/0972-4923.73806). *Conservation and Society* 8(3): 171-181. <http://dx.doi.org/10.4103/0972-4923.73806>
- GoR. (2000). *Rwanda Vision 2020*. Ministry of Finance and Economic Planning, Government of Rwanda (GoR). <https://repositories.lib.utexas.edu/bitstream/handle/2152/5071/4164.pdf>
- GoR. (2004). *Strategic Plan for agricultural transformation in Rwanda*. Ministry of Agriculture and Animal Resources, Government of Rwanda (GoR).
- GoR. (2005). *Organic Law N° 08/(005 of 14/07/2005 determining the use and management of land in Rwanda*. Official Gazette, Government of Rwanda (GoR). <http://images.policy.mofcom.gov.cn/flaw/201005/01371d5a-05b5-4ed4-a93a-76fdcd71e611.pdf>
- GoR (2009). *Strategic Plan for the Transformation of Agriculture in Rwanda – Phase II*. Ministry of Agriculture and Animal Resources, Government of Rwanda (GoR). https://www.gafspfund.org/sites/default/files/inline-files/Rwanda_StrategicPlan.pdf
- GoR. (2011). *Strategies for sustainable crop intensification in Rwanda: Shifting focus from producing enough to producing surplus*. Ministry of Agriculture and Animal Resources, Government of Rwanda (GoR). http://197.243.22.137/ngoma/fileadmin/_migrated/content_uploads/CIP_Strategies_2011.pdf
- GoR. (2012). *Farm land use consolidation in Rwanda: Assesment from the perspectives of agriculture sector*. Ministry of Agriculture and Animal Resources, Government of Rwanda (GoR).

- http://197.243.22.137/gakenke/fileadmin/templates/DOCUMENT_Z_ABAKOZI/abakozi/Farm_Land_Use_Consolidation_in_Rwanda.pdf
- GoR. (2013). *Organic Law N° 03/2013 of 16/06/2013 governing land in Rwanda*. Official Gazette, Government of Rwanda (GoR). http://gmo.gov.rw/fileadmin/user_upload/laws%20and%20policies/Law_N_43-2013_of_16-06-2013_governing_land_in_Rwanda.pdf
- GoR. (2018a). The Fifth Integrated Household Living Conditions Survey (EICV 5). In NISR; (Ed.), *Poverty Profile Report 2016/17*. National Institute of Statistics of Rwanda, Government of Rwanda (GoR). https://www.rgb.rw/fileadmin/user_upload/RGB/Publications/HOME_GROWN_SOLUTIONS/GIRINKA_REPORT_2018.pdf
- GoR. (2018b). *Strategic Plan for agriculture transformation 2018-24*. Ministry of Agriculture and Animal Resources, Government of Rwanda (GoR). https://www.minagri.gov.rw/fileadmin/user_upload/Minagri/Publications/Policies_and_strategies/PST_A4_Rwanda_Strategic_Plan_for_Agriculture_Transformation_2018.pdf
- GoR. (2018c). *Assessing Girinka Programme (2006-2016): Citizen perspectives*. Rwanda Governance Board, Government of Rwanda (GoR).
- GoR. (2020). *Vision 2050*. Abridged version. Republic of Rwanda. Government of Rwanda (GoR) [English-Vision 2050 Abridged version WEB Final.pdf \(minecofin.gov.rw\)](https://www.minagri.gov.rw/fileadmin/user_upload/Minagri/Publications/Policies_and_strategies/PST_A4_Rwanda_Strategic_Plan_for_Agriculture_Transformation_2018.pdf)
- Hasselskog, M. (2015). Rwandan developmental 'social engineering': What does it imply and how is it displayed? *Progress in Development Studies*, 15(2), 154-169.
- Hasselskog, M., & Schierenbeck, I. (2015). National policy in local practice: the case of Rwanda. *Third World Quarterly*, 36(5), 950-966.
- Huggins, C. D. (2009). Agricultural policies and local grievances in rural Rwanda. *Peace Review*, 21(3), 296-303.
- Huggins, C. D. (2014). 'Control Grabbing' and small-scale agricultural intensification: emerging patterns of state-facilitated 'agricultural investment' in Rwanda. *The Journal of Peasant Studies*, 41(3), 365-384.
- Huggins, C. D. (2017). *Agricultural reform in Rwanda: authoritarianism, markets and zones of governance*. Zed.
- Isgren, E., & Andersson, E. (2021). An environmental justice perspective on smallholder pesticide use in Sub-Saharan Africa. *The Journal of Environment & Development*, 30(1), 68-97. <https://doi.org/10.1177/1070496520974407>
- Kansanga, M., Andersen, P., Kpienbaareh, D., Mason-Renton, S., Atuoye, K., Sano, Y., Antabe, R., & Luginaah, I. (2019). Traditional agriculture in transition: examining the impacts of agricultural modernization on smallholder farming in Ghana under the new Green Revolution. *International Journal of Sustainable Development & World Ecology*, 26(1), 11-24.
- Khan, M. T. (2013). Theoretical frameworks in political ecology and participatory nature/forest conservation: the necessity for a heterodox approach and the critical moment. *Journal of Political Ecology*, 20(1), 460-472. <https://doi.org/10.2458/v20i1.21757>
- Kim, S. K., & J. Sumberg. (2015). *Assets, 'asset-ness' and graduation*. *IDS Bulletin*, 46(2), 124-133.
- Lendal, N. (2017). *On the fringe of the State: Community controlled resources and the construction of an ideal local citizen in Northeast Antioquia, Colombia*. Unpublished master's dissertation. University of Copenhagen.
- Li, T. M. (2002). Engaging simplifications: Community-based resource management, market processes and state agendas in upland Southeast Asia. *World Development*, 30, 265-283.
- Bazeley, P., Holden, S., & Ashley, S. 1999. *Livestock in poverty-focused development*. The IDL Group.
- Loftus, A. (2020). Political ecology II: Whither the state? *Progress in Human Geography*, 44(1), 139-149. <https://doi.org/10.1177/0309132518803421>
- Lund, C. (2011). Fragmented sovereignty: land reform and dispossession in Laos. *The Journal of Peasant Studies*, 38(4), 885-905.

- Lund, C. (2016). Rule and rupture: State formation through the production of property and citizenship. *Development and Change*, 47, 1199-1228. <https://doi.org/10.1111/dech.12274>
- McKay, A., & Verpoorten, M. (2016). Growth, poverty reduction, and inequality in Rwanda. In Channing, A., McKay, A. & Tarp, F. (Eds.), *Growth and poverty in Sub-Saharan Africa*. Oxford University Press.
- MINICOFIN. (2013). *Economic Development and Poverty Reduction Strategy (2013 – 2018): Shaping our development*. Draft. Ministry of Finance and Economic Planning (MINECOFIN), Republic of Rwanda. https://kigalicity.gov.rw/fileadmin/templates/Documents/policies/Economic_Development_and_Poverty_Reduction_Strategy2_2013-2018.pdf
- Moseley, W., Schnurr, M., & Bezner Kerr, R. (2015). Interrogating the technocratic (neoliberal) agenda for agricultural development and hunger alleviation in Africa. *African Geographical Review*, 34(1), 1-7. <https://doi.org/10.1080/19376812.2014.1003308>
- Newbury, C. (2011). High modernism at the ground level - the *Imidugudu* policy in Rwanda. In S. Straus & Waldorf, L. (Eds.), *Remaking Rwanda: State-building and human rights after mass violence* (pp. 223-239). University of Wisconsin Press.
- NISR. (2010). *National agricultural survey 2008*. National Institute of Statistics of Rwanda (NISR). <https://microdata.fao.org/index.php/catalog/1588/pdf-documentation>
- Njuki, J., & Sanginga, P. C. (2013). *Women, livestock ownership and markets: Bridging the gender gap in Eastern and Southern Africa*. Taylor & Francis.
- Pottier, J. (2006). Land reform for peace? Rwanda's 2005 Land Law in context. *Journal of Agrarian Change*, 6, 509-537. doi:[10.1111/j.1471-0366.2006.00133.x](https://doi.org/10.1111/j.1471-0366.2006.00133.x)
- Pritchard, M. F. (2013). Land, power and peace: Tenure formalization, agricultural reform, and livelihood insecurity in rural Rwanda. *Land Use Policy* 30(1), 186-196.
- Purdeková, A. (2008). Civic education and social transformation in post-genocide Rwanda: Forging the perfect development subjects. In M. Campioni & P. Noack (Eds.), *Rwanda fast forward* (pp. 192-209). Palgrave.
- Sahn, D. E., & Stifel, D. (2003). Exploring alternative measures of welfare in the absence of expenditure data. *Review of Income and Wealth*, 49(4), 463-489. <https://doi.org/10.1111/j.0034-6586.2003.00100.x>
- Santpoort, R. (2020). The drivers of maize area expansion in sub-Saharan Africa. How policies to boost maize production overlook the interests of smallholder farmers. *Land*, 9(3), 68. <https://doi.org/10.3390/land9030068>
- Scott, J. C. (1977). *The moral economy of the peasant: Rebellion and subsistence in Southeast Asia*. Yale University Press.
- Scott, J. C. (1990). *Domination and the arts of resistance: Hidden transcripts*. Yale University Press.
- Scott, J. C. (1998). *Seeing like a state. How certain schemes to improve the human condition have failed*. Yale University Press.
- Schlosberg, D. & Carruthers, D. (2010). Indigenous struggles, environmental justice, and community capabilities. *Global Environmental Politics*, 10(4), 12-35. https://doi.org/10.1162/GLEP_a_00029
- Shapiro, B.I., Gebru, G., Desta, S., & Nigussie, K. (2017). *Rwanda Livestock Master Plan*. ILRI.
- TechnoServe. (2008). *The dairy value chain in Rwanda*. East Africa Dairy Development Program. <https://cgspace.cgiar.org/bitstream/handle/10568/2410/Dairy%20Value%20Chain%20Rwanda%20Report.pdf;sequence=1>
- Seufert, P. (2013). The FAO voluntary guidelines on the responsible governance of tenure of land, fisheries and forests. *Globalizations*, 10(1), 181-186.
- Timmer, C. P. (1988). The agricultural transformation. *Handbook of Development Economics*, 1, 275-331.
- Tria Kerkvliet, B. J. (2009). Everyday politics in peasant societies (and ours). *The Journal of Peasant Studies*, 36(1), 227-243.
- Vercillo, S., Weis, T., & Luginaah, I. (2020). A bitter pill: Smallholder responses to the new green revolution prescriptions in northern Ghana. *International Journal of Sustainable Development & World Ecology*, 27(6), 565-575. <https://doi.org/10.1080/13504509.2020.1733702>

- Verdoodt, A., & Van Ranst, E. (2006). Environmental assessment tools for multi-scale land resources information systems: A case study of Rwanda. *Agriculture, Ecosystems & Environment*, 114(2), 170–184.
- Verhofstadt, E., & Maertens, M. (2015). Can agricultural cooperatives reduce poverty? Heterogeneous impact of cooperative membership on farmers' welfare in Rwanda. *Applied Economic Perspectives and Policy*, 37(1), 86-106.
- WFP. (2009). [*Rwanda: Comprehensive food security and vulnerability analysis*](#). World Food Programme (WFP).
- Wilson, J. (2014). Model villages in the neoliberal era: The Millennium Development Goals and the colonization of everyday life. *Journal of Peasant Studies*, 41(1), 107-125.
- Wily, L. A. (2011). 'The law is to blame': The vulnerable status of common property rights in sub-Saharan Africa. *Development and Change*, 42(3), 733-757. <https://doi.org/10.1111/j.1467-7660.2011.01712.x>
- World Bank Data. (2019). *Employment in agriculture (% of total employment) (modelled ILO estimate) - Rwanda*. The World Bank. <https://data.worldbank.org/indicator/SL.AGR.EMPL.ZS?locations=RW>