Title

Sustainable livelihoods in the global land rush? Archetypes of livelihood vulnerability and sustainability potentials

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Abstract

Large-scale land acquisitions (LSLAs) have become a major concern for land use sustainability at a global scale. A considerable body of case studies has shown that the livelihood outcomes of LSLAs vary, but the understanding of factors and processes that generate these livelihood outcomes remains controversial and fragmented in terms of cases, contexts, and normative orientations. Therefore, this study presents a meta-analysis of case studies and applies the archetypes approach developed in global change research to analyse the configurations of factors and processes that generate different livelihood outcomes in LSLA situations. The analysis is based on 44 systematically selected studies covering 66 cases in 21 countries in Africa, Latin America, Southeast Asia, and Eastern Europe. The results show that LSLAs affect rural livelihoods through a small set of archetypical configurations. Adverse livelihood outcomes arise most frequently from processes of (1) enclosure of livelihood assets, (2) elite capture, (3) selective marginalisation of people already living in difficult conditions, and (4) polarisation of development discourses, and less frequently from (5) competitive exclusion, (6) agribusiness failure, and (7) transient jobs. The processes are activated in specific configurations of social-ecological factors. Moving beyond diagnosis, the paper identifies archetypical potentials for safeguarding or enhancing sustainable livelihoods in LSLA target regions at multiple levels of decision-making. Finally, we analyse how contextual factors modify these general insights. This paper helps to advance the archetypes methodology for use in global change research that aims at integral analysis of recurrent patterns expressed in local manifestations. The results can be used to better link local case studies with regional and global inventories of the global land rush.

Keywords

Archetypes; Global land rush; Large-scale land acquisitions; Livelihoods; Meta-analysis of case studies.

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1. Introduction

Large-scale acquisitions of land have become a major concern for land use sustainability at a global scale. Since 2008, large-scale land acquisitions (LSLAs) have spread rapidly worldwide (van der Ploeg et al., 2015). The drivers of this global land rush range from global dynamics, such as increasing demand and prices for food and non-food agricultural commodities (Zoomers, 2010; Borras et al., 2015) and financial derivatives (Will et al., 2016), energy system transitions (Scheidel and Sorman, 2012), biodiversity conservation (Meyfroidt et al., 2016), climate change responses (Davis et al., 2015), and geopolitics (Oliveira, 2016) to national and subnational drivers, such as national development strategies (Cotula, 2012), land titling programmes (Dwyer, 2015), and elite struggles (Keene et al., 2015). Investments come from countries across the global North, South, and East (Zoomers et al., 2016), and their target regions are similarly dispersed around the globe, with most of them located in Africa, Southeast Asia, Latin America, and Eastern Europe (Land Matrix, 2016). By creating new flows of goods, money, people, and information, LSLAs are increasing the interconnectedness of land use across geographical distances, i.e. the telecoupling of land use systems (Liu et al., 2013; Eakin et al., 2014; Seto and Reenberg, 2014).

This increasing interconnectedness immediately impacts on resource users whose livelihoods depend on the land and natural resources that are being acquired. LSLAs have the potential to transform livelihoods in their target regions tremendously by altering the use, access to, and ownership of land (Boamah and Overå, 2016; Yengoh et al., 2016), and through the appropriation of food and water by corporate investors (Rulli and D’Odorico, 2014; Breu et al., 2016). Previous research has documented adverse livelihood impacts of LSLAs, for example through loss of access to land, environmental degradation, and increased conflict (e.g. White et al., 2012; Ahrends et al., 2015). Other studies showed that LSLAs can increase livelihood sustainability, for example through employment creation and technological spillovers (e.g. World Bank and UNCTAD, 2014; Smaller et al., 2015). Many case studies describe and explain such diverging livelihood outcomes in specific social-ecological contexts at local to regional scales. However, this literature does not yet offer clear explanatory patterns for the varying livelihood outcomes.

Therefore, we conducted a meta-analysis of case studies to investigate the factors and processes that generate varying outcomes of LSLAs for livelihoods in different social-ecological contexts in low- and middle-income countries. The paper addresses three major challenges in current research on these topics: research fragmentation; a disconnect between diagnoses of livelihood vulnerability and knowledge about sustainability potentials; and limited integration of local case studies with regional or global inventories of LSLAs.

First, current knowledge about the livelihood impacts of LSLAs is fragmented across the scientific community with respect to specific cases, regions, and diagnoses. The wealth of case studies offers diverse empirically grounded explanations of livelihood changes in specific contexts. However, few meta-analyses have been done to systematically cumulate and synthesise this diversity at a global scale (Oya, 2013). Hence, the external validity of small-N, contextualised case study explanations remains unclear. Further, the patterns that can be generalised across cases and contexts remain elusive, and it is not well understood how contextual factors modify general insights.

Global change research has a strong tradition of synthesising local-level, case-study-based evidence through meta-analysis (Magliocca et al., 2015). Examples include studies on tropical deforestation (Geist and Lambin, 2002), desertification (Geist and Lambin, 2004), food insecurity (Misselhorn, 2005), swidden cultivation (Van Vliet et al., 2012), water crises (Srinivasan et al., 2012), trade impact on small-scale fisheries (Crona et al., 2015), and soil and water conservation (Sietz and van Dijk, 2015). Our study builds on this line of research.

Second, numerous studies provide detailed diagnoses of adverse livelihood outcomes of LSLAs. Outcomes often vary within heterogeneous local communities (Borras and Franco, 2012). However, these insights remain highly disconnected from insights into potentials for safeguarding and enhancing livelihood sustainability in LSLA target regions (Locher and Müller-Böker, 2014). It remains elusive under what conditions, at what scales, and how actors can tap specific potentials to reduce vulnerability and enhance livelihood sustainability. Hence, we need to diagnose the essential features of social-ecological contexts and governance problems in LSLA cases to devise tailored responses that match the specific problems in specific contexts (Ostrom, 2007).

Third, integration of case study research with regional and global LSLA inventories remains limited. While large-N, statistical analyses of LSLAs are few to date (e.g. Rulli et al., 2013; Schoneveld, 2014; Breu et al., 2016), case studies and inventories constitute two main approaches for generating scientific evidence on LSLAs (Messerli et al., 2015). Case studies usually provide fieldwork-based explanations of processes and outcomes of one or few LSLAs, and are rich in detail and contextual understanding. A recognised challenge is the limited validity of case study results beyond the specific study sites (Yin, 2014). Inventories of LSLAs have been created at national (e.g. GIZ, 2009; Schönweger et al., 2012; Cotula et al. 2014), regional (e.g. Friis and Reenberg, 2010), and global scales (e.g. Deininger and Byerlee, 2011; GRAIN, 2012; Land Matrix, 2016). They are suitable for large-N comparisons and typically include data on the location of land deals, investors' origins, land size, and targeted land uses. The inventory approach has been challenged for abstracting heavily from the contextual details and processual insights that case studies have identified as crucial in shaping outcomes. This abstraction leads to overgeneralisation of knowledge claims and to ineffective policy

panaceas if crucial heterogeneity of contexts and processes is disregarded (Ostrom, 2007). To better inform policy debates at multiple scales, the two approaches need to be combined to provide scientific evidence that covers large areas – an advantage of inventories – and is based on robust field data regarding local to regional processes and outcomes – an advantage of case studies (Scoones et al., 2013; Messerli et al., 2014). This study uses the archetypes approach (Sect. 2) to contribute to this research agenda.

We address the three research challenges by adopting a meta-analytical design to synthesise case study evidence of LSLA-induced livelihood changes. In line with the Land Matrix criteria (Anseeuw et al., 2013), we focus on recent LSLAs that have been implemented since 2000. We define LSLAs as transfers of rights to use, control, or own land from smallholder households or communities to corporate actors (e.g. commercial firms, public investment funds) through sale, lease, or concession of areas larger than 200 hectares (Anseeuw et al., 2013). Two research questions guide this study: (1) Are there recurrent processes across contexts that explain adverse livelihood outcomes of LSLAs, and if so, what factors activate these processes? (2) Are there recurrent potentials for safeguarding or increasing livelihood sustainability in LSLA target regions, and if so, what factors activate these potentials?

2. The archetypes approach in global change research

Global change research has a strong tradition of analysing recurrent patterns across cases, contexts, and scales. The ‘syndromes of global change’ approach provided a first global synopsis of local and regional human–environment interactions leading to environmental degradation (Schellnhuber et al., 1997; Lüdeke et al., 2004). Each syndrome represents a functional pattern of factors observable in multiple world regions, where it manifests in case-specific ways (Manuel-Navarrete et al., 2007; Srinivasan et al., 2012).

The UN Environmental Programme’s (2007) ‘archetypes of vulnerability’ were inspired by the syndrome approach, but go beyond the mapping of problems by identifying potentials for more sustainable development. ‘Archetypes of vulnerability’ are recurrent configurations of factors that generate vulnerability to socio-economic and ecological change at global and regional scales (Sietz et al., 2011; Kok et al., 2016). The archetypes concept has recently been used in global change research to analyse climate change adaptation (Eisenack, 2012; Oberlack and Eisenack, 2014; Oberlack, 2016), land systems (Vaclavik et al., 2013), and agricultural system dynamics (Banson et al., 2014), among others.

Drawing on these lines of research, we define archetypes as recurrent patterns that explain how configurations of factors generate an outcome by activating processes of social-ecological interaction.

In this study, an archetype explains how social-ecological factors activate processes that generate livelihood outcomes in LSLA situations. Archetypes are ‘recurrent’ because they are observed in multiple cases. Rather than providing a detailed description of one specific case, archetypes focus on essential factors and their associations that explain outcomes in multiple cases. Archetypes are not mutually exclusive; a single case (e.g. of LSLA) can be characterised by multiple archetypes and their context-specific manifestations (UNEP, 2007).

This definition of archetypes contains a causal component, which is needed to explain how and why the phenomenon of interest occurs. We adopt the mechanistic approach to causal explanation (Mayntz, 2004; Elster, 2007), which “rests on the idea that there are recurring processes that (...) can be considered responsible for producing an observed outcome pattern” (Biesbroek et al., 2014:109). Archetypes have often been understood as configurations of factors and outcomes and their functional relations (e.g. Schellnhuber et al., 1997). The mechanistic approach complements this by identifying recurrent processes through which factors produce their effect (Meyfroidt, 2015). Hence, it strengthens the analysis of causality in archetypes by explaining the processual link between factors and outcomes. Understanding this processual link is important because a factor can generate different outcomes through different processes. Likewise, a sustainability potential may be suited to address particular adverse processes but ineffective for others (Meyfroidt, 2015). A process does not operate in all cases at all times. Instead, it is activated by specific configurations of factors (Biesbroek et al., 2014). Taken together, this study consists in a meta-analysis of case studies to identify archetypes that explain recurrent patterns of livelihood outcomes, outcome-generating processes, and process-activating factors in LSLA target regions.

3. Materials and methods

3.1. Key concepts and analytical framework

We used Ostrom’s (2009) social-ecological systems framework to code case study results (Fig. 1). It explains outcomes (here: livelihood changes) as a result of interactions between four main components of social-ecological systems (SES): the attributes of resource systems, resource units, governance systems, and actors. An SES is embedded in broader social, economic, and political settings and related ecosystems. Each SES component can be characterised by multiple second-tier variables, which may be further decomposed into third- and fourth-tier variables. A challenge in operationalising Ostrom’s SES framework concerns the ‘interaction’ category (McGinnis and Ostrom, 2014). The original operationalisation along activities was of limited usefulness for our study because case study results were easier to understand as processes than as activities. We define a process as a chain of events, activities, and outcomes over time; the term ‘process’ hence conceptualises the dynamic nature of social-ecological interactions more explicitly than the term ‘activity’. Furthermore, it was

analytically useful to distinguish between ‘core processes’ and ‘facilitating processes’. The former are processes that impact livelihoods immediately, whereas the latter facilitate the core processes.

To gain resolution in our outcome variable, livelihood changes, we used the sustainable livelihoods framework (Ashley and Carney, 1999). It distinguishes five components of livelihoods: livelihood contexts, livelihood assets, institutions and transformation structures, livelihood strategies, and livelihood outcomes (Scoones, 1998). We use the term ‘livelihood outcome’ to refer to an LSLA-induced change in any of these five livelihood components. Livelihood vulnerability refers to the susceptibility of land users to experiencing adverse livelihood outcomes when they are exposed to LSLA-induced changes and have limited capacity to adapt to them (Yaro 2004; Adger 2006). Our normative reference for assessing livelihood outcomes is the concept of sustainable livelihoods: “A livelihood is sustainable when it can cope with and recover from stresses and shocks, maintain or enhance its capabilities, assets and entitlements, while not undermining the natural resource base” (Chambers and Conway, 1992:6). In sum, the sustainable livelihoods framework enabled us to conceptualise the diverse LSLA-induced livelihood changes, while the SES framework enabled us to organise and decompose the many social-ecological factors and processes that case studies had found to explain these changes.

➤ Fig. 1 around here.

3.2. Method: meta-analysis of case studies

Because most research on livelihood outcomes of LSLAs uses qualitative or mixed methods, we adopted a model-centred meta-analysis approach (Rudel 2008). It consists in coding and analysing relations between variables (‘models’) that received empirical support in primary studies. The study protocol is illustrated in Fig. 2 and described below.

➤ Fig. 2 around here.

3.2.1. Retrieval and selection of case studies

Primary studies were identified through keyword search (Fig. 2) in Web of Science, Scopus, and EconLit. The search yielded 2,794 unique references. We assessed these documents based on a set of thematic, methodological, and contextual inclusion criteria (see Fig. 2); 44 case studies were finally included in the meta-analysis. They cover 66 cases of LSLA in 21 countries in Africa, South and Central America, Southeast Asia, and Eastern Europe. Fig. 3 shows their locations, and Appendix A lists the references and coded archetypes. Among the selected papers, 29 report on local case studies

focusing on one or few land deals, and 15 present regional case studies of LSLAs in subnational administrative units (e.g. districts).

➤ Fig. 3 around here.

All included case studies have in common that they explain how LSLAs affect specific components of previous land users' (e.g. settled smallholders', mobile pastoralists') livelihoods. The studies analyse livelihood changes in diverse biophysical, sociocultural, political, and economic contexts, under various prior and targeted land uses, and under different prior property regimes. This diversity enabled us to identify processes that recur in different contexts and regions.

3.2.2. Iterative codebook development and coding

Using MaxQDA software, the results of each case study were coded as specific manifestations of, and relations between, second-, third- and fourth-tier variables of the SES framework. Each code contained a configuration of at least three elements: (1) a livelihood change; (2) the process that generated this change; and (3) the social-ecological factors that activated the process. We call such a configuration a 'model'. More complex interaction effects such as causal clusters or chains were coded by allowing multiple codes for outcomes, processes, and factors within one model. We did not code results if livelihood outcomes were reported but not explained in terms of processes and factors. We distinguished models that diagnose adverse livelihood outcomes from models that identify potentials for livelihood sustainability (Wiesmann et al. 2011).

Increasing the number of coded case studies, we gradually developed and refined a detailed codebook of variables that characterise livelihood changes, processes, and factors. The primary studies were read and coded by two authors independently, with a third author reviewing the coding. The coded models and proposed refinements of the codebook were discussed in weekly meetings to ensure consistent coding. Differences were resolved through discussions. In a final round, all studies were recoded using the final codebook, which is documented in Appendix B. Through this procedure, we identified n=113 empirically supported models that explain adverse livelihood outcomes and n=74 empirically supported models that explain potentials for safeguarding or increasing livelihood sustainability in LSLA target regions.

3.2.3. Data analysis

These data were analysed in four steps. First, we clustered the models based on their process codes to identify recurrent processes through which social-ecological factors affect livelihoods. Second, we used formal concept analysis (FCA) to analyse the configurations of factors that activate specific

processes with adverse outcomes. FCA is a tool for qualitative knowledge representation and inference developed in mathematics (Ganter and Wille, 1999). We used the Concept Explorer software. The input is a table of models (called objects) and their binary attributes (presence/absence of factors, process, and outcome in the model). FCA generates a concept lattice and compiles logical implications between attributes. The concept lattice organises the attributes in a hierarchical structure such that higher-tier attributes are logical implications of lower-tier attributes, while lower-tier items show distinct combinations with higher-tier attributes in the dataset. FCA is suited for model-centred meta-analyses as it visualises the multiple configurations of factors represented in the case study models. In contrast to qualitative comparative analysis (QCA) (Ragin, 1987), FCA retains factors even if their presence and absence has led to the same outcome in different cases. In QCA, such factors are assumed to make no difference to the outcome and are hence disregarded for pattern identification. While this procedure enables parsimonious results, it does not analyse the possibility that contextual differences between cases might explain divergent primary-study results. In this study, therefore, we opted to retain such factors and to find patterns within the activating factors of a process. To this end, we partitioned the diverse configurations of factors for each process. We identified those ‘pivotal’ factors that minimise the number of partitions while representing all models and minimising membership of models in multiple partitions. This resulted in a small number of ‘pivotal’ factors per process which distinguish patterns of activating factors per process. Next, we analysed the concept lattices to find recurrent associations between these pivotal and other factors for each process. We recorded the frequency of each factor and of the associations between any two factors. We calculated the consistency of every association by dividing its frequency by the frequency of the associated factors. For instance, if factor A is part of ten models in our dataset and in eight of them is associated with factor B, the consistency of its association with B is 80 per cent. For the outcome variables (i.e. livelihood changes), we recorded frequencies, associations with factors, and consistency in the same way. Finally, we represented these webs of factors and associations graphically.

In the third step, we compiled the codes for sustainability potentials. While the diagnoses of adverse outcomes typically provide multifactorial explanations, 62 of the 74 models on potentials are single-factorial explanations. Therefore, we chose a simpler approach: We created a table that compiles the coded potentials, their activating conditions, and their livelihood effects. As the primary studies frequently report on risk factors that have impeded the effective activation or operation of a potential, we coded and compiled risk factors in this table as well.

Fourth, we used a set of context and control variables to analyse whether specific archetypes with adverse outcomes arise in specific contexts and whether they are observed through particular case study designs.

Taken together, we delineate archetypes along their necessary component (i.e. a core process). As the results (Sect. 4) show, a core process is not associated to a single pattern of activating factors. Rather, multiple configurations of factors, facilitating processes, and outcomes exist for each core process. Therefore, an archetype consists of a core process and its frequently or consistently associated factors, facilitating processes, and outcomes.

3.2.4.Limitations

This meta-analysis synthesises case studies reported in English-language scientific journals that were retrieved by means of systematic keyword search in Web of Science, Scopus, and EconLit. Inclusion of grey literature and additional languages could have increased the coverage in terms of cases and case studies. This could have yielded additional empirical support for the identified archetypes. Likewise, it might have yielded evidence for additional patterns not identified in the included case studies. Nonetheless, the adopted search strategy and inclusion criteria ensure that our results are based on a broad coverage of the scientific literature, as evidenced by the number of 44 included studies of 66 cases in diverse social-ecological contexts on four continents. Moreover, many reports in the grey literature provide little information about their research procedures, analytical foundations, and data sources, and would have been excluded based on the methodological inclusion criteria.

Meta-analyses in global change research typically face the challenge of integrating evidence from multidisciplinary studies (Van Vliet et al., 2016). Here, we used Ostrom's (2009) SES framework as an integrative language into which the coding team translated primary-study results, combined with double-coding and constant reliability checks. Case studies typically report a specific set of variables that do not fully overlap with the variables reported in other studies. The codebook of a meta-analysis can hence be seen as a valuable tool that compiles a comprehensive set of variables that previous research has shown to affect the phenomenon under consideration. This tool (see Appendix B) can help in future research to limit problems of omitted variables. Nonetheless, research fragmentation always implies missing data in meta-analyses. We tackled this problem by coding the models rather than the primary data on attributes of social-ecological systems reported in case studies. Models are the causal explanations for outcomes. Case studies of high methodological quality establish and verify this causality within their study contexts, for example by process tracing, using comparative designs, or contrasting alternative hypotheses with contextualised local narratives (Yin, 2014). A model-centred meta-analysis that codes causal explanations from the case studies contrasts with QCA technique, which typically establish causal claims in their analysis of secondary data rather than through coding (Rudel, 2008; Oberlack, 2016).

4. Results

4.1. What adverse livelihood outcomes are recurrently reported?

As Fig. 4 shows, land users who experience increased livelihood vulnerability and losses through LSLAs do so most frequently through loss of access to land and natural resources (44% of the models), increased conflict in their livelihood contexts (35%), and increased material or procedural inequality within their community (17%). Contested compensation (15%), ecosystem degradation (13%), and adverse labour conditions on LSLA-created farms (11%) are other frequent adverse livelihood impacts.

➤ Fig. 4 around here.

4.2. Archetypes of livelihood vulnerability: How and why do large-scale land acquisitions generate adverse livelihood outcomes?

The results show that LSLAs generate livelihood vulnerability through seven archetypes. The most frequently diagnosed archetypes are (1) enclosure of livelihood assets, (2) elite capture, (3) selective marginalisation, and (4) polarisation of development discourses. Three further archetypes – (5) competitive exclusion, (6) agribusiness failure, and (7) transient jobs – are repeatedly, but less frequently observed in the case study literature.

4.2.1. Enclosure of livelihood assets

More than half of the models (52%; n=71) attribute adverse livelihood outcomes of LSLAs to the enclosure of livelihood assets (Fig. 5). This is a process in which previous land users lose rights in communal or private land and natural resources as a consequence of the privatisation of land or resource rights in favour of an investor. Previous land users value potential benefits, if there are any, as insufficient to compensate for the lost rights. Most enclosures occur by legal means (e.g. contracts that change formal land rights) or by physical means (e.g. bulldozing or fencing), or a combination of both. In knowledge-based enclosures, land rights change is triggered by new representations of knowledge about land. In northern Sierra Leone, for example, new, remote-sensing-based representations of knowledge about land made it possible to redraw the boundaries of land control (Millar, 2016).

➤ Fig. 5 around here.

Processes of livelihood asset enclosure are activated under specific conditions. As Fig. 5 shows, there is not one unique cluster of activating conditions across cases. Rather, enclosures are activated by a set of recurrent factors and various recurrent combinations among them.

The single most frequent factor is asymmetric participation of land users in the negotiation and implementation of land deals (n=33). User participation can be asymmetric in three crucial ways. First, selective exclusion occurs when a group of land users (e.g. specific villagers, ethnic groups) is excluded by not being represented at all in negotiations with investors or the state. Selective exclusion is more likely if consultation practices between local leaders and land users at the community level are absent or deficient. Second, asymmetric bargaining occurs when land users participate in negotiations directly or through representatives, but negotiations are skewed due to unequal distribution of bargaining resources such as legal knowledge, legal backing, technical knowledge, language skills, financial means, political positions, and networks. Third, the formation of coalitions – for example between the state, investors, and a subset of land users – creates asymmetric participation by excluding coalition outsiders.

Asymmetric participation is recurrently triggered by control asymmetries at the community level (n=14), which arise if community leaders' authority is not balanced by accountability mechanisms. Moreover, land users consistently face asymmetric participation if they have no prior knowledge about the land deal (n=10).

The second most frequent single factor facilitating livelihood asset enclosures is governmental support for LSLA (n=19). Governmental actors can support LSLA by facilitating administrative procedures and political negotiations, by providing economic incentives, or by transferring formal land rights to investors, thus aiding and guiding investors' access to target regions.

Two discursive practices of international, governmental, and community actors are instrumental in facilitating enclosures. One is the discourse of marginal land, which conceives targeted land as marginal, unused, or underused. This has recurrently been shown to be an illusion (n=17), with targeted land actually contributing significantly to rural livelihoods. State actors are more prone to the illusion of marginal land if they work with deficient or absent official land cadastre (n=7). The second discursive practice consists in creating visions of progressive change (n=13). Such discourse associates LSLA with narratives of development and frequently succeeds in enticing land users to initially accept a land deal.

Land deals have recurrently targeted regions with a recent history of violent conflict or resettlement (n=12). Such a history tends to trigger livelihood asset enclosure in association with asymmetric participation, governmental support of land deals, and illusions of marginal land. Involuntary land sales form a distinct pattern of livelihood asset enclosure (n=7). They occur when holders of private land titles are forced to sell land. For example, high levels of indebtedness eventually forced peasants

in Guatemala to agree to sell their land (Alonso-Fradejas, 2012). As Fig. 5 shows, several other activating factors contributed to livelihood asset enclosure in multiple cases.

In terms of outcomes, processes of livelihood asset enclosure affect rural livelihoods in multiple ways. They deprive land users of access to natural capital in the form of land and natural resources (n=40). Both the enforcement of land rights transfers and land user resistance make livelihood contexts more conflictual (n=21). Compensation is frequently contested (n=16), and land deals can have adverse effects on ecosystems (n=10). Several studies found maladaptive livelihood strategies (n=9), such as farming on less fertile land or outmigration. For example, Tsikata and Yaro (2014) documented that several families left the village of Kpachaa in Ghana's Northern Region after losing farmland to a biofuel project. As a result, they lost additional livelihood assets and had to build up a life in their new locations without compensation.

4.2.2. Elite capture

Elite capture is diagnosed by 15% of the models explaining adverse outcomes (n=21). It is a process in which local or state elites extract disproportionately high shares of benefits from an LSLA or use it to reinforce their control over land and decision-making, while land users carry the bulk of the socio-economic and ecological costs. Depending on the sociocultural context, local elites may include regional chiefs, village elders, domestic elite families, and other local leaders, whereas state elites comprise governmental and executive actors whose power in land governance is based on formal state institutions.

Processes of local elite capture (n=14; Fig. 6) are activated by community-level factors. Almost any local elite capture is facilitated by asymmetric participation at the community level (n=12), in particular if community leaders selectively exclude land users and form coalitions with investors to their own advantage. Moreover, disproportional capture of benefits by elites is supported by governance systems that create unbalanced control asymmetries within communities (n=9). For instance, the absence of institutional mechanisms that would hold customary authorities accountable vis-à-vis community members, combined with land users' deference to customary authorities, were main factors for local elite capture in Zambia (German and Schoneveld, 2012). Coalitions are likely to legitimise land deals by creating an illusion of marginal land (n=4) or a vision of progressive change (n=3). Land deals were sometimes (n=3) legitimised because elites perceived themselves to be personally entitled to benefits from the land. In terms of outcomes, local elite capture affects livelihoods adversely by increasing material and procedural inequalities at the community level (n=9) as well as by causing loss of access to land and resources for disadvantaged land users (n=8) and associated conflicts (n=4).

➤ Fig. 6 around here.

State elite capture (n=8; Fig. 7) is chiefly activated by coalitions between state actors and investors, which is the main form of asymmetric participation in this archetype (n=7). Governmental support for LSLAs (n=5) and fragmented (i.e. scattered and insufficiently coordinated) state responsibilities (n=3) have led particular state actors to gain or reinforce their control over land governance, for example by setting up foreign investment support agencies that are controlled at national levels (Moreda, 2015). Property rights systems in which land is state property (n=2) aid state elite capture. Typical livelihood outcomes of state elite capture are loss of access to land (n=3) and an increase in conflicts (n=3).

➤ Fig. 7 around here.

4.2.3. Selective marginalisation

Selective marginalisation is diagnosed in 14% of the models explaining adverse outcomes (n=19; Fig. 8). In this process, a subset of previous land users experience a dynamic decrease of their livelihood assets as the LSLA project becomes operational, whereas other land users are hardly affected or even benefit. Women, migrants living in the LSLA target region, and people disadvantaged due to prior poverty or low skills are particularly prone to selective marginalisation. Gendered impacts (n=9) arise when men and women depend differentially on communal resources based on how family life is commonly organised in the target region and on its land tenure system. Gendered impacts also arise when men and women have differential opportunities to access agribusiness employment or outgrower schemes based on the investor's business model. Migrants (n=6) and particularly poor people (n=5) were found to be vulnerable to selective marginalisation if they were poorly represented in collective decision-making and depended on decision-makers' goodwill. Local people's low skills (n=2) have been cited as a reason for employing foreign workers instead of locals on LSLA-created farms. In terms of outcomes, selective marginalisation processes reinforce inequality within the community (n=10), deprive particular users of access to resources (n=7), increase conflict (n=3), and deepen poverty through maladaptive livelihood strategies (n=3).

➤ Fig. 8 around here.

4.2.4. Polarisation of development discourses

A polarisation of development discourses is diagnosed in 9% of the models (n=12; Fig. 9). While the selective marginalisation archetype describes social differentiation regarding livelihood assets, polarisation of development discourses refers to social differentiation regarding discourses about

future developments and LSLA implications in the target region. Discourse polarisation is typically activated by illusions of marginal land (n=4) and visions of LSLA-induced progressive change (n=5) that are contested among land users. Deeply divided interests (n=4) and low social capital (n=2) among land users, including between generations (n=3), as well as asymmetric participation due to coalition formation (n=5) aid the polarisation of discourses. Support from non-governmental advocacy groups for a subset of land users (n=2) and governmental support (n=3) can exacerbate such divides within communities. Ambiguous formal and informal land classifications exacerbate polarisation by supporting contradicting views (n=4). By eroding community cohesion, discourse polarisation results in more conflictual livelihood contexts (n=10) and can create uncertainty about the changing socio-economic order in LSLA target regions (n=3).

➤ Fig. 9 around here.

4.2.5. Other recurrent processes

Limited evidence exists on three other recurrent processes in 9.6% of the models. Competitive exclusion (4.4%; n=5), arises when an LSLA creates new competition in which previous land users are progressively excluded from value chains (Mamonova, 2015). Such competition can occur over land, over jobs, over employees for outgrower schemes, and in output markets.

Agribusiness failures (5.3%; n=6) – that is, unsuccessful economic operation of LSLA-created farms, for example, ending in bankruptcy – affect livelihoods adversely if previous land users have become too dependent on the agribusiness. Interestingly, case studies observe agribusiness failure if two of the following factors concur: lack of downstream demand, constrained access of the investor group to financial resources, extreme weather events, substantial price fluctuations, and growing dissatisfaction of outgrowers in a rigid LSLA-connected outgrower scheme.

Finally, we found early evidence of transient jobs (2.7%; n=3). An LSLA project often generates high demand for labour in its start-up phase. In the “transient jobs” cases, initial high labour demand and associated employment effects diminished when the farms became fully operational.

4.3. Archetypes of sustainability potentials: What activates potentials for livelihood sustainability in the context of large-scale land acquisitions?

Potentials for safeguarding or enhancing livelihood sustainability in LSLA target regions are found at five levels of decision-making and socio-economic dynamics. Table 1 lists these potentials, indicating the factors that aid their activation, their outcomes, and the risk factors that may hamper their

realisation. The most frequent positive outcomes are protection of land rights and the creation of opportunities for new livelihood strategies.

➤ Table 1 around here.

4.3.1. Household-level potentials

The most frequent archetypical potential is the creation of benefits for previous land users from the LSLA, as assessed by the land users (35% of the potentials; n=26). Various factors influence whether an LSLA-induced transformation has a net positive effect on livelihoods: the number of jobs per hectare, remuneration levels, income stability across seasons, labour standards, and access to jobs for locals and women. Acceptance of incoming agribusinesses is more likely in target regions with a history of large-scale farming and dependent labour. Acceptance is also more likely from individuals and groups who perceive the LSLA as a promising escape route from structural poverty. Such visions of progressive change are underpinned by expectations and experiences of new access to infrastructure, technical equipment, and know-how. Finally, land users' opportunity costs of land losses crucially determine the net livelihood impact of an LSLA. Opportunity costs depend on the scarcity of land relative to existing land uses, and on the degree to which livelihoods depend on targeted land. Beneficiaries' livelihoods have become more sustainable through improved livelihood assets, new livelihood opportunities, and improved subjective well-being.

Pathways of livelihood adaptation and coexistence are a second archetypical potential at the household level (n=8, 11%). They are enabled if households can continue their previous farming practices, for example if they retain land rights; if they receive rights in new land plots of similar quality; or if they can cultivate land not used by the investor. The extent to which pathways of adaptation and coexistence enhance or undermine livelihood sustainability depends above all on the scarcity of land in the target region, on smallholders' human capital and financial capacities to adapt their independent livelihood strategies, and on the economic structure of new market niches (e.g. demand and competition in output markets). For example, Mamonova (2015) describes how Ukrainian peasants switched from grain to more labour-intensive milk and potato to find new market niches beyond the increasingly agribusiness-dominated grain sector. In successful cases, adaptation and coexistence enhance livelihood sustainability through preserved livelihood assets and new livelihood opportunities.

4.3.2. Community-level potentials

Communities' collective action for resistance has sustained livelihoods in two main ways (n=14; 19%). First, some communities were able to completely avert land claims by investors before a land deal was concluded. For example, few communities in Laos (Kenney-Lazar, 2012) and Vietnam (Dao, 2015)

succeeded in protecting their land rights by delaying a deal until investors' demand for land was met in neighbouring regions. Another planned LSLA was abandoned in Mozambique, after the local community convincingly demonstrated how their irrigation scheme fulfils the narrative of productive and efficient land use by switching to 'modern' technologies, investments in agriculture, and commercialisation (Veldwisch and Beekman, 2013).

Most evidence of community-based resistance pertains to resistance after land deals were concluded, expressed in social and political unrest and legal battles. Both ex-ante and ex-post community-based resistance is more likely to be successful in contexts where community leaders show forceful commitment and are backed by broad community support, high social capital, legal literacy, and knowledge of other cases of LSLA. External advocacy support and limited state repression facilitate community-based resistance. While community-based resistance can benefit livelihoods by protecting households' land rights, fostering smallholders' development visions, and resulting in more favourable compensations, it also increases vulnerability by increasing conflict risks and reducing capacity for productive livelihood strategies.

4.3.3. Community–investor negotiations

Even though the implementation of negotiations between communities and investors bears many risks (Vermeulen and Cotula, 2010), case study evidence suggests that the participation of community representatives and affected land users in land deal negotiations can sometimes safeguard livelihoods by resolving competing land claims and development visions, and by resulting in favourable compensation (n=14; 19%). Beneficial effects are more likely if community leaders and representatives enjoy relative bargaining power and legitimacy among all community members. Their power may be based on the effective ability to decline a deal if necessary, but also on competition among multiple investors for scarce community land or on external advocacy support. In contexts of limited state provision of public services, financially strong investors may be welcomed as a substitute for this state function.

However, the participation of community representatives in land deal negotiations undermines land users' livelihoods if asymmetric participation and control within the community lead to local elite capture and selective marginalisation. Further, participation does not necessarily prevent asymmetric bargaining power. Agreements have been undermined by poor documentation and limited compliance. The organisational setup of participatory negotiations has recurrently been insensitive to local relations of gender and social status and to limited capacities of land users to correctly assess the long-term consequences of formalised land deals.

4.3.4.State-level potentials

In a few cases, state institutions protected smallholders' land rights against commercial pressure on land (n=6; 8%). This has occurred in contexts where particular land user groups were of great political importance to the incumbent government (e.g. Lavers, 2012) or if constitutional rules and mechanisms effectively provided opportunities to challenge land deals in court (e.g. Gomez et al., 2015). But despite these few cases of beneficial state action, governmental support for LSLAs has more often been identified as a trigger for enclosures of livelihood assets, state and local elite capture, and polarisation of development discourses (Section 4.2).

4.3.5.Socio-economic dynamics

High-profile media reports on LSLA-induced rights violations have led investors to modify or abandon their investment plans (n=2; 3%). This mechanism worked by fuelling social unrest in an LSLA target region in Mali (Hertzog et al., 2012) and by creating consumer pressure in global value chains to terminate 'irresponsible' business practices in Columbia (Gomez et al., 2015). This transparency on rights violations contributed to livelihood sustainability by helping to protect land rights.

A few regions have seen intensified competition among investors for increasingly scarce land (n=2; 3%). This led investors to adopt a more participatory approach to negotiating land deals, with favourable compensations as the main reported contribution to livelihood sustainability.

4.4. Analysis of context and control variables

The analysis of seven context and control variables that are typically recorded in LSLA inventories provides evidence of whether certain archetypes with adverse outcomes are diagnosed disproportionately often or seldom in specific social-ecological contexts, or through specific study designs (Fig. 10).

➤ Fig. 10 around here.

These results extend understanding of contextual factors in LSLA situations. Messerli et al. (2014) and Schoneveld (2014) identified population density, accessibility, yield gap, and availability of suitable, uncultivated land as indicators for the intensity of land use competition. The results in Fig. 10 show that indicators like previous and targeted land use, size of cultivated land after LSLA, and origin of investment affect the relative frequency of diagnosing specific processes in our sample.

Regarding previous land use, most adverse outcomes are diagnosed if the acquired land was used for settled smallholder farming (n=62) or as a mosaic of cropland and forests or grassland (n=36), which points to direct competition for land use. This underpins the finding of Messerli et al. (2014) that LSLA-related land use competition is most intense in moderately and densely populated areas with croplands and cropland-vegetation mosaics.

Regarding size of cultivated land, elite capture is diagnosed as the main problem in very large (>100,000 hectares) land deals, whereas all other archetypes with adverse outcomes are more prevalent than elite capture in relatively small land deals (<1,000 hectares). This might be because larger economic and political benefits and costs are at stake in larger land deals. It may also be more difficult to retain oversight and transparency of benefit distribution in larger deals.

Regarding origin of investment, enclosure of livelihood assets is more prevalent in international investments, compared to domestic investments, joint ventures or national subsidiaries. This might be due to domestic investors' better knowledge of local conditions and greater ability to influence how local communities perceive the investment.

The polarisation of development discourses is diagnosed as a problem in land deals that are either small or very large, are domestic investments or joint ventures, and target flex crops. Discourse polarisation is rarely diagnosed in deals that are medium-sized, target land uses other than flex crops, or involve international investors only.

Regional-level case studies mostly diagnosed processes of enclosure and elite capture, whereas selective marginalisation, discourse polarisation, and the other patterns are observed mainly in local case studies. In terms of prior land rights regimes, adverse livelihood outcomes are clearly diagnosed more frequently in cases where LSLAs transform common property (n=38) or a mosaic of common and private property (n=62) than private property only (n=5).

5. Discussion

5.1. Analysing archetypes: a methodological reflection

We argue that combining the methodological devices of archetypes, decomposable concepts, a diagnostic approach, and a meta-analytical study design is a highly suitable approach for gaining a more systematic understanding of the social-ecological factors and processes that generate varying outcomes of LSLAs. Archetypes enabled us to conceptually tailor the patterns of factors, processes, and outcomes in such a way that one case of LSLA may be characterised by multiple processes which

are activated under identifiable conditions. Vice versa, each archetype is present only in a subset of LSLA cases.

Application of a decomposable conceptual map provided us with a useful, complementary tool for analysing archetypes. It organises concepts and variables at multiple tiers such that lower-tier variables are subclasses of higher-tier variables (Ostrom, 2007). Concept decomposability helped us organise the many variables characterising the similarities, differences, and nuances of cases in a parsimonious and tractable structure while limiting the risk of omitted variables. The adopted analytical procedure retained its sensitivity to contextual particularities in two ways: (1) the continuous translation of specific case study evidence into the integrative, increasingly detailed conceptual map enabled increasingly powerful comparisons of the dimensions in which a case is similar to, and different from, other cases; (2) the analysis of context and control variables made it possible to investigate similarities and differences along main contextual variables.

5.2. Relating diagnoses of livelihood vulnerability with sustainability potentials

Empirical evidence is generally not available yet on the question which potentials are suited to prevent or alleviate which adverse processes in which contexts. Nonetheless, comparison of the results in Figs. 5 to 9 and Table 1 reveals marked differences between the key factors that activate adverse and beneficial processes, respectively.

Virtually all LSLAs analysed here involve a loss of land rights for previous land users. The extent to which this loss of natural capital is compensated, for example by changes in livelihood assets or wider economic structures, is decisive. Factors associated with the exclusion of land users from collective decision-making and economic activities trigger multiple processes with adverse outcomes. Moreover, adverse outcomes are particularly likely if opportunity costs of land rights losses are high, for example when livelihood strategies depend heavily on natural resources and agro-ecologically suitable land is scarce compared to existing land uses. By contrast, in cases where land users assessed changes as positive, key factors are low opportunity costs of land loss; locally accepted, inclusive business models; and opportunities to adapt livelihoods in ways that enable coexistence. Desires to escape the burdens of traditional livelihoods, combined with visions of progressive change, underpin positive assessments of LSLAs by land users.

Asymmetric participation and control within local communities are identified as factors of livelihood vulnerability in 52 diagnostic models (46%). Such inequality is likely to exacerbate existing and create new social conflicts (Homer-Dixon, 1999; Bottazzi et al. 2016). By contrast, the included LSLA studies provide little evidence of potentials for creating more equitable community-level participation. Community-based potentials were found in terms of resistance to, or negotiations with, external actors,

but only if the communities had a certain level of social capital, representation, and accountability. How these factors are created in LSLA contexts is not well investigated. Future empirical research should therefore elucidate specific potentials in LSLA cases characterised by asymmetric participation of land users and strong control by local elites. Incorporating knowledge from studies of non-LSLA-related rural transformations about pathways to more symmetric community-level participation might be useful (Haller et al., 2016). Such research is particularly urgent, as recent high-level policy documents – such as the FAO (2014) Principles for Responsible Agricultural Investment and the FAO (2012) Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forest – identify community inclusion in land deals as a key principle, but scarcely offer guidance on how to avoid elite capture, selective marginalisation, and enclosures in contexts plagued by participation and control asymmetries in land user communities.

5.3. Scientific evidence for policy debates at multiple scales

Archetypes analysis responds to the need for better linking evidence from case studies and large-N inventories of LSLAs (Scoones et al., 2013; Messerli et al., 2014). Archetypes analysis links case studies and inventories top-down and bottom-up. Top-down, this study has used context variables from inventories to analyse the salience of particular processes in particular contexts. Indeed, some archetypes arise in particular social-ecological contexts more often than in others (Fig. 10).

Bottom-up, archetypes can inform inventories by synthesising recurrent patterns across cases. Each of the archetypes shows how key factors and processes generate livelihood vulnerability and sustainability. Inventories have been criticised for relying too heavily on the size of LSLAs in hectares when assessing the significance of the land rush, and for ignoring processual insights from case studies (e.g. Edelman 2013). Inventories can improve on these issues by better incorporating specific indicators for the key factors and processes condensed in the archetypes (Figs. 5-9), and by sourcing respective data.

6. Conclusion

Despite the broad diversity of LSLA projects and their contexts, this meta-analysis identifies a small number of patterns that explain adverse and positive livelihood outcomes of LSLA. The set of archetypes provides an empirically grounded generalisation, identifying and explaining the key processes that generate livelihood vulnerability and sustainability in LSLA target regions. It offers a condensed synthesis that may facilitate diagnosis of LSLA situations and limit potential problems of omitted variables in future research.

Knowledge on archetypes may inform national and international policies by focusing attention on finding ways to address recurrent processes of livelihood vulnerability and sustainability. For instance, the results show that asymmetric participation in communities is often associated with enclosure of livelihood assets, selective marginalisation, and elite capture. This suggests that the widely accepted governance principle of ‘community participation’ is too unspecific, prone to local elite capture and selective marginalisation, and needs to be complemented by provisions that counterbalance potential community-level asymmetries.

Finally, our meta-analysis points to future research needs. The archetypes need to be tested and refined in a new generation of empirical research. Moreover, empirical research is urgently needed to narrow the gap between diagnoses of livelihood vulnerability and knowledge about sustainability potentials. One avenue is to analyse LSLA cases in which actors have succeeded in overcoming specific adverse archetypes over time. A second avenue is to analyse ‘surprising’ cases of LSLA in which activating conditions for vulnerability archetypes are present without creating the adverse outcomes predicted by the patterns. Finally, future research may use the archetypes to analyse the pathways along which governance strategies at multiple scales modify archetypes of vulnerability and sustainability.

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887 **Appendix A: Case studies included in this meta-analysis**

888 **Table A1.** Case studies, countries, and coded archetypes.

Primary Study	Country	Archetypes of livelihood vulnerability	Archetypes of livelihood sustainability
Acheampong and Campion, 2014	Ghana	ENC (4x), SEM, AGF, TJO	BEN (2x)
Alonso-Fradejas, 2012	Guatemala	ENC, PDD	RES
Baird, 2014	Cambodia	--	ADA (2x)
Beekman and Veldwisch, 2012	Mozambique	--	RES
Boamah, 2014	Ghana	ENC (2x), LEC (3x), SEM (3x), AGF	RES, PAR (2x)
Borras et al., 2011	Mozambique	ENC (2x)	--
Burnod et al., 2013	Madagascar	ENC (2x), LEC	PRO
Campion and Acheampong, 2014	Ghana	ENC (4x)	--
Chinsinga et al., 2013	Malawi	END (2x), SEC, PDD (2x)	--
Daley and Pallas, 2014	Ethiopia	ENC (2x), SEM (2x)	--
Dao, 2015	Vietnam	ENC (3x), SEC, SEM, CEX, TJO	BEN, RES (2x)
Delang et al., 2013	Lao	ENC (3x)	BEN (2x), ADA, COM
Duvail et al., 2012	Kenya	LEC	--
Dwyer, 2014	Lao	ENC, SEC, SEM	--
Galeano, 2012	Paraguay	ENC	--
German and Schoneveld, 2012	Zambia	ENC (2x), LEC, SEC, AGF	--
German et al., 2013	Ethiopia, Ghana, Mozambique, Zambia	ENC (4x), LEC	PAR (2x), DRM, PRO (2x)
Gilfoy, 2015	Liberia	PDD	BEN, PAR
Gómez, 2015	Colombia	ENC	RES, PRO, REP
Grajales, 2013	Colombia	ENC (4x), LEC	--
Grandia, 2013	Guatemala	ENC	--
Habib-Mintz, 2010	Tanzania	ENC	--
Hertzog et al., 2012	Mali	ENC	RES, REP
Kenney-Lazar, 2012	Lao	ENC (4x)	RES
Lavers, 2012	Ethiopia	SEM, AGF	ADA, PAR, PRO
Mamonova, 2015	Ukraine	ENC, SEM, CEX	BEN (2x), ADA
Millar, 2016	Sierra Leone	ENC (3x), LEC, SEM	BEN (2x)
Moreda, 2015	Ethiopia	ENC (2x), SEC, CEX	RES (2x)
Neef et al., 2013	Cambodia	ENC (2x), PDD	RES; SOC
Neville and Dauvergne, 2012	Tanzania	ENC, SEM, PDD (3x)	PAR
Nolte, 2014	Zambia	LEC	BEN (2x)
Petrack et al., 2013	Kazakhstan	--	BEN
Porro and Netto, 2014	Brazil	ENC	BEN
Purdon, 2013	Tanzania	ENC (3x), AGF	BEN (2x), CDP, SOC, COM
Schoneveld, 2014	Nigeria	LEC, SEC	BEN (2x), PRO
Schoneveld, 2015	Ethiopia, Nigeria	LEC, SEC (2x), PDD	--
Schoneveld et al., 2011	Ghana	ENC (2x), SEM (3x)	BEN (3x), ADA (2x)
Schoneveld and German, 2014	Ghana	ENC (2x), LEC	--
Smalley and Corbera, 2012	Kenya	ENC, SEM, PDD (3x)	BEN (2x), ADA, RES, PAR, CDP
Timko et al., 2014	Ethiopia, Ghana	ENC (3x)	--
Tsikata et al., 2014	Ghana	ENC (2x), SEM (2x), AGF, TJO	BEN (2x), PAR

Veldwisch et al., 2013	Mozambique	--	RES
Williams et al., 2012	Ghana	ENC	--
Wisborg, 2013	Ghana	ENC (2x), LEC, SEM	BEN, RES, PAR, DRM

Note:

Archetypes of livelihood vulnerability: ENC: Enclosure of livelihood assets; LEC: Local elite capture; SEC: State elite capture; SEM: Selective marginalisation; PDD: Polarisation of development discourses; CEX: Competitive exclusion; AGF: Agribusiness failure; TJO: Transient jobs.

Archetypes of livelihood sustainability: BEN: Benefit creation; ADA: Adaptation and co-existence; RES: Community-based resistance; PAR: Community participation in negotiations; CDP: Community development projects; DRM: Dispute resolution mechanism; PRO: Legal protection of local land use rights; SOC: State-organised compensatory allocation of land or funds; REP: Reputation; COM: Increasing competition among investors for land.

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Appendix B. Codebook

The codebook is available as supplementary material.

Figure Captions

Figure 1. Social-ecological systems framework. Source: McGinnis and Ostrom (2014).

Figure 2. Study protocol.

Figure 3. Locations of the cases.

Note: The map was created by Dr. Sandra Eckert, Centre for Development and Environment, University of Bern, Switzerland.

Figure 4. Most frequently reported adverse livelihood outcomes of large-scale land acquisitions.

Figure 5. Enclosure of livelihood assets archetype.

Figure 6. Local elite capture archetype.

Figure 7. State elite capture archetype.

Figure 8. Selective marginalisation archetype.

Figure 9. Polarisation of development discourses archetype.

Figure 10. Analysis of contextual and control variables.

Note: White numbers are the relative frequencies of diagnoses per context category. Benchmark across all contexts: 52% enclosures; 15% elite capture; 14% selective marginalisation; 9% polarisation of development discourses; 10% other processes.

Table Captions

Table 1. Potentials for safeguarding or enhancing livelihood sustainability in LSLA target regions.

Table A1. Case studies, countries, and coded archetypes. Note: Archetypes of livelihood vulnerability: ENC: Enclosure of livelihood assets; LEC: Local elite capture; SEC: State elite capture; SEM: Selective marginalisation; PDD: Polarisation of development discourses; CEX: Competitive exclusion; AGF: Agribusiness failure; TJO: Transient jobs. Archetypes of livelihood sustainability:

1017 BEN: Benefit creation; ADA: Adaptation and co-existence; RES: Community-based resistance;
1018 PAR: Community participation in negotiations; CDP: Community development projects; DRM:
1019 Dispute resolution mechanism; PRO: Legal protection of local land use rights; SOC: State-
1020 organised compensatory allocation of land or funds; REP: Reputation; COM: Increasing
1021 competition among investors for land.

Table 1. Potentials for safeguarding or enhancing livelihood sustainability in the context of large-scale land acquisitions (LSLAs).

Level of decision-making	Potential	n	Activating Factors	Livelihoods Outcomes	Risk Factors
Household/ family	Benefit creation: Beneficial changes in livelihoods, as assessed by previous land-users	26	<ul style="list-style-type: none"> ➤ High number of jobs per hectare ➤ Higher level or greater stability of income ➤ Low/instable income prior to LSLA ➤ Desire to escape traditional society ➤ High expectations of progressive change ➤ New access to infrastructure and technical equipment ➤ Enhanced skills and knowledge of agricultural techniques ➤ Food provision in times of scarcity ➤ History of large-scale farming and dependent labour in target region ➤ Required prior consent of resource users to land deal ➤ Low opportunity costs of loss of land rights (e.g. limited conflict with community farmland) 	<ul style="list-style-type: none"> ➤ Improved household income, financial assets, or subjective well-being ➤ New livelihood opportunities 	<ul style="list-style-type: none"> ➤ Few jobs per hectare ➤ Low levels of remuneration ➤ Seasonality of on-farm work ➤ Poor working conditions ➤ Selective access to jobs, e.g. due to low skills or preferential hiring of external workers ➤ Large travel distance to places of job recruitment ➤ Cleavage between investor and previous land users ➤ Conflict within community due to disruption of traditional activities ➤ Selective marginalisation ➤ Agribusiness failure, transient jobs
	Adaptation and coexistence: Continuation of livelihood practices (e.g. farming); innovative livelihood practices (e.g. new market niches)	8	<ul style="list-style-type: none"> ➤ Partial retention of land rights, coexisting land use ➤ Obtainment of rights in new land ➤ Possibility to cultivate unused land of investor ➤ Free market niche ➤ Adaptive use of compensations ➤ High social capital in land user community ➤ Creation of small-scale business opportunities in target region 	<ul style="list-style-type: none"> ➤ Preservation of livelihood assets ➤ New livelihood opportunities 	<ul style="list-style-type: none"> ➤ Scarcity of land for coexistence ➤ Consumptive use of compensations ➤ Financial load of innovative livelihood strategies ➤ Limited skills for livelihood diversification ➤ Competitive exclusion in new market niches
Community collective action	Community-based resistance: Averting the investor's land claim prior to LSLA (ex ante); resistance after conclusion of land deal (ex post)	14	<ul style="list-style-type: none"> ➤ High social capital in land user community ➤ Forceful attitude to resistance ➤ Ability to make use of convincing customary claims and know-how ➤ Knowledge about failed deals from elsewhere ➤ Legal literacy of community leaders ➤ Nothing to lose in conflict ➤ Advocacy support for community-based resistance 	<ul style="list-style-type: none"> ➤ Protection of land rights ➤ Promotion of smallholders' development visions ➤ Favourable compensation ➤ Livelihood rebuilding after agribusiness failure 	<ul style="list-style-type: none"> ➤ More conflictual environment, cycles of contestation

			<ul style="list-style-type: none"> ➤ Temporal delay until investor land claims subside ➤ Limited state capacity to suppress resistance 		
Community–investor negotiations	Community participation in land deal negotiations	10	<ul style="list-style-type: none"> ➤ Community-based resistance ➤ Land users’ perception of investor as compensating for limited state capacity in public service provision ➤ Advocacy support for communities in negotiations ➤ Competition among investors for scarce community land ➤ Investor business model of gradual, adaptive development ➤ International certification scheme 	<ul style="list-style-type: none"> ➤ Explicit compensation arrangements with favourable conditions ➤ Negotiation and resolution of competing land claims and development visions ➤ Protection of land rights 	<ul style="list-style-type: none"> ➤ Selective marginalisation ➤ Local elite capture ➤ Asymmetric bargaining power ➤ Governmental support for investor shifts bargaining power ➤ Illusion of identifying all “affected actors” ➤ Creation of new overlapping land claims for compensation
	Community development projects	2	<ul style="list-style-type: none"> ➤ Public service provision by investor by providing resources for community development projects 	<ul style="list-style-type: none"> ➤ Access to community-level livelihood assets 	<ul style="list-style-type: none"> ➤ Poor documentation of agreements, limited compliance
	Dispute resolution mechanisms	2	<ul style="list-style-type: none"> ➤ Spontaneous creation of dispute resolution mechanisms over time, or planned creation in land deal 	<ul style="list-style-type: none"> ➤ Negotiation of competing claims in operational phase 	<ul style="list-style-type: none"> ➤ Gender- and status-insensitive organisation of consultations ➤ Limited knowledge of land users for assessing proposed deal
State	Legal protection of local land use rights	6	<ul style="list-style-type: none"> ➤ High political importance of land user group for government ➤ Participation of local government in negotiations ➤ Constitutional rules and effective mechanisms for protection of land rights 	<ul style="list-style-type: none"> ➤ Protection of land rights ➤ Avoidance of local elite capture by means of checks and balances 	<ul style="list-style-type: none"> ➤ Selective marginalisation of politically marginalised groups
	Compensatory allocation of state land or funds to land users	2	<ul style="list-style-type: none"> ➤ State-organised compensation, e.g. land replacement or community development funds 	<ul style="list-style-type: none"> ➤ Protection of livelihood assets 	<ul style="list-style-type: none"> ➤ Contested compensation
Social-economic dynamics	Reputation	2	<ul style="list-style-type: none"> ➤ High-profile media reports of rights violations 	<ul style="list-style-type: none"> ➤ Transparency regarding potential rights violations 	
	Increasing competition about land among investors	2	<ul style="list-style-type: none"> ➤ Increasing scarcity of suitable land in LSLA target region 	<ul style="list-style-type: none"> ➤ Favourable compensations 	

Tab. 2 | Potentials for more sustainable livelihoods in large-scale land acquisition contexts.

Legend: **n:** number of models on potentials (total: n=74). Potential: process or factor that contributes to more sustainable livelihoods. Activating factor: Attribute of the social-ecological system that activates this potential. Outcome: Reported effect of an activated potential on livelihoods. Risk factor: Factor or process that are reported to impede the activation of the corresponding potential.

Figure 1. Social-ecological systems framework. Source: McGinnis and Ostrom, 2014.

Activating Factors and Facilitating Processes

Core Process

Outcomes

Legend:

- Core Process
- Social-Ecological Factor
- Facilitating Process
- Outcome
- *** Consistency = 100%
- ** Consistency ≥ 75%
- * Consistency ≥ 50%
- Thick black line: n > 7, or n ≥ 4 and consistency ≥ 75%
- Thin black line: Other recurrent associations (n ≥ 4)

Legend:

Core Process
 Social-Ecological Factor
 Facilitating Process
 Outcome

*** Consistency = 100%
 ** Consistency $\geq$ 75%
 * Consistency $\geq$ 50%

— $n \geq 4$ and consistency $\geq$ 75%, or
 $n = 3$ and consistency = 100%
 — Other recurrent associations ($n \geq 2$)

Legend:

Legend:

Targeted land use

Previous primary land use

Size of land under cultivation [in 1,000ha]

Origin of investment

Region of the case study

Previous property rights regime

■ Enclosure of livelihood assets ■ Elite capture ■ Selective marginalization ■ Polarization of development discourses ■ Other patterns

Scale of case study's unit of analysis