

From land restructuration to land grabbing – the political context of agroecology

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Abstract: *Agroecology is materializing as an alternative set of practices in a context where green revolution capital-intensive agricultural systems are hogging land resources through land restructuration, subventions and technology to the benefit of the corporate regime. We argue that the claim that land restructuration is a form of land grabbing provides a ground to question the legitimacy of the land restructuration process and its underlying economic assumptions, and creates a window of opportunity for agroecological practices and movements in Germany.*

This paper aims to open a window of discussion about the political aspects of land restructuration. Its innovative character is to use a political analysis perspective on a first world agricultural problem. It is complemented by a food system analysis through which we explore the relationship between alternative and the mainstream capitalist food system.

We find that while there is a consensus on the structural aspects of land grabbing, the land grabbing concept is used by the Green Party, NGOs and activist groups to highlight the political dimension in the agricultural production process. Currently the dominant paradigm relies on a capital-intensive technological regime which is determinant for agricultural innovations and seems unlikely to change. Yet, agroecology has the potential to provide an alternative paradigm to the neo-classic rational for the management of our food system. Agroecology movements and unions are necessary to construct this future as they provide a space outside the corporate regime in which agroecological innovations can emerge and develop.

Keywords: *agroecology land grabbing, land restructuration, movements, neoclassic economics, political ecology, productionist paradigm*

Introduction

“Agriculture is at the crossroad” (De Schutter, 2011b). The current agricultural and food system is flawed with problems including food scandals, mass destruction of biodiversity, rural exodus, among others. These shortcomings lead many scholars to question the optimality of resource use following the current paradigm (e.g. Holt-Gimenez and Altieri, 2013, Haberl, 2015). De Schutter’s (2011b) presents the potential of the agroecological paradigm as well as the agroecological practices and food systems to permit and contribute to a necessary and demanded transformation of the agriculture and food system. Pretty (2008) notes that techniques for agroecological practices and agroecological knowledge exist; what is missing is the political will to make agroecology more than a niche market within an industrial food regime (Holt-Gimenez and Altieri, 2013).

The food regime determining the pathway for the food system today is made up “of the global food system’s government ministries, global institutions, agri-food monopolies, and grant universities, think tanks, and big philanthropy that generated the technologies, the discourse and enforce the regime’s rule (e.g. free trade agreements, the US farm Bill and the CAP)” (McMichael, 2009). This corporate food regime is characterized by the belief that the increase in food production and availability is the solution to food security, that is, the *productionist paradigm* (Lang and Barling, 2012). The agricultural practices related to this food regime are characterized by mechanization, capital-intensive technology, tremendous financial capital, large scales, widespread use of inputs including fossil energy and phytopharmaceuticals, monoculture, as well as genetically modified seeds in some countries. These practices dominate in the developed world and have been promoted by the agents of the corporate regime with much effort and financial support since the green revolution in developing countries started (Holt-Gimenez and Altieri, 2013).

As a result of the wide-spreading of the industrial farming system, fundamental structural changes in the agrarian landscape have occurred in Germany since the 1960’s in a process known in agricultural economics as land restructuration (*Strukturwandel*). The land restructuration process is the result of a competition among farming units for land (Haberl, 2015). It follows a logic of economies of scale (Buttel, 2004) which increases the financial efficiency of production per ha. The competition for land in particular is increasingly accompanied by (latent) conflicts, revealed by the emergence and wide-spreading of the concept of land grabbing to describe changes in the structure of the control over land and agricultural production. Holt-Gimenez and Altieri (2013) claim that states systematically attribute significantly more means towards the development of the capital intensive agriculture than to alternative systems (also Vanloqueren and Baret, 2018). This hampers the competitiveness and rise of agroecological practices.

Three dimensions of the agroecology concept occur in the paper. The first is the agroecological practices as a complex of ecology-driven practice in agriculture. Second, agroecological movements are social movements rooted in agrarianism, supporting communitarian social aims and highlighting the link between the people and the land/the earth (Wezel et al., 2009; Wittman et al., 2010). Third, we look at the agroecology paradigm, as a set of values propagated by the agroecological movements, emerging as novel holistic guidelines for the design of alternative food systems (Wezel and Soldat, 2009). Francis and colleagues (2003) perceive modern agroecology to be the “integrative study of the ecology of the entire food system, encompassing ecological, economic and social dimensions”. Beyond that, Wezel and Soldat (2009) foresee agroecology as a philosophy for the design of sustainable food systems (supporting biodiversity, cultural diversity, nature, the production of food, and including the use and trade systems of agricultural products and the development of policies).

Interestingly, political ecology analyses related to agriculture in the first world are rare. The innovative character of our contribution to the debate on land restructuration is the use of the lens of political ecology, and not the agricultural economic one. We focus on the interaction

between agroecology (practices and movements) and mainstream capitalist agriculture in Germany through the process of land restructuration. We suggest that this process can be seen as a land grab from the current corporate food regime towards industrial agriculture (as elsewhere in the world) to the detriment of small-scale, organic and agroecological practices. Our aim is to show that the concept of land grabbing is operationalized by agroecological movements (among others) to engage a paradigm change towards agroecology in the context of the on-going land restructuration process in German agriculture. We argue that this definition of land grabbing provides a ground to question the legitimacy of the land restructuration process and its underlying economic assumptions and creates a window of opportunity for agroecological practices and movements in Germany. Our analysis takes 3 steps: (1) identify the nature of the conflict revealed by the qualification of land restructuration as land grabbing in Germany in terms of agricultural paradigms; (2) identify the role of land restructuration (feedback loops) as a process in the locking out of the agroecology paradigm and practices; (3) discuss the role of agroecological movements in the development of agroecological practices and food systems in the context of land restructuration, using the case of an agroecological farmer association in Brandenburg, Germany.

We hope to stimulate a discussion envisioning a new position for agroecology in the food regime beyond that of the current niche-concept (Holt-Gimenez and Altieri 2013).

Conceptual background

Our analysis relies on theories from political ecology and methods from food systems analysis. Political ecology aims to understand the “complex relations between nature and society through a careful analysis of [...] access and control over resources and their implications for sustainable livelihoods and environmental health”. It also seeks to “explain environmental conflicts especially in terms of struggles over knowledge, power and practices [...]” (Watts, 2000, cited in Elmhirst, 2011). One of its mandates is the analysis of conflicts over the distribution of land and the “politics of primary production including alternative food networks” and production systems, such as for instance agroecology and other forms of “marginal” practices (Galt, 2013). Galt (2013) proposes a theoretical framework representing political ecology at the crossroad between the sciences of agrarian political economy, agroecology and food studies. Our comment here relies on theories developed in agrarianism concerning the co-existence of one mainstream dominant economic force and alternative systems. The main theories relevant to interactions between the dominant capitalist agriculture and alternative production and food systems are summarized by Pratt (2009). According to his review, what characterizes peasants as compared to capitalist farmers is their level of dependency on the capitalist structures (credit, inputs, markets) – in other words, whether the farming entity can reproduce itself outside the corporate structure (Sahlins, 1974 and Bernstein 1979, both cited in Pratt, 2009). Interestingly, this appears to be the aim of food sovereignty (Wittman et al., 2010-) Alternative interaction pathways include the cooptation of the alternative system – as in the case of organic farming in California (Guthman, 2004) or the co-existence of both systems. Though highly politicized (McMichael, 2012), it enables the analysis of behavior and interests of agents, and of feedback responses providing insights as to why groups in a society invest in land grabbing as a strategic means to gaining control over land.

The complementary aspect comes from human ecology (Dyball and Newell, 2015) with the study of food systems and the embedded dynamics. The paper makes use of its holistic system representation to depict the interactions between the different actors in the food system. When applied to our case study of land restructuration in Germany, the political ecology approach consists in looking at the interaction between food system agents from capitalist agriculture and agroecological agents with different kind of ecological knowledge and practices, who compete for land resources and power in the context of the current food regime, characterized by a productionist paradigm and policies.

The current corporate food regime and land restructuring in Germany

The productionist paradigm of the corporate food regime

The 'productionist' paradigm described by Lang and Heasman (2004) characterizes the current corporate food regime. It is rooted in the neoclassic agricultural economics. Its focus on organizing agriculture to produce a maximum of commodity and generate profit through measuring the land use efficiency in terms of profit per ha, as well as its narrow depiction of food exchange as a pure market-driven process (Buttel 2004) have driven the design of agricultural policies since the 1930's (Lang and Barling, 2012). The productionist paradigm lies on knowledge produced by the corporate agents, on high-tech innovations and machinery (Holt-Gimenez and Altieri, 2013), a substantial material and energetic throughput with the high use of inputs (Haberl, 2015), financial and physical capital and low manpower. High-technology and capital intensive research and innovations receive most attention and support from the states. Corporations concentrate benefits from the capital-intensive production system up-stream and downstream from agricultural production. The development and use of technology and labor prices was found to significantly determine the land restructuring process (Schader et al., 2011).

In this regime, competition for land among actors is regulated via bids on the market, which favors the established and wealthier. As a result, agriculture turns into a commodity provider for the agribusiness and energy industry. Blank (1998) envisioned that this process could lead to the disappearance of staple food production in Europe and in the US. Following the assumption that farmers are rational agents (maximizing their future profits by acquiring land), distributional adjustments appear to serve all. Yet, the productionist paradigm fails to depict and manage food production and consumption as sub-systems, driven by feedback forces and embedded within the wider food regime and ecological system. Thus, social and ecological impacts are systematically omitted.

Land restructuring in Germany

The land restructuring process materializes through a strong concentration of land, which in Germany has risen very steeply since the 1980's. The number of farms decreased from 630,000 in 1990 to 275,000 in 2016. In 2017, 13.9% of the farms concentrated 60% of the land, within holdings greater than 100 ha in size (Destatis, 2017). From 2007 to 2010, 1500 farms larger than 1000 ha emerged. In comparison to its neighboring countries, Germany has had the most drastic decimation (-73%) of very small farms (<10 ha) (Kay, 2016). Since the financial crisis new investors compete for land on the market (e.g. Ehlers, 2016) leading land and lease prices to increase significantly (Destatis, 2016, 2017). In some regions of western Germany, 20 to 50% of the land is in the hands of large corporations (Bauer, 2018). Effectively, nowadays it is almost impossible to enter the mainstream agricultural production sector without availability of a considerable financial capital (Herre, 2014). Due to acreage-based distribution of EU subsidies, few farms also concentrate a large share of the farm support. In 2013 only 1.2% farms received 27.4% of the CAP Expenditure transferred to Germany (European Commission, 2015).

Eigner (2018) argues that land concentration is both the result of a strategy of accumulation of land resources, and, in the current price system, of a "margin squeeze" (Buttel, 2004) pressure which leaves farmers with no other means for survival than to grow. The farmers who do not manage to grow go out of business. The liberated land is hogged in the capitalist production system. On the one hand, land restructuring evicts smaller farmers who could not or did not wish to grow and embrace the industrial large-scale production methods. On the other, it blocks the entry of new farmers wanting to produce with alternative production systems, such as agroecological systems. It is not surprising under these conditions that movements of resistance organize and point to the problem of land restructuring as a case of land grabbing.

Land grabbing: a conflict between agroecology and productionist systems

This section explores selected definitions of land grabbing to identify how they reflect the conflict between capital-intensive agriculture and alternative production systems generated by the competition stemming from land restructuring.

Method

Table 1 lists the 9 texts we selected among the existing large amount of grey literature, web publications, scientific papers, and governmental reports providing a definition of land grabbing or portraying the land grabbing process in detail. The selection was based on the following criteria: (1) A diversity of authors serving in institutions of different political background and from the civil and government sector, (2) a diversity of source, including scientific journals, research briefs, reports, strategy and position papers, (3) recent publications (2010 onwards). The selection stopped as soon as no new elements could be found. Our selection excludes the perception that land grabbing does not occur.

The text analysis borrows from content analysis (Mayring 2000) in order to identify criteria to define the concept of land grabbing. The criteria emerged from the text material against the background of our conceptual and theoretical framework (inductive process). We present and compare a diversity of views of the term land grabbing, also paying attention to who holds which position on which topic. Common definition criteria reveal the shared understanding of the concept. Criteria specific to certain views show where the core of the conflict resides.

Table 1: Texts selected for the analysis and identification of criteria for defining land grabbing

Nr	Publisher	Author	Publication Title	Nature of Publication	Place	Year
1	German Ministry for Cooperation and Development (Bundesministerium für Zusammenarbeit - BMZ)	NN.	Investitionen in Land und das Phänomen des "Land Grabbing"	Strategy paper	Bonn	2012
2	Deutscher Bundestag, German Parliament, Department of Economics	Goeser	Land Grabbing - Ursachen, Wirkungen, Handlungsbedarf	Information letter	Berlin	2011
3	Die Grünen/European Free Alliance (Green Party)	Heubuch	Landjäger- Europas Äcker im Ausverkauf	Position paper	Brussels	2016
4	European Coordination of Via Campesina (ECVC)	NN	How do we define Land Grabbing?	Information letter	Brussels	2016
5	European Economic and Social Committee (EESC)	Nurm	Jagd nach Agrarland- ein Alarmsignal für Europa und eine Bedrohung für bäuerliche Familienbetriebe	Position paper	Brussels	2015
6	Food First Information and Action Network (FIAN)	Borras, Franco, van der Ploeg,	Landkonzentration, Land Grabbing und der Widerstand in Europa	Report	o. O.	2014
7	Peripherie	Engels & Dietz	Land Grabbing analysieren: Ansatzpunkte für eine politisch-ökologische Perspektive am Beispiel Äthopiens	Scientific publication	Münster	2011
8	Journal of Peasant Studies	De Schutter	How not to think of land-grabbing: three critiques of large-scale investment	Scientific Journal	London	2011a
9	TransNational Institute (TNI) - International research and advocacy institute	Kay	Land grabbing and land concentration in Europe	Research Brief	Amsterdam	2016

Shared and controverted views on land grabbing

The first insight gained is that most sources making the effort to define land grabbing are environmental and social NGOs and research institutes, as well as heterodox economics journals. Certain state institutions also report on that topic. Apart from the governmental sources, the texts on land grabbing present a contestation of current land restructuration processes. These are listed and defined in table 2. A detailed representation of the different views provided in the analyzed texts about the criteria for definition of land grabbing is given in annex 1.

A common basis on land grabbing

9 of these criteria are common to most sources: “area”, “country”, “losers”, “motivation behind the deal”, “investors”, “nature of the land”, “transparency”, “power structure”, and “switch in land-use”. They constitute the basis for a shared understanding of land grabbing, which is presented in box 1 as a narrative. This narrative does not consider other farmers (e.g. from the neighboring village) as potential land grabbers so that the definition applies only to the share of the land restructuration that is related to the rise of investors from the non-agricultural sphere. It also does not mention aspects related to environmental or social issues.

Box 1: Common understanding of land grabbing among selected sources (own results)

The amount of land concerned by the land deals is large, and concerns primarily agricultural lands, in countries where land prices are low and characterized by weak property rights. The situation enables investors from the state, and private inland and foreign investors from outside the agricultural sphere to acquire land to the detriment of a local population of small scale farmers. To date the processes of land deals lack transparency due to the lack of information on the actual extent of the land deals and the attribution process. The deals may lead to a loss of agricultural land for food production to the benefit of other uses.

Land restructuration is land grabbing

We found that controversial views and the consideration of new aspects as compared to the standard basis in Box 1 were brought in by the Green party and by green and socially engaged NGOs, some clearly engaged in agroecology (The Green, Via Campesina farmer movement). These additions are important break-throughs for the view-holders because they enable the relocation of the debate on land grabbing to Europe and portray land restructuration as land grabbing.

This is first made clear by highlighting that *even* farmers may be land grabbers (The green party -Die Grünen- and the European Coordination of la Via Campesina -ECVC). Second, they highlight the very rapid pace at which structural changes in access to land (and the regulating institutions) are taking place. The pace enables the identification of a land grabbing process against the wider historical and geographical context. Third, FIAN depicts land concentration as the result of accumulation of land through property as well as leaseholds. Independently from a change in full ownership, land concentration may take place by the over-taking of small farms by large ones. Further, most sources consider that land grabbing may take place in any country, that is to say low prices and weak property rights may favor but do not determine land grabbing, which is argued to be taking place even in (West) Germany.

Contesting the capitalist system and making space for agroecology

The contestation of the capitalist system is particularly apparent through the criterion 'motivation for land appropriation'. Although the motivations described were diverse, they were systematically perceived by the viewholders to be illegitimate because they conceal the corporate food regime and constitute a positive feedback stimulating further economies of scale. For instance, the Green Party sees the acquisition of land for the disposal of slurry a motive of land grabbing, presumably by intensive meat producers in order to cope with pollution laws, instead of questioning the intensive production model. The idea that the whole system leading to land restructuration is not legitimate is also brought about through the criterion of power structure. Most actors agree that some farming actors (e.g. farmers vs. non-agricultural investors; established farmers vs. new comers; large farmers vs. smaller farmers) have a better access to land due their better financial situation. However, Engels and Dietz and the two activist groups Food first information and Action Network -FIAN and TNI push the critique further to contest the very institutions and policies put in place in the current corporate regime which favor capital-intensive systems to the detriment of smallholders (see also Herre, 2014), and they claim, to serve their own benefit and maintain their hegemony.

A further important criteria brought in by the agroecology-friendly sources (far and foremost La Via Campesina) is the switch in farming system and production associated with the claim that restructuration leads to land grabbing. Land restructuration is depicted as leading to a spread of the industrial agricultural model, characterized by large scale mono-cropping, fossil fuels and technology (including for Biofuel) which produces mainly inputs for the agro-industry. Through the decimation of the smallholder sector, the hog on land and the rise in prices, land restructuration is portrayed to systematically disfavor producers of actual food for direct consumption, organic farmers, young farmers and alternative environmentally friendly or socially (more) acceptable production systems. In this context, they claim, there is de facto no space for the emergence and development of alternative production systems.

Finally, groups with an environmental focus add an interesting conceptual aspect rooted in feminism to the debate on land grabbing: losers may include non-human actors such as the soil (e.g. German Parliament – Bundestag), and biodiversity (Transnational Institute -TNI, Die Grünen, ECVC).

These additions are important break-throughs for the view-holders because they highlight a competition among agroecological and industrial farming systems with traditional, social and environmentally-just systems are (i) marginalized (lesser access to land) and (ii) replaced by more industrial ones. They also focus the land grabbing debate on the need for a change in the very structure leading to land restructuration (that is the corporate food regime) and related paradigm. They present alternative values such as the importance of food production versus commodity production, of environmental health, of social justice, and of independence from the capitalist system, shared with the agroecology paradigm.

Table 2: 16 Criteria of land grabbing, short definition and occurrence in the texts. (Grey cells= criterion mentioned)

Criteria	Working definition	Sources analyzed ¹									Σ
		1	2	3	4	5	6	7	8	9	
Area (ha)	The amount of land concerned by the purchase or leasehold deal	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	9
Investors	The identity of the actors who invest money or sign contracts for the purchase and/or leasehold of agricultural land.	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	9
Losers	Actors or objects who suffer from negative effects from one given deal (or cumulated deals in the form of the on-going process of land restructuring).	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	9
Motivation of investment	The interests pursued by the investors.	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	8
Country	The countries and regions where land grabbing takes place.	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	8
Land (nature)	The nature of land (used agriculture land or ‚unused‘ agricultural land) that is the object of the change of hands in terms of property or leasehold.	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	8
Power structure / fairness	Position of the land deals or the cumulative deals (land restructuring) in the social and societal structure: Are the institutions/rules managing the land deals perceived to be fair to all actors? Do all potential interested actors have the same access possibilities to the land or are there asymmetries?	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	7
Transparency	The extent to which actors have access to reliable data and information, and on the decision processes	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	7
Switch in land-use	A change or transformation of the main usage of the land from agricultural food production to non-food production (energy), conservation/tourism or other non-agricultural uses.	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	7
Land concentration	A reduction of the number of farming units (farms) or a change in the property landscape through the purchase or lease of agricultural land, which may lead to skewed distribution of land control.	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	5
Regularity/legality and legitimacy	Whether a land deal or leasehold change takes place within the frame of existing rules and regulation, in whole legality and whether the rules are perceived as legitimate	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	5
Switch in farming system	The land remains in agricultural production but the farming system changes (e.g. from organic to conventional, from traditional to industrial) or the products produced change (from food to inputs for industry or to energy).	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	5
Pace	The rapidity and amplitude of the land deals / land restructuring.	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	5
Winners	Actors or objects who enjoy positive effects from one given land deal (or cumulated deals in the form of the on-going process of land restructuring).	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	4
Switch in land-user	Whether a change in the land-user occurs following the purchase or new leasehold agreement.	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	3
Dispossession	The partial or total retrieval from access to land. Partial access means that actors may still have access to the land, yet with lesser rights.	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	2
Sum		9	9	14	7	11	14	11	8	14	

¹ 1. BMZ - German Ministry for Cooperation 2. *Deutscher Bundestag*: Unterabteilung Wissenschaftliche Dienste. 3. *Die Grünen – Europäische Freie Allianz (EFA)*. 4. *European Coordination via Campesina (ECVC)* 5. European economic and social committee (EESC). 6. FIAN. 7. *Engels B. und K. Dietz*. 8. *De Schutter Olivier*. 9. TransNational Institute (TNI) Amsterdam.

A food system's approach: Agroecological practices, land restructuration and paradigm change

The previous section showed how the claim of land grabbing expresses a fundamental critique of the corporate food regime and discloses the lock-out of agroecological practices through the process of land restructuration. We now investigate the relationship between mainstream agriculture and alternative food systems from a food systems' perspective.

The theory points to three possible trajectories for alternative production systems in the context of the wider capitalist economic regime (Pratt, 2009, citing Wolfs, 1966). A first possible trajectory is the destruction of the alternative production system (e.g. agroecological practices and farms, with direct sales) by out-competes the small-scale and alternative farmers. The claim of agroecological groups that land grabbing is taking place denounces land restructuration as doing precisely that by hogging land resources via high land price mechanisms, preventing farmers who won't grow to stay on the land and new-comers with little financial capital to access the land. A second trajectory is the assimilation of the alternative sector within the capitalist system. According to Guthman (2004), this is what happened to the organic sector in California, and can be observed in Germany as well. While organic agriculture emerged as an alternative paradigm to design nature-man-food systems, its regulation with standards and premium price orchestrated mainly by corporate actors and without the original practitioners reduced the innovation to an input-regulation of production, which fitted well within the capitalist production system. This phenomenon is known as conventionalization (Pratt, 2009). The third trajectory is the dual-economy, where alternative systems persist in economic niches using either capitalist tools such as premium prices for Geographic Indications, or in some cases, re-creating non-monetary networks to the down-stream and up-stream actors of the production system (consumers and input-providers).

Taking a holistic perspective on the food system, we discuss how land restructuration and its related productionist paradigm block the up-scaling of agroecological practices. The conceptual framework developed by Dyball and Newell (2015) support studies on the adaptation process of societies facing social and environmental pressures. Figure 2 is an adapted version of this conceptual framework showing the relationship between the belief in the productionist paradigm and the practice of agroecology through land restructuration. Table 5 depicts the relationships among the system's elements as well as the feedback loops. Some of the dynamics described in the sources analysed in the previous section as well as from other sources are used to describe the potential functioning of the food system and the lock-out of agroecology.

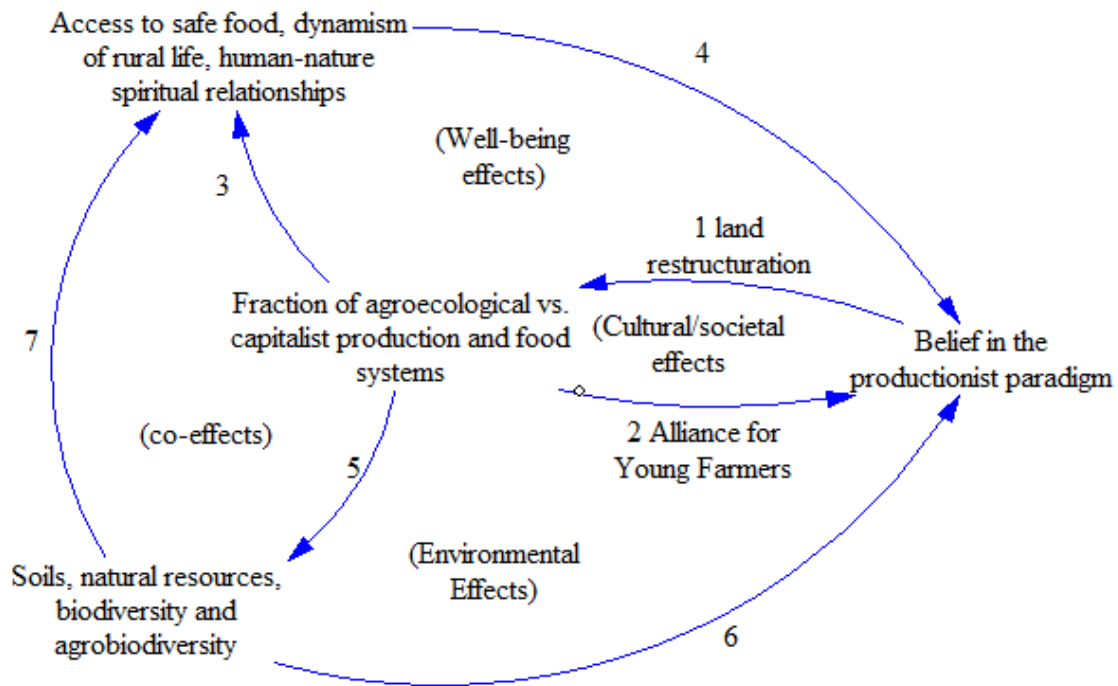


Figure 1: System of interest featuring the relationship between agroecology, the corporate food regime and land grabbing. Adaptation of the cultural adaptation template proposed in Dyball and Newell (2015). Variables are in plain text, relationships are labelled with numbers and feedback loops indicated between brackets ().

Table 5: Relationships in the system of interest around the practice of agroecology

L1	<i>Belief in the ‘productionist’ paradigm (Lang and Heasman 2004), with a focus on the production of food in high quantity based on price and margins as main determinants of agricultural production; leads to policies fostering economies of scale and land accumulation by few ‘rentable’ agricultural enterprises, as well as favors non-agricultural actors in the competition for land purchase (Herre 2014). This leads to a land restructuring which evicts farmers who did not grow and blocks the entry of alternative new comers, both potential actors of agroecological practices and values. The policies discriminate against agroecological practices (L1).</i>
L2	<i>The productionist paradigm is under pressure by those who want to maintain long term regional access to safe food, dynamism of rural areas and human-nature spiritual relationships through the fostering of alternative agricultural and food systems. Some actors organize in movements or farmers unions in order to create awareness about alternative value systems and spaces of opportunity for alternative practices (example of the Alliance for Young Farmers (BJL), next section Box 2) (L2).</i>
L3	<i>The existing agroecological production and food systems contribute to the maintenance of people on the land and in the rural areas, to the production of safe foods and their access at the local level and to the maintenance of an alternative knowledge system on farming. When the capitalist system dominates, it is accompanied by increasing food safety problems, the alienation of people from nature through the focus on their role of consumers, and the emptying of rural areas (L3).</i>
L5	<i>Agroecological practices help to maintain soils, agrobiodiversity and biodiversity (Thrupp, 2000), mainly through their small structure (Fahrig et al, 2015). Land restructuring has strongly altered the German rural social-ecological landscape by causing soil erosion, biodiversity and agrobiodiversity loss, landscape structural changes with consistently fewer natural elements, such as hedgerows (Batari et al., 2017; Lanz et al., 2018, Fahrig et al., 2015), rural desertification, isolation of farmers, a loss in stewardship among farmers (Burton et al., 2008), a producer-consumer and more generally man-nature disconnection (Wittman et al., 2010) (L5).</i>
L7	<i>Healthy and biodiverse ecosystems provide several tangible and intangible benefits to people, including the landscapes, recreation, wild foods, a connection to nature, a long term possibility of food production, and identity (L7) (IPBES, 2017)</i>

L4, L6 *Learning relationships: how does society learn from the effects L3, L5 and L7? Science and technologies in agroecology receive less support than biotechnologies because of the lock-in within the current technological regime: researchers and labs do not want to change direction: they would lose access to money, reputation, productivity in the writing of papers, and decision makers cannot easily change the system's functioning because they are bound to specific ministries (Vanloqueren and Baret, 2018). Although social and environmental effects are perceived, solutions are sought within the capital-intensive technological regime (L4).*

Following Dyball and Newell's framework (2015), four feedback loops describe the behavior of the system.

Cultural societal effects: The maintenance and presence of agroecology farmers until today (despite the extremely difficult contextual conditions) already provides a ground for questioning the belief in market regulation of food systems. The production initiatives undertaken by the agroecological movements and unions as well as their benefits to society, as the case of the Alliance for Young Farmers (BJL; Box 2) shows, have the potential to raise awareness among actors of the food systems such as land owners and consumers. They communicate a set of alternative values which they hope to convey into a paradigm change (Dyball and Newell, 2015).

Well-being, environmental effects and co-effects: The on-going soil degradation, biodiversity loss and societal impacts have alarmed societal actors. In addition, the soil and biodiversity degradation may lead to the losses of ecosystem services, and thereby of well-being in the long term. This has led societal actors to search either for solutions to improve the current agricultural production system or for alternative production systems. This is reflected in the 'Techno-fix debate' (Huesemann and Huesemann, 2011): (i) that we cannot trust the productionist paradigm to care for resources since it has engendered the problems or (ii) that we need more from it (in the form of e.g. off-land agricultural production and better technology, less market disturbances, etc...) in order to address the environmental problems we face. This belief is in essence related to the lock-in of the current capital-intensive technology regime: the many interests and investments from corporations, but also in terms of existing agricultural policies in this kind of technology from all actors at the up-stream of agricultural production hardly allow a radical turn in the technological direction (Vanloqueren and Baret, 2018). In the case of land restructuration, it has been demonstrated that for the sake of 'modernization', industrial agriculture had, and keeps on having, the full support of the states (e.g. CAP subsidies hogged by larger farms, Herre, 2014, technological innovations). Input and food processing industries (agro-industries) have co-evolved with this farming model and constitute a new and strong driving force. Thus, it is necessary to politicize the phenomenon of land restructuration beyond its economic productionist meaning and acknowledge the role of the interests of industry in the corporate food regime and policy making (Thompson, 1967). While a futuristic crash of capitalist agriculture may create an opportunity for alternative production systems "which may be more competitive than large monocultures of cereals" to get control over space and land (Buttel, 2004), the scaling up of agroecology does require urgent structural changes. Societies will adapt or mal-adapt depending on their willingness to change paradigm (Dyball and Newell, 2015).

Risk of cooptation

Because the problems related with capitalist agriculture increasingly receive media exposure, states have grown interest to support agroecological practices or even agroecology as a new farming paradigm. Governmental development agencies, associated agro-industrial corporations and businesses, and researchers are all competing with NGOs and grassroots movements to impose a definition of agroecology that enables them to continue their activities under a favorable light and funding. Groundroots organization do feel the risk that the corporate regime co-opts the agroecology movement (discussion at the first agroecology

Forum, Lyon, 2017; Holt-Gimenez and Altieri, 2013) and lumps it together with corporate environmental friendly practices, such as large scale organic capitalist production schemes vertically integrated in food businesses (e.g. Guthman, 2004). This would transform the original objective of the innovation (Pratt 2009). In order to bring solutions to the environmental and social problems generated by the current capitalist system, agroecological movements and practices face the challenge to maintain the integrity of the agroecology paradigm.

A strategy would be to associate with radical movements, which act for structural changes and not only technological changes (organic, environment-friendly practices), such as the land grabbing community (Holt-Gimenez and Altieri, 2013). We suggest that according to the definition by Anguelovsky and Martinez-Alier (2014), agroecology movements can be understood as forms of environmentalism of the poor. The agroecology movement in Europe may gain from binding with movements taking place in developing countries and recognizing the global pattern of the impact of the corporate food regime the pattern on agroecological practices worldwide.

The practice of agroecological movements

The rise of agroecological practices in Europe is intrinsically and practically linked with a paradigm and societal change. While agroecological farming principles constitute a conceptual and technical alternative to the industrial farming model and may guide the design of more sustainable food systems, agroecology *movements* are necessary to raise awareness of driving forces, act on societal values.

Beyond that, movements and unions can be at the source of collective action and of the creation of institutional innovations which can provide an action-bubble where an alternative paradigm rules. This bubble, called 'niche' by Vanloqueren and Baret (2018; not to be mistaken with niche markets) is a bubble protecting the agroecological agents and enabling alternative agroecological practice and their development and improvement.

From a theoretical perspective, Bernstein (1979, cited in Pratt 2009) proposes that peasant constitute an alternative model to capitalist agriculture if they are able to reproduce outside from the capitalist system. Thus, the capacity of agroecological farmers and food systems depend less on or free themselves from the current corporate food regime is key to their reproduction and maintenance. One strategy is the rehabilitation of the connection with local consumers which had been destroyed by the wide-spreading of mass-market retailing (Pratt, 2009). This independence of farmers from corporate seed and fertilizer businesses or powerful and large retailers, as well as the independence of citizens from the same retailers and marketing corporations is what la Via Campesina calls food sovereignty (Wittman et al., 2010). They claim that agroecological practices can only develop when structural changes enable the sovereignty of actors in the food system. Indeed, farmers who want to farm differently from the mainstream production model need to organize their own sovereignty in terms of inputs (seeds, land, technology, knowledge, etc...) and to seek markets or alternative exchange systems with consumers for their outputs.

How agroecology groups succeed to influence their environment to gain legitimacy and access to resources, can be seen in the example of the Bündnis Junge Landwirtschaft e.V. (BJL) in Germany, the Alliance for Young Farming (Box 2), carrying out agroecological projects. Importantly, the Alliance was born as a resistance movement. It contested the practice that large amounts of land in Eastern Germany were sold to the highest bid. The land had been cultivated within socialist production units. While their dismantling could have been a source of opportunity for new comers in the farming sector and possibly for alternative farming practices, it was being hogged by large farmers and mostly investors (Voigtländer et al., 2001). The Alliance denounced this process as state-driven land

grabbing (see their website: www.stopp-land-grabbing.de). Their fight led to a change in the legislation and land allocation rules.

The Alliance went further though, and based on the record of land grabbing, started to organize an alternative pathway to access land. The Alliance represented them as serious farming actors in the political arena (market) of land acquisition. It sensitized land owners about alternative gains (rather than only financial) from leasing land to their members who addressed growing societal concerns, such as reacting to the ecological crisis, to the longer food miles of foodstuffs, and sharing the need for food quality and reenacting local economies (Wittman et al., 2010). The activities of the alliance (Box 2) show that its primary work is the organization of an institutional bubble enabling the practice of agroecology and the reproduction of the agroecological farms by providing alternative food system principles and actors. It provides alternative access to inputs such as seed and land, access to alternative markets and supports agroecological knowledge creation and exchange as well as adapted technology.

The policy support of such innovation bubbles in which alternative values can be enacted, as well as their protection, may represent a way in which states may support agroecology without risking its cooption by the current corporate regime.

Box 2: Institutional innovations to access land: the case of the Bündnis Junge Landwirtschaft e.V. (BJL)

The Bündnis Junge Landwirtschaft e.V. (BJL) is an alliance of 30 young farmers and agricultural science students sharing the personal goal establishing families, preserving the cultural landscape, creating fair working places in the region around Berlin by producing organic food for its large organic demand. The strength of the BJL is the special innovative and agroecological farm types its members develop, which attracts the media.

The Alliance was created to contest the privatization policy of the highest bidder applied by the BVVG (Bodenverwertungs und -verwaltungs GmbH, a subordinate to the German Federal Ministry of Finance), whose function is to sell out state-owned land stemming from the former East Germany farmland units until 2030. Thanks to their lobbying work, since 2010 20% of the land is given out in auctions with restricted participants presenting a project of agroecological systems, livestock (work intensive) system or starting farmers.

The Alliance has evolved to serve the function of land broker to provide access to land to young agroecological entrepreneurs. Fostering visibility is an important mission of the Alliance as it enables them to gain power in their negotiation with state institutions and attract land lease/purchase offers from private land owners. A list of the farms looking for land is passed every year from the Bündnis to the BVVG. Thanks to contacts and visibility, the Alliance has also obtained access to land via so-called “other landowners” e.g. nature park associations. These have a special environmental interest and prefer organic agriculture or agriculture with coordinated crop rotations which support for example special animals or habitats.

The Alliance also supports members with no start capital the financing of their project, for instance through crowd-funding.

Finally, the BJL is a consulting network for new farmers. Indeed, independent organic farming advice is inexistent and the government provides no advice regarding company formation.

Source: Interview with the Coordinator of the BJL (27.09.2017)

Conclusions

Land restructuring in Western Europe has led to a systematic decimation of the small-holder agricultural sector and its related knowledge system. At the same time, it hampers the emergence of alternative, socially and environmentally friendly production systems. Framed in this way, the current situation of acquisition of land by large-scale farming is contested by agroecological actors as a form of land grabbing against alternative production systems. Whether it should be called land grabbing or not appears important for two reasons. First, it

will support the political argumentation for alternative farming methods and help to raise awareness among the public. Second, from an analytical point of view, the key message is that the notion of “grab” is related surely to the facts of structural changes, but much more to the political process that actively and deliberately leads to these facts, as well as to the values of a contested corporate food regime. The case of the Bündnis Junge Landwirtschaft e.V. (BJL) suggests that these values are not shared by all. Thus, the rise of the concept of land grabbing in Germany reflects a conflict in values about how to design our food systems.

Land restructuration occurs under the current dominant food regime, although the reformist discourse claims to foster a diversity of production systems (Holt-Gimenez and Altieri, 2013), It is one aspect of the self-strengthening mechanism which locks out alternative production systems, together with the path-dependency in the technological regimes. In this context, the agroecology movements and their political and institutional activities are a necessity for the development of new production and food systems based on agroecological practices and of a new paradigm for the organization of our foods systems. Agroecological unions are required for building alternative production and value chains which enable the maintenance and reproduction of agroecological systems. State support may concentrate on them to avoid co-option of the agroecological paradigm. The future of farming fully depends on the moral economic and political will and also on the result of the struggle between the different agents of agricultural production (Buttel, 2004).

The analysis calls for research analyzing the power structures which favor the current system of “land grabbing”, as prices and margins dictate land access and production systems.

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Annexes

Annex 1. Contrasting views on the different criteria that make up land grabbing and their view-holders.

Criteria	Constrasting views	View-holders ²
Area (ha)	<ul style="list-style-type: none"> Land grabbing occurs when the land deal involves a significantly greater area than the usual farms in the area Land grabbing is characterized by the high magnitude and the extent of the land deals 	<p>ECVC</p> <p>All sources</p>
Investors	<ul style="list-style-type: none"> Land grabbers may also be other farmers Land grabbers are primarily state (in Europe), inland and foreign investors, mainly from outside the agricultural sphere 	<p>ECVC, Die Grünen</p> <p>Other sources</p>
Losers	<ul style="list-style-type: none"> Local people and local small scale farmers are the prime losers from the land grabbing process. Non-human losers also exist and include - the soil resources and - biodiversity 	<p>Bundestag, Die Grünen, FIAN, TNI, Engels and Dietz, De Schutter, EESC</p> <p>BMZ, Bundestag, EESC, TNI</p> <p>Die Grünen, TNI</p>
Motivation behind investment	<p>Land grabbing has motives which are considered by the denouncing view (/source) as illegitimate. The land deals are perceived to serve:</p> <ul style="list-style-type: none"> - the production of food for export in Developing countries, - the production of biogas plants - as investment fund - as speculation object - as an access to subventions conservation - the disposal of slurry and biogas residues 	<p>All except EESC and TNI</p> <p>All except EESC, TNI and De Schutter</p> <p>Bundestag, Die Grünen, De Schutter</p> <p>BMZ, Die Grünen, EESC, FIAN</p> <p>FIAN</p> <p>Engel and Dietz, TNI</p> <p>Die Grünen</p>
Country (geographical occurrence)	<ul style="list-style-type: none"> Land grabbing takes place primarily in the developing world, where private property is not yet widespread and governance weak Land grabbing takes place where land prices are low (Eastern Europe) Land grabbing may take place just anywhere, including the rest of Europe. 	<p>BMZ, De Schutter</p> <p>EESC,</p> <p>Other sources</p>
Land (nature)	<ul style="list-style-type: none"> Highlight the privatisation and appropriation through land grabbing of common resources under the terminology of 'unused land', which is used for livelihood purposes other than agricultural. 	<p>Engels und Dietz und De Schutter</p>

² 1. *BMZ* - German Ministry for Cooperation 2. *Deutscher Bundestag*: Unterabteilung Wissenschaftliche Dienste. 3. *Die Grünen – Europäische Freie Allianz (EFA)*. 4. *European Coordination Via Campesina (ECVC)* 5. European economic and social committee (EESC). 6. FIAN. 7. *Engels B. und K. Dietz*. 8. *De Schutter Olivier*. 9. TransNational Institute (TNI) Amsterdam.

	<ul style="list-style-type: none"> • Main focus on agricultural land 	Other sources
Power structure	<ul style="list-style-type: none"> • Land grabbing in Europe is characterized by a given group of people (small farmers and young or beginner farmers) having less access to the (free) land market because of their limited financial means • Land grabbing is created through a property rights system, and the development and agricultural policies put in place by powerful dominant actors of the industrial agriculture and to the advantage of this type of agriculture to the detriment of small farmers and young farmers. • As above but limited to developing countries 	EESC, Die Grünen FIAN, TNI, Engels and Dietz BMZ, Bundestag
Transparency	Claim that there is no data on the magnitude and extent of the land deals, and their conditions, nor on the decision making processes.	All except ECVC, De Schutter
Switch in land-use	Through land grabbing, the land is used for other purposes: e.g. from common (livelihood) use to private intensive production, from agriculture to conservation.	BMZ, Die Grünen, EESC, ECVC, FIAN, De Schutter, Engels und Dietz
Land concentration	<ul style="list-style-type: none"> • Is the result of land grabbing, through processes of land accumulation as a property (fewer owners) • and of the incorporation of land in larger farming systems (fewer land-users) 	Die Grünen, EESC, FIAN, De Schutter, TNI FIAN
Regularity / legality And legitimacy	Except in some cases in the developing world, land grabbing takes place through gray zones of the legal system or is even fostered through the legal system to the benefit of larger farmers and/or external investors. Yet, these are contested as they are not perceived to be legitimate (see power structure).	Die Grünen, ECVC, TNI, FIAN
Switch in farming system and production	Land grabbing leads to a spread of the industrial agricultural model, characterized by large scale monocropping, fossil fuels and technology (including for Biofuel) which produces mainly inputs for the agro-industry (and disfavors producers of actual food for direct consumption and alternative production systems)	Die Grünen, ECVC, FIAN, TNI, Engels und Dietz
Pace	Sources mentioning this aspect share the same understanding that the speed with which land is acquired and land-use changed is extreme and characterizes land grabbing.	Bundestag, FIAN, De Schutter, TNI
Winners	Actors gaining from land grabbing include the intermediaries of the deal, the new owner/leaseholder and large enterprises.	TNI, EESC, Die Grünen
Switch in Land-user	<ul style="list-style-type: none"> • Through land grabbing the former users of the land are displaced and lose their work and life basis, while they are replaced by land-users producing other (more rentable) products. • When non-agricultural actors are the investors, for a time, the leaseholders remain the same 	e.g. EESC Die Grünen
Dispossession	Characterizes land grabbing especially in developing countries and Western Europe through the action of the state as people are expropriated and their source of livelihood removed.	FIAN, TNI, De Schutter