



Water Implications of Large-Scale Land Acquisitions in Ghana

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ABSTRACT: This paper examines the water dimensions of recent large-scale land acquisitions for biofuel production in the Ashanti, Brong-Ahafo and Northern regions of Ghana. Using secondary sources of data complemented by individual and group interviews, the paper reveals an almost universal lack of consideration of the implications of large-scale land deals for crop water requirements, the ecological functions of freshwater ecosystems and water rights of local smallholder farmers and other users. It documents the factors responsible for this apparent oversight including the multiplicity of land and water governance systems, sharp sectoral boundaries between land and water policies, property rights and institutions, outdated statutes, poorly resourced and ineffective regulatory agencies, and unequal power relations in land acquisition deals.

The paper shows that due to a lack of an approach that jointly considers land and water management policies and institutions in acceding to large-scale land deals, the benefits derived by local people were insufficient to cover the involuntary permanent loss of their water rights and livelihoods and the risks posed to ecosystem services.

Options for establishing alternative institutional arrangements that will allow water availability, use and management as well as social and environmental standards to be factored, ex ante, into large-scale land deals are explored.

The paper offers recommendations which can help the government to achieve its stated objective of developing a "policy framework and guidelines for large-scale land acquisitions by both local and foreign investors for biofuels that will protect the interests of investors and the welfare of Ghanaian farmers and landowners".

KEYWORDS: Large-scale land acquisitions, biofuels, water, institutions, livelihoods, Ghana

INTRODUCTION

The past few years have witnessed a surge in large-scale land acquisitions (LSLAs) by foreign investors in Ghana. In much of the media debate and research on these land deals, little attention has been paid to water.¹ Yet water and land are interlinked resources. In Ghana, particularly in the semiarid and sub-humid agro-ecological zones where the LSLAs examined in this paper occurred, water underpins land productivity. At the same time, the way land is used has a major impact on both the quantity and quality of water resources. Access to water for agricultural production by smallholder farmers can be an important tool for poverty alleviation (Lipton et al., 2003). Expectations of secure access to water

¹ While a number of analytical papers (e.g. Cotula, 2006; Bues, 2011; Skinner and Cotula, 2011; Woodhouse and Ganho, 2011) have drawn attention to this gap, none of them have focused on Ghana.

influence investment decisions of both foreign investors in industrial agriculture and smallholder semi-subsistence farmers. Indeed, securing access to water has been cited as one of the underlying reasons for large-scale acquisitions of land by states, such as Gulf countries, where renewable water resources are acutely limited (Woertz et al., 2008) and by rapidly growing emerging economies, such as China and India, where local water scarcity is beginning to emerge (de Fraiture et al., 2008).

Although intrinsically linked, water and land resources in Ghana are governed and managed under separate but parallel legal, policy and institutional frameworks. Within each framework, multiple types of property rights regimes, including common property, state property and private property, exist and are operated simultaneously. These multiple property rights regimes, policies, legislation and institutions shape the process of land acquisition, the nature of land and water use, the magnitude of benefits and costs and how these are distributed among new and existing resource users. Wealth, power and information asymmetries between the stakeholders also influence the distribution of the positive and negative impacts of LSLAs.

This complex setting, characterised by multiple actors concurrently exercising rights under separate, parallel systems of land and water administration, creates room for LSLAs that ignore or underestimate the water requirements of crops that will be cultivated and the likely impacts on the livelihoods of other users and the ecosystem. While the Government of Ghana is keen to attract foreign direct investment in agriculture in order to boost agricultural productivity and growth, it is equally worried about the equity, efficiency and environmental problems that can arise from unscrupulous LSLAs and inadequate consideration of actual and potential uses of water for the legitimate pursuit of customary livelihoods and lifestyles. For these reasons, a key government objective as stated by the Minister of Food and Agriculture, Mr. Kwesi Ahwoi, is to develop a "policy framework and guidelines for large-scale land acquisitions by both local and foreign investors for biofuels that will protect the interests of investors and the welfare of Ghanaian farmers and landowners" (Ahwoi, 2010). This paper is an attempt to contribute to the policy debate on the formulation of this framework.

The objectives of this paper are threefold: 1) to analyse and determine the extent to which existing land and water governance systems allow water and its various functions to be taken into consideration before LSLAs are signed and approved; 2) to analyse the ways recent LSLAs for *Jatropha* production in three regions of Ghana have actually affected the multiple uses and users of water, particularly the rights and livelihoods of poor farmers; and 3) to offer practical and politically feasible suggestions for the development of new institutional arrangements that will allow water availability, use and management as well as social and environmental standards to be factored into large-scale land deals.

The paper is organised as follows. Following the overview, the next section presents a theoretical and analytical framework to organise and lay the foundation for subsequent analysis and discussion in the paper. We then describe the methodology used followed by a situational analysis of land and water governance systems in Ghana which serves to illustrate the challenges that lack of coordination of activities of independent statutory agencies pose for transparency, efficiency and equity in LSLAs. Next, we review the extent to which water and its various uses and users were considered in the negotiations leading to the granting of leasehold titles to three biofuel companies and the impacts of the operations of these companies on the livelihoods of small-scale farmers. The subsequent section offers suggestions on alternative institutional arrangements that will allow water and water rights of poor, small-scale farmers to be better factored into large-scale land deals. The concluding section argues that given that land and water governance is steeped in politics, the necessary political will must be generated to push through urgently needed institutional changes if the goal of promoting efficient, equitable and environmentally sustainable LSLAs is to be achieved.

THEORETICAL AND ANALYTICAL FRAMEWORK

Analysis of the water dimensions of LSLAs requires an eclectic approach that brings together relevant theories and models from different disciplines. The analysis in this paper is based on a synthesis of theories of property rights, institutions and institutional change, power and politics.

Property rights define relationships among people regarding things (Commons, 1957). Property rights over natural resources are part of the larger institutional structure of a society. They are a social construct and they need to be seen in the context of the society in which they are used (Bromley, 1989). The way property rights are defined determines whether people are included or excluded in the control of vital resources such as land and water. Rights to land and water may derive from the state, but they can also derive from a range of customary law, religious laws and project regulations – a situation referred to as legal pluralism. Land and water rights are bundles of rights that may be held by different parties or people. Rights of use (access, withdrawal) and control (management, exclusion and alienation) may be held by different claimants, even on the same land or water resource (Schlager and Ostrom, 1992; Meinzen-Dick and Nkonya, 2007). Hodgson (2004) analysed the principal features of land tenure and water rights and concluded that from "a legal perspective, rights over land are far easier to conceptualize, establish and administer than rights over water" because land is fixed and immobile, while water is a fluctuating, fluid and fugitive resource.

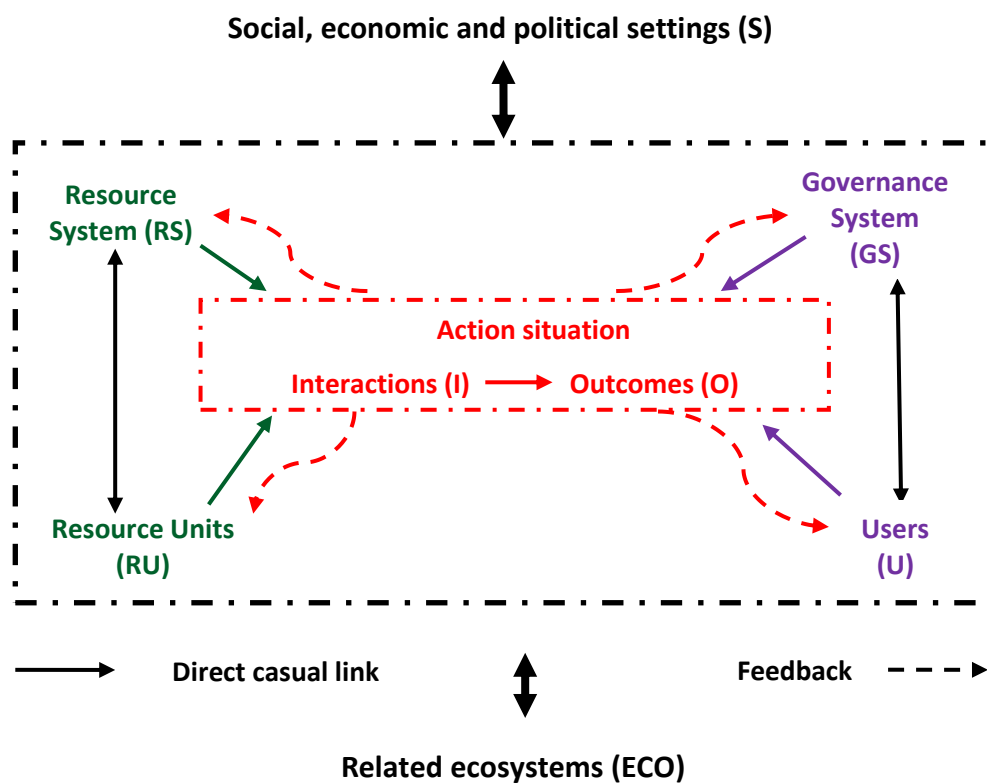
Property rights are only as strong as the institutions that underpin them. Rational choice theorists, drawing on the neoclassical economics assumption that actors behave as utility maximisers in ranking their priorities within constraint sets, define institutions as constraints on individual behaviour. According to a leading proponent of this school, institutions are "the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction" (North, 1990). Following this line of thought, institutions are viewed as the formal rules that guide behaviour and choice in the public domain. But other theorists in the tradition of sociological institutionalism draw on constructivism and the assumption that political and cultural environments alter an individual's view of utility to posit that the individual acts on the basis of cognitive and normative structures that are socially constructed. According to this school, "institutions are not only constraints; they are what shape the individual and define which rationality is relevant or appropriate in each type of setting" (Vatn, 2005). Despite these different viewpoints, three key concepts that are common to both rational choice and sociological institutionalism schools are participation, power and process (Sandström, 2009). Because institutions are humanly devised and reflect the rules and norms that are backed by key groups of actors, they are only fully understood in the context of prevailing power structures and relations (Steinmo et al., 1992; Hyden, 2008). Institutions do not come out of nowhere, but they are created domestically or introduced from external sources and reformed at critical junctures, for example, when a society opens itself to new influences (Sangpam, 2007; Hyden, 2008).

Institutional change shapes the way societies evolve over time. Institutions may change due to changes in norms of behaviour, rules, conventions, codes of conduct, and customary and common law. When institutions evolve, they alter the choices available to society (North, 1990). The state, as a coercion-wielding entity that exercises control and supremacy over other entities, e.g. households, kinship groups and communities within a given territory, can be an important driver of institutional change. The policy challenge is to match institutional changes and processes to the scale and characteristics of the particular economic, cultural and ecological systems being considered (Vatn, 2005; Ostrom and Cox, 2010).

Relating the theories reviewed above to outcomes (e.g. livelihoods, food security and environmental conservation) requires a framework. As Schlager (2007) explained "frameworks provide theories with the general classes of variables that are necessary to explain phenomena. As theory development proceeds, frameworks may be revised to provide additional content and specificity to general classes of variables". The framework developed by Ostrom (2007, 2009) for the study of complex social-ecological systems is adapted and used to link together relevant strands of the theories reviewed above. Anderies

et al. (2004) defined social-ecological systems as social systems "in which some of the interdependent relationships among humans are mediated through interactions with biophysical and non-human biological units". According to Ostrom (2009), "all humanly used resources (e.g. land and water) are embedded in complex, social-ecological systems (SESs)". Applying Ostrom's framework to this study, the relationship between people, land and water resources can be viewed as a complex SES comprising four core subsystems linked to social, economic and political setting and related ecosystems (figure 1). The four core subsystems are the resource system (land, and implicitly water resources, acquired by a company to establish a large-scale farm), resource units (*Jatropha* trees and seeds), users (investors, landowners and farmers) and governance system (property rights, institutions, legislation, policies, regulatory framework etc.) that are relatively separable but interact to produce outcomes at the SES level, which in turn feedback to affect these subsystems. Each core subsystem is made up of several second-level variables (table 1) that have been identified in many empirical studies as affecting interactions and outcomes. Each of this second-level variables is also composed of lower-level variables.

Figure 1. A framework for analysing social-ecological systems (based on Ostrom, 2009).



For this study, we analyse the water dimensions and social outcomes (O) that result from interactions between the resource system (RS), resource unit (RU), and users (U) given the governance system (GS). A deliberate choice of second-level variables under the governance system allows us to answer questions such as: how does the structure of the governance system (GS1, GS5 and GS7) facilitate or hinder *ex ante* consideration of consumptive and non-consumptive uses of water in LSLAs? How does the design of governance system (GS1, GS4-GS8) influence the utilisation and management of water under LSLAs?

Analytically, a specific configuration of second-level variables under the governance system may be taken as defining a particular institutional arrangement, and hence, may become the trigger point to use for adjusting the SES *ex post*.

Despite the comprehensiveness of Ostrom's SES framework, one of its limitations is that power and power dynamics within institutional settings and as they influence outcomes are underemphasised. This limitation has also been pointed out by others (Clement, 2010; DeCaro, 2011) in relation to the Institutional Analysis and Development framework, the forerunner of the SES framework. To overcome this inadequacy, we carefully document and analyse in this paper the unequal power relations among resource users in order to demonstrate their repercussions on social, economic and environmental outcomes (see below). In reality, power and information asymmetries between resource users are partly manifested in the level of interactions (I2, I3, I5, I7 and I8, table 1) and partly in the structure of the governance system (GS4-GS8, table 1). The interplay of these factors determines outcomes as shown in table 2. By using the case studies investigated to amplify the subtleties and significance of power relations, an avenue is also provided for further refinement of the SES framework.

METHODS

The methodology adopted for this study was in three parts. First, a review of government policy documents, legislative acts, and published research reports was conducted. Second, a field survey of three biofuel production companies and the communities from which they acquired land as well as key informant and focus group interviews of officials of biofuel companies, government regulatory agencies and farmers were undertaken between September and November 2011. Third, a set of variables deemed relevant for this study based on the analytical framework described above were selected and used to organise and discuss the survey results. A detailed description of the second and third parts of this methodology is provided below.

In-depth interviews with state agencies and regulators in the land, water and environment sectors were conducted to collect information on their role in land acquisition deals. The main state agencies interviewed were the Lands Commission, Office of the Administrator of Stool Lands,² Water Resources Commission, Environmental Protection Agency, Ghana Irrigation Development Authority, Town and Country Planning Department, Ghana Investment Promotion Centre and the Ministry of Food and Agriculture. The acts establishing a number of these agencies and other legislation governing their activities were analysed to determine their mandate and authority in matters pertaining to land and water governance. The extent of collaboration or lack of it between these agencies was also analysed.

During the fieldwork, three companies located in the Ashanti, Brong-Ahafo and Northern regions (see figure 2) were surveyed. These were Solar Harvest Limited, Ghana (formerly known as BioFuel Africa) in the Yendi District of the Northern Region; ScanFarm Ghana Limited (formerly known as ScanFuel Ghana Limited) located in the Asante Akim North Municipality in the Ashanti Region; and Kimminic Estates Limited in the Pru and Nkoranza South districts of the Brong-Ahafo Region. These companies were selected for this study because they met all, or at least two, of the following selection criteria: 1) acquisition of more than 10,000 hectares of land for commercial biofuel production, 2) current or future planned use of water resources on the acquired land or nearby river for crop irrigation, and 3) land acquisition through customary institutions which also resulted in the displacement of existing poor land and water rights holders. Interviews with government agencies, key informants, and chiefs involved in granting lands to the companies were conducted to gain a better understanding of the land acquisition process and water dimensions considered. The interviews and discussions focused on issues such as laid down procedures for land acquisition; mandatory assessments required by statutory agencies before land acquisition can be approved, the procedures in place for consideration of water-related issues in large-scale land transactions, agencies involved, and water resources (availability, quantity, quality, variability over time). Other issues considered include the impact mitigation plans of the biofuel companies, dispute-resolution procedures and the monitoring and compliance methods put in place by the statutory agencies.

² The term 'stool lands' is fully described in the next section.

Figure 2. Study areas in Ghana.



Focus group discussions were held with communities affected by land acquisition to understand the water and livelihoods implications of these acquisitions. The discussions centred on the involvement of the community and existing land and water rights holders in negotiations and discussions during the land acquisition process; information on farmers displaced as a result of the land acquisition; and details of the resettlement and compensation package provided to displaced farmers. Questions were also asked about the impact of the companies’ activities on water resources in the area, particularly on availability and quality of water for domestic and agricultural use and ecosystem services. The impacts

of the companies' activities on the social well-being and livelihoods of members of the communities were also discussed.

A number of variables associated with core subsystems in the analytical framework described earlier were selected to facilitate the presentation and analysis of the survey and interview results. The relevant core subsystems and the second-level variables considered were: resource system, (i.e. land and the acquisition process), resource use (primary and secondary crops grown on the land), users (investors, land owners and other land and water rights holders in the community), governance system (land and water administration and regulatory agencies and their roles in the land acquisition process), interactions (i.e. consultation and information sharing between landowners, investors and customary land and water users) and outcomes (impacts on livelihoods and water, displacement and compensation methods) (tables 1 and 2).

LAND AND WATER GOVERNANCE SYSTEMS

Land

Ownership, rights and legal framework

In broad terms, two types of landownership systems – private and public – exist side-by-side in Ghana. Private lands in most parts of the country, including the study areas, are in communal or customary ownership, held in trust for the community by a 'stool' or 'skin' or by a family. A 'stool' or 'skin' refers to the symbol of authority on which a traditional ruler sits. In two of the study regions, Ashanti and Brong-Ahafo, chiefs sit on carved wooden stools which are recognised as symbols of chieftainship and are believed to contain the souls of ancestors. In these parts, customary land is referred to as stool land. In the study area located in the Northern region, chiefs sit on animal hide and customary land in this region is referred to as skin land. State or public lands are lands compulsorily acquired by the government through the invocation of the appropriate legislation, vested in the President and held in trust by the state for the entire people of Ghana (MFL, 1999). Land under communal or customary ownership constitutes about 80% of the total land area with the remaining 20% controlled by the state (Larbi et al., 1998; Kasanga and Kotey, 2001).

The 1992 Constitution of Ghana provides the legal framework and stipulations under which land is to be administered. Article 36(8) of the 1992 Constitution states that: "the state shall recognise that ownership and possession of land carry a social obligation to serve the larger community and, in particular, the state shall recognise that the managers of public, stool, skin and family lands are fiduciaries charged with the obligation to discharge their functions for the benefit respectively of the people of Ghana, of the stool, skin or family concerned, and are accountable as fiduciaries in this regard" (Government of Ghana, 1992).

Stool and skin lands are administered on the basis of customary law, which is recognised as a source of law in Ghana under Articles 11(2 and 3) and 267(1) of the 1992 Constitution. Under customary law, all subjects of the stool and skin and lineage members, regardless of sex, have inherent access and usufruct rights to the lands held in trust by the stool, skin or family head (Sarpong, 2006).

In the study areas, customary landownership is controlled and managed by a Traditional Council comprising the area's paramount chief and elders. The traditional council as the 'allodial title holder' holds the ultimate right to withdraw user rights and reallocate and alienate land (Sarpong, 2006).³ It is the traditional council that holds the sole authority to negotiate with investors seeking to lease land.

³ Allodial title is the highest landholding interest under customary law in Ghana. The stool or skin in which allodial title is vested has complete and absolute freedom in handling all issues related to the land subject to the rights of the individuals (i.e. the subjects of the stool or skin) who may be utilising the land and the stipulations of the Constitution (Bentsi-Enchil, 1964; Benneh, 1975; Woodman, 1996).

Article 266 (4) of the 1992 Constitution stipulates that non-citizens cannot be granted leasehold for a term exceeding 50 years at any one time.

The direct and indirect impacts of these aspects of the land governance systems (i.e. GS4, GS5 and GS7, table 1) on social outcomes (O1, table 1) will be further explored below.

Policy framework

A national land policy (S4, table 1) was approved by the government in 1999 to provide a framework for "the judicious use of the nation's land and all its natural resources . . . in support of various socio-economic activities undertaken in accordance with sustainable natural resources management principles and maintaining viable ecosystems".

In many respects, the national land policy provides guidelines that complement customary law and statutory provisions of the Constitution in matters pertaining to land governance. For instance, although the principle of free, prior and informed consent of all stakeholders in a land deal are not explicitly enshrined in the land laws, relevant guidelines in the National Land Policy stipulate measures to cover this gap. Guideline 4.3b states that "... decision making with respect to disposal of land should take into consideration natural resources of the land, . . . protection of land rights of the present generation, accountability to the subjects for whom the land is held in trust". Similarly, guideline 4.3c states that: "...no interest in or right over any land belonging to an individual family or clan can be disposed of or declared stool or skin or traditional council land without consultation with the owner or occupier of the land". Guideline 4.4p states that "conflicts with people with respect to land use will have to be resolved at local, district, regional or national level before any economic land use commences".

These measures and other provisions of the law thus provide a basis for aggrieved land users who feel alienated, displaced or inadequately compensated to seek redress through customary institutions, judiciary or relevant government agencies. However, the ability of poor illiterate land users to seek redress through these avenues is open to question as discussed in a later section.

Institutional framework

The primary government institution on land matters is the Ministry of Lands, Forestry and Mines. However, a number of statutory agencies have been set up to perform land rights administration, management and regulatory functions. Three of them – the Lands Commission, the Office of the Administrator of Stool Lands (OASL) and the Environmental Protection Agency (EPA) – with direct or indirect role in land acquisition deals will be briefly described here.

The 1992 Constitution provided for the establishment of a national Lands Commission with ten regional Lands Commissions. These provisions were embodied in the Lands Commission Act 1994 (Act 483). The functions of the national and regional Lands Commissions are to:

- manage public lands and any other lands vested in the President or the Commission on behalf of the government;
- advise the government, local authorities and traditional authorities on the policy framework for the development of particular areas to ensure that the development of individual pieces of land is coordinated with the relevant development plan for the area concerned;
- formulate and submit to government recommendations on national policy with respect to land use and capability; and
- advise on, and assist in the execution of, a comprehensive programme for the registration of title to land throughout Ghana.

The involvement of the Lands Commission in large-scale land acquisition deals derives from Article 267(3) of the 1992 Constitution which stipulates that there shall be no disposition or development of any stool land unless the Lands Commission of the region in which the land is situated has certified that the disposition or development is consistent with the development plan drawn up or approved by the planning authority for the area concerned.

In addition to the Lands Commission, an independent Office of the Administrator of Stool Lands (OASL) was established in 1994 (Act 481) to, among other things, collect rents and royalties from stool lands and disburse them to the stool (royal family), the traditional council and the local government authority (District Assembly).

The Environmental Protection Agency (EPA) was established in 1994 through Act 490. It was set up to coordinate the activities of bodies concerned with the technical and practical aspects of the environment. It has regulatory and enforcement powers. Its land management and regulatory functions include issuance of environmental permits to land investors who have conducted Environmental Impact Assessment (EIA) and ensuring compliance with conditions laid down in the EIAs during the planning and implementation of the stated production activities.

More specifically, the Environmental Assessment Regulations, LI 1652 of 1999 require that all development activities likely to impact adversely on the environment be subject to an environmental assessment. An investor growing a crop such as *Jatropha* on a large scale is expected to submit to the EPA an EIA, including an Environmental Management Plan (EMP) detailing impact mitigating measures. The EIA is supposed to cover ecological, environmental health, hazard and risk, noise, and socio-economic and water-quality impacts. When the EPA approves the EIA and EMP, the investor is issued an environmental permit to commence business. Following Ostrom's framework utilised in this paper, the EIA, in principle, should provide ecological performance measures (O2) that will allow externalities to other social-ecological systems (O3) (table 1) to be monitored. If the EIA and EMP are diligently conducted and prepared, they will partly serve to ensure that LSLAs lead to positive and beneficial social, economic and ecological outcomes for all stakeholders.

In sum, the three government agencies (GS1, table 1) described above form part of the governance system (GS). Apart from influencing other components of the governance system (e.g. GS2 and GS4, table 1), they also have monitoring and sanctioning powers (GS8). The adequacy of the legal provisions that define the functions of these organisations as well as their effectiveness in carrying out these functions, particularly with regard to LSLAs, will be discussed in detail below.

Water

Ownership, rights and legal framework

Prior to the enactment of the Water Resources Commission Act (WRCA) of 1996, ownership of water, in consonance with customary law was vested in stools, skins and communities (Sarpong, 2004). Customary water rights for agricultural purposes were considered a subsidiary component of land rights. They were embedded in both land tenure and social relations – a right to use water often depended on the existence of a land tenure right or was based on long-established reciprocal relationships between pastoralists and landowning groups. However, the WRC Act abolished the pre-1996 customary water rights and in their stead vested ownership, management and control of water in the state via the WRC. This state of affairs appears to confirm the observation that modern water rights regimes, created on the basis of a legal instrument issued by a state agency, are "increasingly blind to the form and content of land tenure rights" (Hodgson, 2004). Nonetheless, when the WRCA was enacted, holders of water rights were directed by the government to stake their claim within 12 months of coming into force of the WRCA and if found that a right indeed existed, "it would take such action as it considers appropriate". No claims were known to have been filed or any administrative action taken to actively encourage the filing of claims (Sarpong, 2004 as cited by Burchi, 2005).

Thus, after 1996, customary water rights for agricultural production came under the purview of the WRC and prospective water users from then onward needed to obtain a permit from the WRC. However, the Legislative Instrument (LI) 1692 of 2001 on Water Use Regulations gave exemption from the permit requirement to "water abstracted by mechanical means and used for any purposes where the abstraction level does not exceed five litres per second and subsistence agricultural water use for land areas not exceeding one hectare" (Water Use Regulations, 2001).

As will be seen in the analysis of our case studies, it would appear that customary water rights and practices remain in force in rural areas, with local water users mostly unaware of the non-existence and non-recognition of their agricultural water rights on land areas exceeding one hectare. The implications for small-scale farmers of this decoupling of water rights from land use rights under the threat of LSLAs will be examined in detail later.

Policy framework

One important policy document that complements the array of legislation in the water sector is the National Water Policy of 2007 (MWRWH, 2007). The overall goal of the National Water Policy is to "achieve sustainable development, management and use of Ghana's water resources to improve health and livelihoods, reduce vulnerability while assuring good governance for present and future generations". The policy aims to achieve this goal by focusing on three broad areas: water resources management, urban water supply, and community water and sanitation. A key objective under water resources management is to "ensure equitably sustainable exploitation, utilisation and management of water resources, while maintaining biodiversity and the quality of the environment for future generations".

The policy also specified a number of policy actions to support food security, for instance, through the establishment of micro-irrigation and valley bottom irrigation schemes among rural communities with the assistance of district assemblies and promotion of public-private partnerships in the provision of large commercial irrigation infrastructure.

Institutional framework

Two organisations that are relevant, by virtue of their mandates, for the water dimensions of LSLAs are the WRC and the EPA.

The Water Resources Commission Act (WRCA) of 1996 charged the WRC with a mandate to regulate and manage the utilisation of Ghana's water resources and to coordinate any policy in relation to them. Section 37 of the WRCA defines water resources as "all water flowing over the surface of the ground or contained in or flowing from any river, stream, spring or natural lake or part of a swamp or in or beneath a watercourse and all underground water but excluding any stagnant pan or swamp wholly contained within the boundaries of any private land". The act prohibits any person from diverting, storing, abstracting or using water resources or constructing or maintaining any works for the use of water resources unless he applies for the grant of water rights.

The WRC is mandated to grant water rights. The statutory procedures for granting water rights are set out in the WRCA and the Water Use Regulations of 2001 and include:

- submission of a written application accompanied by relevant documentation (e.g. site plan, water demand management plan, business particulars) and, depending on the volume and nature of the proposed water use, an environmental impact assessment (EIA);
- publication of the application in the government gazette and in at least one local or national newspaper;
- invitation to the public to raise objections within 3 months from the date of the first publication of the application;

- holding of a public hearing in cases where a) there is adverse public reaction to the proposed use, b) the proposed use involves the dislocation, relocation and resettlement of people, or c) the WRC considers that the proposed use will have a negative impact on the natural resources of a basin;
- review of the application by WRC to ascertain that the proposed water use is in accordance with the national water use policies and plans and will not cause irreparable damage to water resources, public health and the environment. This review also considers the technical and social aspects of the application; and
- a decision, based on the review mentioned above and no objection from the public.

Once a decision is made to grant water rights, a permit is issued for a specified time period. The permit can be renewed by submitting an application not later than 90 days before its expiration. Two exemptions to the permit requirement pertaining to agricultural water use were noted in the preceding section.

The EPA and the WRC are expected to collaborate when a proposed water use requires an EIA and when the proposed or existing water use requires an environmental management plan. In each case, a water permit will not be issued unless evidence that the necessary requirement has been met is produced and attached to the water permit application.

The EPA's guidelines for the conduct of water use impact assessment cover issues such as:

- the characteristics of the water resources at risk;
- the possible effects of a project on water flows, depths and widths of channels, erosion of banks, deposition rates (upstream and downstream), and turbulence;
- the implications for other water users; existing and prospective;
- the likely effects on fish, wildlife, communities, and vegetation; and
- the economic and social effects of prospective changes in watercourses, water quantity, and water quality for the wider community.

As will be discussed in the next section, the steps typically followed by all the companies studied in undertaking an environmental impact assessment and the quality of assessment done leave much to be desired. At a broader level, the brief review in this section has revealed the chasm between modern water rights regimes and land rights regimes. It also showed that while the operational rules and procedures (GS5, table 1) of the water governance systems appear adequate for rational decision making, their usefulness in guiding allocation of water rights under LSLA scenarios is limited because they are divorced from land acquisition procedures and only come into play after land had been acquired and production activities are about to start (more on this in the next section). Furthermore, the rules and procedures will only matter if they are rigorously applied. But as will be shown in the next section, the procedures are not rigorously applied partly because the government organisations (GS1, table 1) charged with the responsibility of applying them lack the necessary human, technical and financial resources and partly due to poor coordination and complementarity of water and land governance systems.

FIELD EVIDENCE ON PROCESSES AND IMPACTS OF LARGE-SCALE LAND ACQUISITIONS

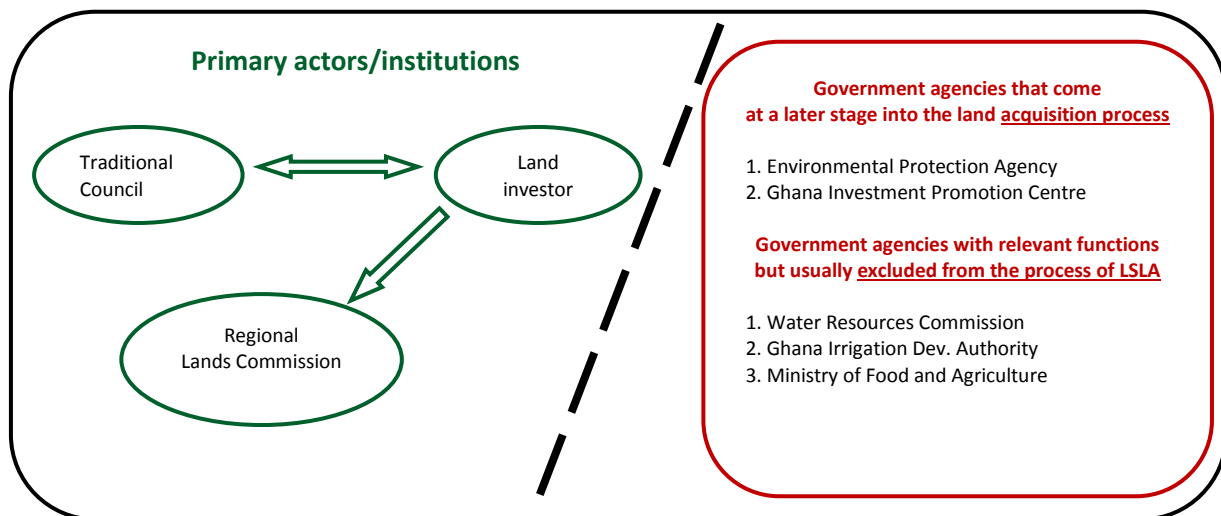
Three LSLAs that occurred between 2005 and 2009 were studied. The three companies involved in these land deals are: Solar Harvest Limited Ghana, a company owned by a Norway-based parent company, Solar Harvest AS; ScanFarm Ghana Limited, also owned by a Norwegian mother company, ScanFarm AS; and Kimminic Estates Limited, a subsidiary of the Canadian company, Kimminic

Corporation. All three companies started with the cultivation of *Jatropha curcas* as a biofuel crop. Solar Harvest initially leased 38,000 ha of land for a period of 50 years, while ScanFarm and Kimminic Estates acquired 13,000 and 43,000 ha, respectively, under leasehold titles of less than 50 years. All of them have since diversified into the production of food crops, including maize, soybean, rice and cowpea (table 2). Below, we first describe the land acquisition process before considering issues relating to impacts of the companies’ production activities on water, livelihoods and the environment.

Land acquisition process

All three companies acquired their lands in a similar way through direct negotiations with the customary landowners, i.e., the paramount chiefs of the areas where they are located. Figure 3 shows the actors and institutions that are usually involved in these negotiations. In each case, the process started with the investor paying a visit to the Traditional Council (TC) to express interest in acquiring land in the area. During this visit, 'drink money' (previously a bottle of schnapps) is presented to the Traditional Council to acknowledge their ownership of the land, to demonstrate allegiance and for the customary pouring of libations on the ground to seek the 'gods' blessings for the transaction. Once the drink money is paid, the investor can inspect the land and begin the negotiation. The parties negotiate the price to pay, the size of land to be allocated, the duration of the lease and any other covenants stipulated by the TC. Once all terms are settled, an indenture is prepared to signify the conclusion of the land deal. Up to this point, no statutory agency is involved and rarely is any of the existing land and water rights holders informed of, or consulted over, the land transaction.

Figure 3. Actors/Institutions typically involved in LSLAs in the study areas.



The financial capital, new technology and technical know-how that the investors bring coupled with the promise of increased employment and improved social amenities (schools, health clinics etc.) are some of the factors that made it possible for them to acquire large tracts of land in the study areas. However, in one instance, direct economic benefit to TCs appeared to be another important factor. Kimminic Estates, for instance, established a joint plantation ownership agreement with the TCs in its area of operation. Under this agreement, the TCs are entitled to a quarter (25%) of the profits generated through this venture.

After the investor has concluded terms with the TC, the next step is to seek the concurrence of the Lands Commission which then issues a certificate of concurrence to approve the land deal. As discussed

in the preceding section, the only criterion the Lands Commission uses to judge the soundness of the deal is that it 'is consistent with the development plan drawn up or approved by the planning authority of the area'. The Lands Commission's oversight of land deals concluded through the TC is, therefore, at best perfunctory and fails to hold the TC accountable to the land trusteeship principle enshrined in the Constitution and in the National Land Policy (see also Ubink and Quan, 2008). Before or after land approval has been obtained, the investor will need to register its business with the Ghana Investment Promotion Centre. It is only at the stage when production is about to commence that the Environmental Protection Agency and, sometimes, the Water Resources Commission are usually contacted to obtain environmental and water permits, respectively (more on this below).

The absence and lack of involvement of statutory agencies (such as the Lands Commission, EPA and WRC) that can provide relevant technical knowledge and information during the land negotiations process mean that issues such as water availability vis-à-vis water requirements of large-scale *Jatropha* production, impact of production activities on water rights of other users, their livelihoods and the environment get short-changed and are not even discussed at all. The old chiefs in the traditional councils are limited in their technical knowledge and often get excited about the employment and modern amenities that investors promise to bring to their villages that they overlook the long-term impacts of large-scale land deals. For instance, when one chief who had granted land to one of the three companies was asked during our field survey if there was any agreement with the company regarding the use of water resources on the land leased out, he answered no. But after further discussion and realising that water sources on the land are now at the disposal of the company he retorted by saying "I didn't think about this at the beginning. We only talked about the land and the issue of water never came up"!

Production activities, impacts and outcomes

Table 2 provides a comparative analysis of the resource system, resource use and outcomes across the three case studies. A few pertinent issues are discussed below.

Although all the large-scale companies started with *Jatropha* production, only Kimminic Estates limited is still focusing mainly on *Jatropha* production. Solar Harvest, at least for now, has abandoned *Jatropha* production and is going into full-time commercial irrigation agriculture, after suboptimal growth and establishment of their *Jatropha* trees. The company has already acquired lands downstream of the Bontanga Irrigation Scheme (BIS) for its new operations. Initially, the company intends to utilise the residual water spilled from the Bontanga dam for its irrigation activities, but later plans to construct a centre pivot, circular irrigation system to add about 470 ha of irrigable land to the BIS, drawing water from the dam. The Bontanga Irrigation Scheme, constructed almost three decades ago and managed by the Ghana Irrigation Development Authority, is currently being rehabilitated by the Millennium Development Authority (MiDA) under MiDA's Commercial Development of Farmer-Based Organisations (CDFO) programme. MiDA will have no role in the operations of the Bontanga irrigation Scheme after completion of the rehabilitation in February 2012. Solar Harvest Limited has signed a memorandum of understanding with MiDA to start an out-grower scheme with local farmers at the Bontanga Irrigation Scheme. MiDA has also advertised for a Scheme Management Entity (SME) to be in place by 31 January 2012 to manage the Bontanga Irrigation Scheme. Solar Harvest, at the time of our survey in October 2011, indicated that it will bid for the SME and was confident it will become the eventual manager of the Bontanga Irrigation Scheme. When this happens, it may create a conflict of interests as the company will be a water user as well as the regulator of water allocation to other farmers. Similarly, ScanFarm has diversified into food crop, especially maize, production and has plans to start irrigation to ensure year-round production. Kimminic Estates Limited has already started developing several dugouts throughout its plantation to harvest rainfall and provide irrigation to reduce soil moisture stress and improve *Jatropha* shrub yields. It is instructive that at the time of fieldwork for this study, none of the three companies has applied for a water permit or had one previously issued to

it by the WRC, despite the fact that at least one of them has started abstracting water on the leased land. It is equally noteworthy that these companies initially leased large-scale lands to grow a crop, *Jatropha*, which is less water-demanding but have ended up diversifying into other crops that require full or supplemental irrigation to give optimal yields. Yet, water was not explicitly mentioned or included in at least two of the land acquisition deals (table 2).

Regarding impacts, although each of the three companies conducted and submitted an environmental impact assessment (EIA) and an environmental management plan (EMP) to the EPA (table 2), the whole process of developing and approving these documents is flawed. For the development of the EIA and EMP, the EPA does not have a list of accredited experts or service providers who are deemed competent and well trained to undertake such an important assessment. The investor on its own can conduct the EIA and EMP and submit the documents to EPA for approval or can hire a consultant. As it turned out, the three companies studied engaged the services of the same consulting firm to undertake the impact assessment exercise for them. A review of the EIA reports submitted by the three companies showed that potential impacts were not thoroughly assessed. For instance, uses of available water resources, the possible effects of production activities on water flows, deposition rates upstream and downstream etc. were qualitatively described with no quantitative estimates provided. Similarly, the potential impacts on livelihoods and water rights of existing land users were not discussed at all. Because the EPA is short staffed and poorly funded, it has no way of independently verifying what is in the EIA and also monitoring and ensuring compliance with the EMP.

In terms of consultation and information-sharing, the study did not find much evidence of this taking place (table 2). There was very little or no consultation between the traditional councils and the existing land users, irrespective of whether they are members of the community or immigrant settlers, before lands were leased out to investors. We found that even landowning lineage members, including some lower ranking chiefs, had no idea of what was in the contract between the paramount chiefs and the investors. Majority of the people who lived and farmed the lands sold to the companies were migrant settler farmers who had been granted land use rights by the chiefs. As such the Traditional Council chiefs do not consider it necessary to consult these farmers before deciding to lease out lands. This has led to the displacement of many farmers. This situation was similar across all the study villages where land had been leased out. Due to lack of clear land titles and demarcations and because of local conflicts over landownership, a number of community members claimed that land belonging to their families had been included in the land leased out to investors by the Traditional Council. After a long struggle and in order to keep their lands, these farmers had no alternative but to rent out their lands to the company at a minimal, token rate (table 2). Displaced farmers received no assistance from the companies or traditional councils in obtaining new farmlands. The displaced farmers on their own had to look for new lands to earn a living. Those who could not find land within the same community had to migrate to other rural areas. Farmers, who found land within the same community, claimed they are now cultivating smaller farm sizes on less-fertile lands.

The land acquisitions have had significant negative impacts on the livelihoods of displaced farmers. In focus group interviews held in the Pru district, some farmers said they understand that *Jatropha* is only cultivated on marginal lands not suitable for food production. But they were disappointed to see that most of the fertile lands they used to cultivate have been acquired by Kimminic Estates Limited that is now growing the same crops, yam and maize, they used to grow. "Even if the company really needed degraded lands, there is no large stretch of degraded land in this area without some pockets of very fertile land that the local farmers will not be deprived of", a farmer noted.

Many young farmers who were displaced sought employment with the company. But the average monthly salary of Ghana Cedi 100 (approximately US\$62.5) paid to workers was found to be insufficient by many of them to meet their household needs. One farmer explained that when he was working on his own farm, he could feed his family on a daily basis and after harvest he could lay hands on a lump sum of money for saving and/or investment purposes. But now that he is receiving GHC100 as a

monthly salary, the money is not enough to feed his family daily throughout the month, let alone save for the future. Having lost the land he was farming, he felt that the only option left was to migrate.

Overall, in terms of social outcomes, the local communities across the study area claimed that they have not seen any real benefit from the operations of the companies. Nearly all of them reported promises made by the companies to provide social amenities have not yet been fulfilled. Interestingly, such promises were also made to the chiefs during the land acquisition process but were never included in any formal agreement.

CLOSING THE GAP BETWEEN POLICY AND REALITY

Analysis of current land and water governance systems described earlier points to a number of lapses and weaknesses that make it difficult for the multiple uses and users of water to be adequately factored, *ex ante*, into large-scale land deals. Similarly, the review in the preceding section points to a lack of government-sanctioned, detailed assessment of current and future water requirements for crop production and ecosystem services. The companies also demonstrated scant regard for pre-existing land and water rights of poor, small-scale farmers. These problems arise partly because of the separate systems for administering land and water and partly due to poor policy coherence and coordination of activities across systems. The problems are compounded by ambiguity and lack of clarity on the regulatory oversight functions of some statutory institutions, a leasehold approval system that bypasses important regulatory agencies and customary practices on land transactions that reflect unequal power relationships in local communities. Given this situation, some form of new institutional arrangements and complementary measures are needed to rectify problems identified in existing land deals and to ensure that future land deals lead to better outcomes.

For new institutional arrangements to be effective, they must be based on social, political and economic realities. With 80% of the total land area under customary ownership, Traditional Councils, as the single largest custodian entity, will continue to play an important role in large-scale land deals. Building new institutional arrangements on a foundation of customary systems and existing social relations will also be in line with recent efforts at land reforms in many countries, including Ghana. However, as the evidence presented earlier shows, the lack of accountability of chiefs and the unequal power relationships in the communities surveyed point to Traditional Councils as being part of the problem and they cannot be left unimpeded as the sole negotiator and determinant of large-scale land deals.

In order to adequately consider, in large-scale land deals, the water requirements of biofuel and food production and the likely impacts of such water use on the water and land rights of existing, small-scale farmers and the environment, there is a need for a stronger, integrated and coordinated input from the Lands Commission (LC), the Water Resources Commission (WRC) and the Environmental Protection Agency (EPA) – the main government organisations in the land and water governance systems (figure 1 and table 1). This input is needed before and after large-scale land deals are approved. The initial input, in the form of a more rigorous environmental, social and economic impact assessment jointly supervised by EPA and WRC, is needed before land deals are approved. This effectively means that the environmental impact assessment report and the environmental management plan developed by a large-scale agricultural land investor and the water permits granted to such an investor will be required as supporting documents to be presented to the LC before a land deal is approved. Once agricultural production and processing activities get underway, input from these agencies in the form of monitoring, evaluating and ensuring compliance with the impact mitigation measures developed and approved for each company will be equally desirable. This approach will tighten current loopholes in the process of large-scale land acquisition and should not necessarily lead to bureaucratic bottlenecks for the investors since they are, anyway, obliged to prepare the reports and obtain the permits described here.

The role envisaged for the Lands Commission in this new institutional arrangement calls for an amendment of the Lands Commission Act of 1994 to clarify and stipulate more stringent criteria and specify the role of EPA and WRC in the approval and granting of leasehold titles to investors. This goes beyond the rather vague directive, that a project must be "consistent with existing development plans", on which approval is currently based. This vague directive was crafted at a time when pressure on land was not as high as it is today. New legislation that is more attuned to the present situation is needed.

With regard to the EPA and WRC, their statute books are detailed enough in terms of the due diligent functions - monitoring, evaluation, compliance and conformity assessments - they are expected to perform. Their main constraints have been poor funding and weak capacity which make them ineffective in the performance of their regulatory duties. In order for them to effectively play their role in this new arrangement, these constraints must be addressed, for instance, through innovative schemes financed through a fund to which buyers and sellers of land will be required by law to contribute.

A different issue concerns the total absence of poor customary land and water rights holders in negotiations preceding large-scale land deals. Although the Constitution is clear on the need for accountability, and by implication consultation, in land matters, the reality is that accountability and consultation rarely occur. This is notwithstanding that participation in the negotiation process is critical for those whose livelihoods will be affected by large-scale land deals. It is thus important for civil society and non-state actors to assist poor rights holders in organising to establish viable land and water users' associations that can give them a voice on large-scale land deals. Simultaneously, legal literacy campaigns should be mounted so that even illiterate stakeholders will know of any new rights they are supposed to be accorded and the process to be followed in seeking adequate compensation for involuntary loss of livelihood. Relevant land and water laws should also be revised to compel investors acquiring large tracts of land to seek prior and informed consent of all stakeholders likely to be affected by their actions.

CONCLUSIONS

This paper reviewed land and water governance systems in Ghana and showed that the parallel systems of land and water administration, poor cross-sectoral coordination of regulatory activities and inadequate capacity in relevant government agencies hamper effective consideration and inclusion of water and its various functions in negotiations and evaluations preceding LSLAs. The analysis of three recent LSLAs in Ghana similarly revealed an almost universal lack of consideration of the multiple uses and users of water in these land deals. The underlying and proximate causes of this apparent neglect were shown to include a land acquisition process devoid of involvement of regulatory agencies, land transaction practices that reflect power and information asymmetries between investors and traditional councils, on the one hand, and between the traditional councils and their subjects, on the other, as well as fuzziness in the statutes of the statutory agency, the Lands Commission, that is charged with the responsibility of approving land acquisition deals. These lapses call for new institutional arrangements and measures to plug existing loopholes and allow the government to strike the right balance between providing the security of leasehold sought by large-scale agricultural investors and protecting the equally legitimate land and water rights of poor, small-scale farmers. New institutional arrangements anchored on a stronger, integrated and coordinated input from the Lands Commission, the Water Resources Commission and the Environmental Protection Agency, complemented by legislative reforms that recognise the rights of existing land and water users, will ensure better incorporation of water, equity and sustainability issues in future LSLA deals.

As the framework utilised in this study demonstrates, land and water governance is inherently shaped by social, political and economic factors. In the Ghanaian context where foreign direct investment in agriculture is actively sought and a large proportion of land is under customary ownership and managed by traditional councils, the state occupies a central position and has a

responsibility to set down the rules that will guide buyers and sellers of land and regulate future LSLAs. The traditional councils have been shown to be part of the problem due to lack of consultation and opaqueness of their land transactions, but they must also be part of any enduring solution because of their traditional roles and political clout. Ultimately, the government will need to generate the political will to push through the policy changes and legal reforms that will allow water use and management as well as social and environmental standards to be factored into future large-scale land acquisition deals in a transparent, equitable and efficient way.

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APPENDIX

Table 1. Factors that contribute to community responses to disturbances. Adapted from Ostrom, 2009.

<u>Social, economic, and political settings (S)</u>	
S1- Economic development	S4- Government resource policies
S2- Demographic trends	S5- Market incentives
S3- Political stability	S6- Media organization
<u>Resource System (RS)</u>	<u>Governance System (GS)</u>
RS1- Sector (e.g. water, forests, pasture, fish)	GS1- Government organisations
RS2- Clarity of system boundaries	GS2- Non-government organisations
RS3- Size of resource system	GS3- Network structure
RS4- Human-constructed facilities	GS4- Property rights systems
RS5- Productivity of system	GS5- Operational rules
RS6- Equilibrium properties	GS6- Collective-choice rules
RS7- Predictability of system dynamics	GS7- Constitutional rules
RS8- Storage characteristics	GS8- Monitoring and sanctioning processes
RS9- Location	
<u>Resource Units (RU)</u>	<u>Users (U)</u>
RU1- Resource unit mobility	U1- Number of users
RU2- Growth or replacement rate	U2- Socioeconomic attributes of users
RU3- Interaction among resource units	U3- History of use
RU4- Economic value	U4- Location
RU5- Number of units	U5- Leadership/entrepreneurship
RU6- Distinctive markings	U6- Norms/social capital
RU7- Spatial and temporal distribution	U7- Knowledge of SES/mental models
	U8- Dependence on resource
	U9- Technology used
<u>Interactions (I) → Outcomes (O)</u>	
I1- Harvesting levels of diverse users	O1- Social performance measures (e.g. efficiency, equity, accountability, sustainability)
I2- Information sharing among users	
I3- Deliberation processes	
I4- Conflicts among users	
I5- Investment activities	O2- Ecological performance measures (e.g. overharvested, resilience, diversity, sustainability)
I6- Lobbying activities	
I7- Self-organising activities	
I8- Networking activities	
	O3- Externalities to other SESs
<u>Related Ecosystems (ECO)</u>	
ECO1- Climate patterns	
ECO2- Pollution patterns	
ECO3- Flows into and out of focal SES	

Table 2. Comparative analysis of land acquisition process and social, economic and environmental impacts of the production operations of three large-scale farms in Ghana.

Variable	Scanfarm (formerly Scanfuel)	Solar Harvest (formerly Biofuel Africa)	Kimminic Estates Limited (KEL) ⁴
1. Land acquisition (RS)			
1.1. Location of acquired land	Asante Akim North Municipality, Ashanti Region, Ghana.	Yendi Municipality, Northern Region, Ghana.	Nkoranza South and Pru Districts, Brong-Ahafo Region, Ghana.
1.2. Land granting authority	The Agogo Traditional Council. ⁵	The chiefs of Kpachaa, Tuya, Jaashie and Jimle.	The Traditional Councils of Yeji Abease Bredi and Dinkra.
1.3. Land area, types and duration of rights granted to investors (water rights explicitly or implicitly included?)	Scanfarm acquired about 13,000 ha of land under a leasehold title of less than 50 years, with possibility of renewal. According to Scanfarm, a water rights clause was explicitly included in the company's agreement with the Traditional Council.	Initially, the company leased 38,000 ha of land for 50 years, with the possibility of renewal. Water was not explicitly included in the initial deal. However, the company has acquired an additional 3000 ha of land under lease for 50 years downstream of the Bontanga irrigation scheme. It plans to acquire an extra 7200 ha within the irrigation scheme for future expansion.	Together in the two districts, KEL acquired about 43,000 ha of land and plans to expand its land holdings to 65,000 ha. The lands are under leasehold titles of less than 50 years' duration, with the possibility of renewal. Water rights were not explicitly stated in the land deals. But KEL has started exploiting water on the leased lands without a permit.
1.4. Irrigation facilities	No irrigation at the moment but the company has plans for irrigation to ensure all year- round cultivation.	Solar harvest is going into full- scale irrigation by utilising the residual water from the Bontanga Irrigation Scheme (BIS). The company also intends to expand the BIS with an additional 470 ha for cultivating a wide variety of food crops in addition to pasture, cotton and sugarcane. Solar Harvest plans to pump water from the White Volta River in the future for irrigation.	KEL is developing pockets of small dugouts throughout its plantation to harvest rainfall and provide irrigation water to take care of short-term deficits of soil moisture to maintain optimal yields of <i>Jatropha</i> .

Source: Survey Data.

⁴ KEL declined to participate in the survey but referred the authors to their website for information on land acquisition and land area. However, individual and focus group interviews were held with farmers and communities who had previously cultivated the land acquired by KEL.

⁵ The Traditional Council comprises the Paramount Chief and other chiefs and elders in the traditional area.

<p>2. Land use (RU)</p>			
<p>2.1. Primary and secondary crops grown</p>	<p>Initial primary crop was <i>Jatropha</i>. However, Scanfarm is now producing maize, soya bean and rice.</p>	<p>Initial primary crop was <i>Jatropha</i> which is now abandoned and the company is going into full-time commercial vegetable and food crop production.</p>	<p>The primary crop is <i>Jatropha</i>. It is often intercropped with soya bean, cowpea, groundnut, maize and, sometime, yam.</p>
<p>2.2. Economic products</p>	<p>Maize is the major product. The company was adjudged the largest maize producer in Ghana in 2010</p>	<p>The company is currently not producing anything substantial. It is now getting ready to resume operations as the anchor farmer⁶ at Bontanga irrigation scheme (BIS)</p>	<p>KEL's economic products are <i>Jatropha</i> crude oil, biodiesel and organic fertilizer. It also produces soya bean, cowpea, groundnut, yam, maize, and mango.</p>
<p>3. Impact mitigation measures adopted by investor (U)</p>	<p>Each company is required by law to draw up an environmental management plan that states how the environmental and social impacts of its production activities on local communities and resources, including water, will be addressed. This plan, for all three companies, was prepared after land had been acquired and the leasehold approved. The plan is submitted as part of the Environmental Impact Statement (EIS) that the company is required by law to present to the Environmental Protection Agency (EPA) in order for it to be issued with an environmental permit to commence operations. The plan and the EIS can be drawn up by a company itself or by a consulting agency on its behalf. Incidentally, the same consulting firm drew up the documents for all three companies. A review of the documents showed they were put together perfunctorily with no quantitative targets specified.</p>		
<p>4. Monitoring of compliance with Economic/Social Impact Assessment and mitigation measures adopted by investor (GS)</p>	<p>The EPA, due to poor funding and inadequate capacity, does not undertake on-the-ground verification of the plan and EIS submitted by any company and does not do any monitoring afterwards. But holders of EPA environmental permits are required by law to submit to the EPA Annual Environmental Reports (AERs) on their operations.</p>		
<p>5. Interactions (I)</p>			
<p>5.1. Consultation and information-sharing with customary land and water users</p>	<p>The Traditional Council did not consult with farmers cultivating the land they leased to ScanFarm. However, after the leasehold had been signed and approved by the Lands Commission, as part of the Environmental Impact Assessment (EIA) process, public hearings were held in the villages affected by the land deal so that community members could voice their concerns. There was no evidence that the concerns raised by the villagers were ever considered by EPA or any other agency.</p>	<p>Consultation prior to land acquisition was between the company and the landowner who is the chief of the area. Farmers cultivating the land were not consulted because they do not belong to the landowning lineage. Farmers and other community members were only consulted during the EIA process by which time the land they were cultivating was already leased out.</p>	<p>Consultation was between the company and the Traditional Councils who own the land. Migrant settler farmers who were cultivating the land were not consulted. Communities within the KEL catchment area were, however, consulted to obtain their views on the proposed production activities of the company as part of the Environmental Impact Assessment process. There was no evidence that their views were ever considered by EPA or the company</p>

⁶ As anchor farmer, Solar Harvest will initiate an out-grower scheme for the farmers in the Bontanga irrigation scheme.

6. Outcomes (O)			
6.1. Were customary land users displaced?	Yes	<i>No</i> , with respect to the land under <i>Jatropha</i> as it was a marginal land. <i>Yes</i> , for the new lands acquired for vegetable and food crop production within the Bontanga irrigation scheme	Yes.
6.2. Compensation methods	Displaced farmers were not resettled. Those who claimed ownership of parts of the land already leased out by the Traditional Council and resisted relocation were compelled to enter into an agreement with the company to rent out their lands at Ghana cedis 1/acre/annum. It was agreed that the rent will be reviewed every 3 years.	For farmers displaced in the Bontanga irrigation scheme area, Solar Harvest has promised to relocate them elsewhere further downstream and has offered to plough the new lands given to the farmers free of charge.	Displaced farmers were not compensated.
6.3. Impact of land acquisition on livelihoods of customary land users	Farmers moved on their own to other areas where they could find land to farm. Others sought employment with the company but claimed they do not earn as much as they did when they were farming their own lands.	Not yet known.	Most farmers claimed they now have less land area to farm compared to the situation before land acquisition by KEL. They also claimed they have been pushed to degraded lands and their farm incomes have significantly declined. Displaced farmers who could not find any new land within the community have migrated to other communities. Others found employment with the company, although they were unhappy about the low wages they were earning.
6.4. Actual or potential impacts of land deals on water and its various functions	Scanfarm is yet to start irrigation on its farm and no major impact on local water resources is yet to be reported. But the situation might change when the company starts irrigation. Availability of water for domestic use may become an issue as the community and the area mostly depend on local streams – which will also serve as the source of irrigation water.	Solar Harvest is about to start full-scale commercial production of vegetables and food crops under irrigation at the Bontanga irrigation scheme (BIS). This may likely have an impact on water availability to other farmers in the scheme. Though the company says it will use residual water from the BIS, their intention to eventually assume management of the BIS may create a conflict of interests, with the company being the main water user as well as the regulator of water allocation to other farmers	The company is building a processing plant and upon completion, there is going to be increased water demand for processing operations. The company can abstract water from the nearby Volta lake to meet this increased demand. Potential negative impacts may result through disposal of waste into local water bodies.

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