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DOI: 10.1007/s12147-015-9140-7

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Women's Bigger Burden: Disparities in Outcomes of Large Scale Land Acquisition in Sierra Leone

Genesis Tambang Yengoh¹ · Frederick Ato Armah² · Karin Steen³

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Abstract Women farmers make up a majority of small-scale food producers in sub-Saharan Africa. Despite their important role in the food and livelihood security of their households and communities, women continue to face substantial challenges in their rights of and access to land resources in the region. In a number of countries such as Sierra Leone where large-scale land acquisition is ongoing, we posit that women's predicament may further deteriorate. Using data drawn from a survey of household and livelihood activities, focus groups and interviews we examine the outcomes of large-scale land acquisitions on women at the local level in two districts in Sierra Leone. We found that first, women depend more on land-based natural resources that directly affect the day-to-day welfare of households (such as firewood and medicinal plants) than men. Second, land acquisitions have led to a significant fall in the incomes of women and men. The effects of the fall of women's income have more direct and profound consequences on household wellbeing compared with men. Third, men tend to rank the effects of land acquisitions on women lower than women do. We conclude that current social and cultural norms

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and women's role in rural societies is complex and predisposes women to negative livelihood processes and outcomes associated with large-scale land acquisitions. Policy interventions designed to address local and national challenges to socio-economic and cultural development should recognize the crucial role played by women and be responsive to their special needs.

Keywords Women · Livelihoods · Land acquisitions · Gender · Land rights · Land resources

Introduction

As farmers, land managers, workers, and entrepreneurs, women make substantial contributions not only to their own development but also to the social, economic and environmental development of rural livelihoods and landscapes in developing countries. Through their interaction with land-based resources, women have been an indispensable force in the evolution of rural landscapes and constitute an essential stakeholder group in the future of rural socio-economic development in their respective countries [19]. At the local level, the activities of women have been vital in supporting the well-being of households and communities in which they operate [18, 20, 23]. Notwithstanding this important contribution, women in rural areas of sub-Saharan Africa continue to face serious limitations in access to land, land-based resources, and access to land development inputs and production resources [14, 19]. The current situation of women builds on a long history of gender-based discrimination that has characterized this part of the world over several centuries. Gender-based discrimination on rights to land and land-based resources in sub-Saharan Africa is supported by legislation in many countries that has its foundation on discriminatory colonial practices [6, 20] as well as local customs and traditions. The outcome of such discrimination is a current situation in which women control less land than men [5, 19, 23] while engaging in more of the agricultural production activity than their male counterparts [10]. It has long been observed that women in many developing countries command less power and control over a range of agricultural production resources [5, 14]. This has been attributed to range of institutional- and norm-based constraints [4, 14, 19]. The land controlled by women tends to be generally of low quality with tenure that is less secure than that controlled by men [7, 32]. In the best of situations, such discrimination is not conducive for a transition towards higher levels of food and livelihood security for rural households and communities. Such conditions of gender discrimination also have the potential of undermining the drive towards sustainable development of socio-economic and environmental systems of production at the rural and even national scale of developing countries.

As in most of sub-Saharan Africa, the household is the basic unit of production of food and associated livelihood support resources in rural Sierra Leone. It is also the basic unit of consumption of food, land resources and of planning and strategizing on how to adapt to changes in the availability of such resources. The ownership of or access to land is essential in cushioning a variety of social-economic shocks that rural households are prone to encounter frequently. When households lose land to large-scale acquisitions,

they lose this essential socio-economic and cultural cushion. Notwithstanding this household level unity in the ownership of land, the production and consumption of resources, as well as strategizing on their scarcity, there are differences within households on the rights to which landed resources can be put to use, sold, or leased, and the roles for which labour is engaged in the production of household resources. Within households, control over land (from a utilitarian perspective) is not household-based. Farm ownership is individual-based—meaning that the husband and the wife tend to farm separate plots of the household land. However, household members commonly provide labour and other forms of assistance to each other. This assistance generally takes the form of labour in different activities during the agricultural season. Men generally provide labour for farm clearing, planting and harvesting of the main staple crop—rice, while women do most of the weeding and transportation of the harvested crop. Hence, while some form of autonomy can be assumed in terms of the choice and quantity of crops to be cultivated by individuals in the household, it can be argued that this autonomy is not entirely complete. For example, it is expected that a woman's farm should be used to grow the staple food crop, while a man's farm can be used for other crops of commercial value such as fruit trees and oil palm.

In Sierra Leone, women constitute about 66 % of the self-employed informal sectors which is dominated by crop farming [3]. Like women in most rural areas of sub-Saharan Africa, women in Sierra Leone have fewer opportunities to access to credit facilities, value-added technologies, extension services and post-harvest management technologies to expand or optimize their farming activities [1]. The informal agricultural sector in Sierra Leone is still characterized by poor working conditions, low salaries and limited social protection [3] provided by the state, making women particularly sensitive to these vulnerabilities as women have a weaker fall-back position even before the commencement of large-scale land acquisitions (LSLA).

Through the Gender Mainstreaming Policy and the National Policy on the Advancement of Women (adopted in Parliament in 2000), the government of Sierra Leone has been taking steps to improve the status of women by creating an enabling environment for women to participate fully in the economic and social development of the country. This earlier effort has been complemented by more recent improvements such as the National Gender Strategic Plan (2009–2012) and the Sierra Leone National Action Plan on the United Nations Security Council Resolution 1325 on Women, Peace and Security which together sought to promote gender equality and the progress of women in a host of social, political and economic sectors. These initiatives are laudable policy directions. On the ground the benefits tend to be modest as a result of the complex interaction of a number of socio-cultural and local political factors. These modest benefits of such attempts at embracing and promoting gender-responsive growth are currently at risk of being further undermined by LSLA, as the phenomenon has the potential of robbing rural women of their most valuable resource for livelihood sustenance, economic and financial independence—land.

While information on the impacts of LSLA has grown over the last decade, the limited attention given to the gender dimension of the phenomenon has not gone unnoticed by some researchers [8, 11, 38]. By examining the gender dimension of the outcomes of LSLA at the local level, the full impacts of such land deals and their

implications for key socio-economic development indicators such as gender inequalities, livelihoods and food security can be better understood. According to Doss et al. [16], the lack of attention to gender issues in current LSLA research is due to the persistent focus of studies in size, scope and key actors of land acquisitions as well as the “chronic gender blindness in mainstream literature” which translates to gender-blind research output on the subject matter. Collins [11] notes that the local level of analysis is best suited to understanding some of the fine details of the impact of LSLA such as its gender outcomes.

The limited information available on local level impacts of LSLA may be one of the explanations of this gap. Information on local-level realities has the potential of empowering administrative and legislative structures, as well as civil society organizations at a level below the national scale. Such information has the potential of providing a background, focus, and incentives for the development of locally appropriate tools to act directly on issues that affect local constituencies without being tied down by national level bureaucracies. This study seeks to contribute knowledge on the outcomes of LSLA at a local level. We seek to take a step beyond the birds-eye view of how much land, where and who is involved in LSLA to examine the gender-based outcomes of LSLA at a scale that can point to specific, policy-relevant implications of the phenomenon in Sierra Leone.

Research Objectives and Questions

Our main research objective is to examine the extent to which LSLA has affected men and women’s production possibilities. We pursue this objective by asking the following research questions:

What are the gender-based outcomes of LSLA in terms of:

- (a) participation in natural resource harvesting activities,
- (b) livelihood effects,
- (c) perception of impacts of LSLA,
- (d) participation in the process of land leases and acquisition, and
- (e) access to land resources?

How do women respond to the loss of land and loss of access to land-based resources?

What policy relevant implications can be identified?

Methods

Geography of the Study Area

Sierra Leone is a relatively small West African country, with a population of about 5.4 million in a land area of about 71,740 km² (about 27,698 square miles). The landscape is dominated by a coastal belt of mangrove swamps, wooded hills and plains in the

immediate interior and a moderate mountainous plateau that culminates in the Loma Mansa (1948 m). Sierra Leone emerged from a decade of civil war in 2002 which had devastating consequences on the socio-economic structures and standing of the country. This war also led to massive destruction of the physical infrastructure necessary to support development in the country. A survey of the household and food security situation by the World Food Programme in 2007 found that while improvements were noticeable in a number of sectors, the socio-economic situation of Sierra Leone remains far from being ideal, especially for rural populations in the country. The Ebola epidemic which broke out in the country in May 2014 and has led to thousands of deaths, has further undermined the country’s path towards economic and social development. The country is one of the richest in natural resources in the region, boasting resources such as bauxite, chromite, diamonds, gold, iron ore, and titanium. Its flat immediate interior boasts some fertile soils which support the cultivation of a range of food (dominantly rice, but also cassava, plantains, sweet potatoes, etc.) and cash crops (such as oil palms, cocoa, coffee, kolanuts, and a range of fruits).

The rich agricultural potentials of Sierra Leone together with political egging has drawn a range of large-scale land investors into the country. These agricultural land investors are primarily interested in the cultivation of biofuel feedstock on the lands deemed “abundant” and “available” by a range of state actors. Contention over the phenomenon of LSLA in the country is as a result of numerous concerns raised at different levels. Among many, is the claim of “available” or “unused” land for

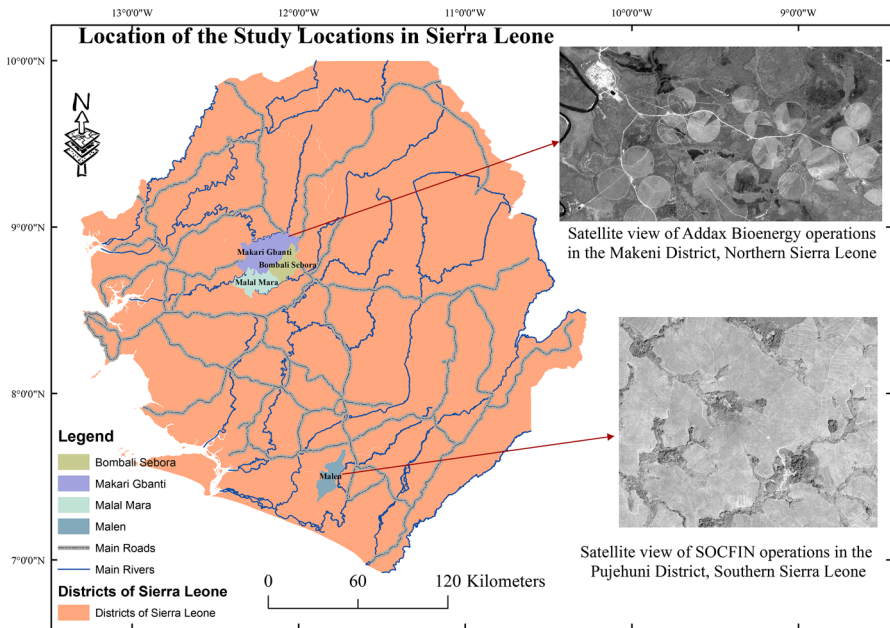


Fig. 1 Location of the Chiefdoms of the study location in Northern and Southern Sierra Leone and accompanying satellite images of land uses by companies in these communities. The images are NGA–NASA commercial very-high resolution satellite data, used with permission from the National Geospatial-Intelligence Agency

LSLA—a claim that does not take into context the fallow system of agriculture and the rapidly growing demography of rural areas in which these acquisitions occur. Indices of human development for Sierra Leone point to a situation in which national policy regarding the use of key resources for household and community support (such as land) need to be carefully considered. Sierra Leone's Human Development Index (HDI) value for 2012 is 0.359 positioning the country in the low human development category, at 177 out of 187 countries and territories [37]. Life expectancy in Sierra Leone is quite low—42, i.e. about half of the life expectancy in the top 20 ranked countries. Just about 25 % of women are literate, with the level at just 37 % for the entire population and secondary school attendance is still only at 44 %, according to the United Nations Development Programme.

Land Acquisitions in the Makeni and Pujehun Districts

Addax Bioenergy Sierra Leone Ltd. is a subsidiary of Addax & Oryx (a Swiss-based energy corporation). In 2010, the company acquired lease rights for 50 years (with the possibility of a 21-year extension) to over 15,000 ha of land in Bombali District, Northern Province, Sierra Leone (Fig. 1). The primary goal of this acquisition is to grow sugarcane for the production of bioethanol for export to European markets. Its current lease area has grown to 57,000 ha [2]. Communities claim that several promises of infrastructure development and various forms of social and economic support that were made to local communities prior to the acquisition of their lands (such as the building of schools, providing scholarships to children in communities affected by LSLA, and the provision of health infrastructure) are being renounced by the company and its supporters. In a show of reducing its negative footprint on the food production capacity and livelihoods of communities, the company instituted the Farmer Development Program [2]. This programme is designed to last for only the first three of the 50 years of lease of community lands and imposes a model of agricultural practice that does not fit with the local socio-economic realities on the communities. It strips farmers of decision-making rights over what they would like to produce, when and how to go about their farming activities. It focuses on the monoculture of rice rather than traditional low external input multi-culture food crops. Studies have shown a dismal lack of free, prior, informed consent and a pathetic disregard for gender sensitivity regarding the process of land leases [27, 2].

In the Pujehun District, the Socfin Agricultural Company Sierra Leone Ltd. (a member of the massive French group Bolloré) obtained a lease of 50 years for 6500 ha of prime fertile land in Malen chiefdom in 2011 [28]. In the midst of widespread opposition by local people over the process of land acquisition, issues with the social and environmental impact assessment, allegations of corruption, and concerns over land lease payments, the company is aggressively transforming the land for oil palm and rubber plantations. Amidst protests by local communities over their loss of land resources and livelihoods, as well as legal dramas between the company and local civil rights groups, the company is promising developments through investments in local infrastructure and jobs.

Sources of Data and Analysis

This study draws on fieldwork and data collected from two locations in Sierra Leone (Fig. 1) from October to November 2013 and from January to March 2014. Questionnaire and focus group data were derived from a cross-sectional survey of communities from the Makari Gbanti Chiefdom, Bombali District (Lungi Acre, Maronko, Woreh Yeama and Yainkissa) and three from the Malal Mara Chiefdom, Tonkolilli District (Mabilafu, Mara and Massaethleh). The data from the Pujehun District, Malen Chiefdom of the, Southern Sierra Leone (Fig. 1) were derived from six communities (Jumbu, Sinjo, Kortumahun, Basale, Bannale, Sahn-Malen).

Purposive Sampling to Identify Communities for the Study

Purposive sampling is a form of non-probability sampling in which decisions concerning the sample are taken by the researcher(s) [36] based on criteria such as purpose of the study, specialist knowledge of the topic or knowledge of a population [34]. Purposive samples can also be drawn on advice from experts, combined with researchers' judgment and possibly checked through rapid exploratory studies. The outcome is a sample where included groups are selected according to specific characteristics considered important. By using purposive sampling the researchers can gain greater depth of information from a smaller number of carefully selected cases, whereas probability sampling leads to greater breadth of information from a larger number of units selected to be representative of the population [34]. Mindful of this trade-off, our desire has been to achieve analytic depth in our case. The intension was not to generalize the information, but to elucidate the specifics of particular cases from which generalizations for other cases with similar profiles can be elucidated [12]. While purposive sampling has been criticized for convenience bias, this sampling method has been proven to provide reliable and robust data [13, 31]. Despite the critique that purposive sampling chooses samples because of their convenience or from recommendations of knowledgeable people [36], purposive sampling has been proven to provide reliable and robust data [21, 24]. When purposive samples are representative, they become valid over the realm they represent, and have a good potential of providing external validity as well [36].

In this study, we seek sites that will provide us with an understanding of the gender differentiated outcomes of LSLA. Thus, the characteristic of importance is whether the community is hosting a large-scale land investment project or not. When sampling is purposive, the sampling size usually depends on the homogeneity versus heterogeneity of the population. If the affected area is quite homogeneous, as the area in this study is, with a similar geographic situation, limited ethnic diversity groups, comparable production patterns and diversity [35] a few sites may be sufficient to provide representative data for the population [34]. Drawing on this conclusion, sample villages were selected for the study. Communities in which LSLA is on-going were treated as one homogenous sub-group, while other communities in which the company is not yet operating were treated as another homogenous sub-group (counterfactual evidence). From the sub-group of interest,

communities were chosen based on factors such as ease of access, availability of local facilitators for focus groups, long period of time in interaction with Addax operations.

Focus Groups

Focus groups were organized according to themes, and carried out in communities where LSLA have occurred. These themes were derived both from the examination of secondary sources and through consultations with representatives of local communities and civil society organizations. These themes constituted “burning issues” regarding LSLA according to people and communities of areas where LSLA was ongoing. The themes identified include the outcomes of LSLA on: gender (particularly women’s issues); youth and employment; as well as on the outcomes of LSLA on environmental resources. Themes such as food security and access to natural and land-based resources were seen by participants to be cross-cutting themes. This means that issues of food security, and access to natural and land-based resources affected all aspects of household and community economic and social life. They therefore had to be discussed in all focus groups, i.e. as a background to issues concerning youth and employment; women’s welfare; and as a basis for access to environmental resources.

Focus groups are unstructured interviews in which respondents in small groups participate in discussions of particular topics [26]. These focus groups were carried out in the local languages of the study communities—in Timene in the Makeni District and in Mende in the Pujehun District. They were animated by local resource persons with good knowledge of the research aims and goals for which these focus groups were organized. The gender aspect of outcomes of LSLA in local communities is one feature in a bigger study whose goal has been to examine the socio-economic and environmental outcomes of LSLA in Sierra Leone. Focus groups were organized according to themes designed to respond to the goals of this study. There were gender-based focus groups in all 13 of the communities visited. Focus groups consisting entirely of local women and animated by women were specifically designed to capture the women’s perspective of outcomes of LSLA. These were complemented by an equal number of focus groups of both genders for each of the communities. Focus group sessions were recorded and later transcribed into English. We used constant comparison analysis to analyse the data derived from focus groups [27]. The process of constant comparison analysis involves a three-stage process where the data are first disaggregated into small units in which descriptors or codes are attached to each of the units. This is followed by grouping the codes into categories according to the themes they expressly characterize. Finally, themes that express the content of each category are developed. The use of multiple focus groups within the same study made the choice of constant comparison analysis more appropriate for this analysis over other methods [29].

Questionnaires and Interviews

In each of the communities, structured questionnaires were administered to household heads available during the study period (men and women, together in their homes). These questionnaires were also administered in the local languages by enumerators trained by the researchers prior to the survey. The questionnaires captured general households' characteristics; sources of household income; changes in the amount of land assets over the last 5 years; impact of LSLA on welfare indicators at the household level, access to land and associated resources. Provisions were made within the questionnaires to highlight gender features of welfare indicators. Such gender-differentiated features included issues such as participation in the provision of household's resources (firewood, medicinal plants, etc.); income from agriculture; perspectives on outcomes of LSLA; and others. Semi-structured interviews were carried out with key informants with active knowledge and experience of the situation of women in relation to LSLA in rural Sierra Leone. One example of such key informants was the Gender Representative at the Pujehun Council.

To test the changes in mean income for each gender group, a paired *t* test was used [26]. T-tests are used in hypothesis tests for mean differences between the incomes derived by different genders from food crop farming before and after the onset of operations of Addax Bioenergy. We use a marginal plot to illustrate the relationship between incomes from food crop farming before the onset of operations

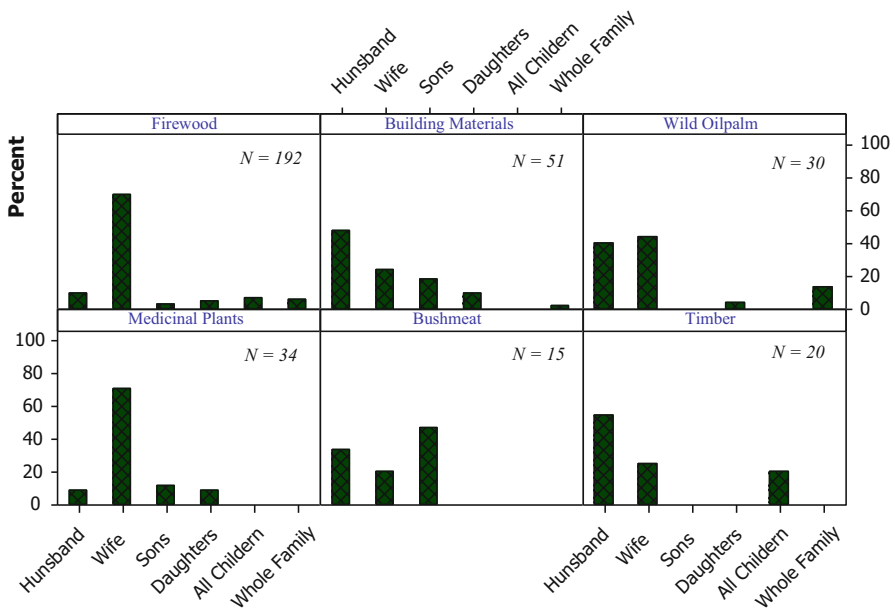


Fig. 2 Participation by members of households in the harvesting and collection of some natural resources in local communities of Makeni where Addax Bioenergy operates

in Addax Operation areas in the Makeni District (Fig. 3). A marginal plot is a two-in-one graph which permits one to compare two individual variables and their distributions at the same time. The distribution of the income data is associated with this plot and a trend line is used to show the shift in reported income earnings from food crop farming. Bars are used to represent category tallies and summary values of some of the data derived from questionnaires (Figs. 2, 4). We used discriminant analysis to investigate differences between men and women in the sample on the basis of the attributes of the cases, indicating which attributes contribute most to separation of men and women. This technique successively identifies the linear combination of attributes known as canonical discriminant functions (equations) which contribute maximally to separation of men and women respondents.

Results and Discussion

Gender Differences Identified for Key Independent Variables

We examined whether there are any significant differences between men and women respondents on each of the independent variables using group means and ANOVA results data. The Group Statistics (Table 1) and Tests of Equality of Group Means (Table 2) provide this information. From Tables 1 and 2 variables that may be important in separating men from women were obtained by inspecting the group means and standard deviations.

Table 2 provides strong statistical evidence of significant differences between means of men and women groups for age, marital status, earnings from crop prior to 2008, employment by company and lack of support for company to continue their operations with marital status, earnings from crop prior to 2008 and employment by company producing very high value F 's. Household size, community, educational attainment, years of experience in agriculture and number of years resident in the community was however, not statistically significant separators of men and women. Wilks' lambda (0.83) shows that the model explains only 17 % of the difference between men and women respondents in the sample.

The standardized canonical discriminant function coefficients (Table 3) show the relative importance of each predictor. The index of importance of the predictors in decreasing order is as follows: *marital status* > *age* > *employment by company* > *education* > *earnings from crop prior to 2008*. Residential time, years of experience in agriculture and community were less successful as predictors. A discriminant analysis was conducted to predict whether a respondent was female or male. Predictor variables were age, number of years' experience in agriculture, education, marital status, household size, community of residence, earnings from crops prior to 2008, residential time, employed by company and awareness of LSLA transaction. Significant mean differences were observed for age, marital status, earnings from crop prior to 2008, employment by company and lack of support for company to continue their operations on the dependent variable (gender). While the log determinants were quite similar, *Box's M* indicated that the assumption of equality of covariance matrices was violated. However, given the large sample

Table 1 Group statistics of respondents by gender

	Mean	Standard deviation	Valid N (listwise)	
			Unweighted	Weighted
<i>Gender</i>				
Female				
Age	39.48	13.348	218	218.000
Mstatus	1.30	.718	218	218.000
HHSize	7.29	4.752	218	218.000
Community	2.47	1.052	218	218.000
Education	.22	.560	218	218.000
Earnings_from_food_crop_farming_before_2008	642,133.03	487,078.345	218	218.000
Current_earnings_from_food_crop_farming	237,348.62	336,586.699	218	218.000
Employed_by_the_local_company	.04	.188	218	218.000
Residential_time	27.30	17.464	218	218.000
Agric_experience	17.89	12.116	218	218.000
Awareness_LSLA_transaction	.45	.499	218	218.000
Awareness_LSLA_transaction				
LSLA_fullconsent_agreement	1.07	1.311	218	218.000
Company_to_continue_operations	.35	.478	218	218.000
Company_to_continue_operations				
Male				
Age	42.58	15.038	209	209.000
Mstatus	1.00	.302	209	209.000
HHSize	7.80	4.244	209	209.000
Community	2.37	.992	209	209.000
Education	.21	.581	209	209.000
Earnings_from_food_crop_farming_before_2008	912,488.04	954,089.644	209	209.000
Current_earnings_from_food_crop_farming	289,095.69	519,739.905	209	209.000
Employed_by_the_local_company	.13	.341	209	209.000
Residential_time	28.46	16.571	209	209.000
Agric_experience	19.25	13.908	209	209.000
Awareness_LSLA_transaction	.48	.501	209	209.000
Awareness_LSLA_transaction				
LSLA_fullconsent_agreement	.99	1.238	209	209.000
Company_to_continue_operations	.45	.499	209	209.000
Company_to_continue_operations				
Total				
Age	41.00	14.268	427	427.000
Mstatus	1.16	.574	427	427.000
HHSize	7.54	4.512	427	427.000
Community	2.42	1.024	427	427.000
Education	.22	.570	427	427.000

Table 1 continued

	Mean	Standard deviation	Valid N (listwise)	
			Unweighted	Weighted
Earnings_from_food_crop_farming_before_2008	774,461.36	763,948.580	427	427.000
Current_earnings_from_food_crop_farming	262,676.81	436,204.112	427	427.000
Employed_by_the_local_company	.08	.278	427	427.000
Residential_time	27.87	17.023	427	427.000
Agric_experience	18.56	13.026	427	427.000
Awareness_LSLA_transaction	.46	.499	427	427.000
Awareness LSLA transaction				
LSLA_fullconsent_agreement	1.03	1.275	427	427.000
Company_to_continue_operations	.40	.491	427	427.000
Company_to_continue_operations				

Table 2 Tests of equality of group means

	Wilks' lambda	F	df1	df2	Sig.
Age	.988	5.076	1	425	.025
Mstatus	.933	30.732	1	425	.000
HHSize	.997	1.364	1	425	.243
Community	.998	1.004	1	425	.317
Education	1.000	.119	1	425	.730
Earnings_from_food_crop_farming_before_2008	.969	13.764	1	425	.000
Current_earnings_from_food_crop_farming	.996	1.503	1	425	.221
Employed_by_the_local_company	.969	13.428	1	425	.000
Residential_time	.999	.500	1	425	.480
Agric_experience	.997	1.170	1	425	.280
Awareness_LSLA_transaction	.999	.358	1	425	.550
Awareness_LSLA_transaction					
LSLA_fullconsent_agreement	.999	.505	1	425	.478
Company_to_continue_operations	.988	5.021	1	425	.026
Company_to_continue_operations					

($n = 442$), this problem is not regarded as serious. The discriminate function revealed a significant association between groups and age, marital status, earnings from crop prior to 2008, employment by company and lack of support for company to continue their operations, accounting for 17 % of between group variability, although closer analysis of the structure matrix revealed only one significant predictor, namely marital status (-0.596) with all other variables as poor predictors.

Table 3 Standardized canonical discriminant function coefficients

	Function 1
Age	.573
Mstatus	-.776
HHSize	-.047
Community	-.344
Education	-.072
Earnings_from_food_crop_farming_before_2008	.323
Current_earnings_from_food_crop_farming	.001
Employed_by_the_local_company	.499
Residential_time	-.003
Agric_experience	-.041
Awareness_LSLA_transaction	-.008
Awareness_LSLA_transaction	
LSLA_fullconsent_agreement	-.181
Company_to_continue_operations	.131

Table 4 Cross validated classification of males and females

		Classification results ^{a,c}			
		Gender	Predicted group membership		Total
			Female	Male	
Original					
Count	Female		152	66	218
	Male		80	129	209
%	Female		69.7	30.3	100.0
	Male		38.3	61.7	100.0
Cross-validated ^b					
Count	Female		139	79	218
	Male		84	125	209
%	Female		63.8	36.2	100.0
	Male		40.2	59.8	100.0

^a 65.8 % of original grouped cases correctly classified

^b Cross validation is done only for those cases in the analysis. In cross validation, each case is classified by the functions derived from all cases other than that case

^c 61.8 % of cross-validated grouped cases correctly classified

The cross validated classification (Table 4) showed that overall 61.8 % were correctly classified.

Gender-Differentiated Participation in Natural Resources Harvesting Activities

Figure 2 shows responses on which family members are involved in the collection or harvesting of some of the key natural resources in communities where Addax Bioenergy operates. Traditional gender roles and norms define joint participation of men and women in some activities such as the collection of local oil palm nuts

where men climb and cut the branches, while women gather and transport the fruits back home. The same arrangement applies to the harvesting of thatch and associated land-based building materials. While the possibilities and opportunities of fishing and hunting for bushmeat have been either seriously diminished or lost all together in most communities where Addax operations are on-going, these activities have remained a male preserve. The hunting of bushmeat is dominantly carried out by young and adult males likewise timber harvesting is also an activity predominantly carried out by adult males.

The collection of firewood has been traditionally an activity undertaken mainly by women and children. Adult women (wives) collect about 70 % of the firewood in these rural communities of Sierra Leone (Fig. 2). In the same vein, the harvesting of medicinal plants is chiefly carried out by women—constituting about 70 % of household members undertaking the activity. The dependence of women on land-based natural resources that directly determine the physical and social health of households (firewood and medicinal plants) is therefore substantial. LSLA is creating a situation of increasing scarcity of firewood in the local areas where operations are on-going. With the acquisition of areas that served as sources of firewood for local communities, the distances that communities have to cover to reach firewood sources have increased three-fold. As a result of this scarcity, firewood which used to be rarely sold in local communities has become an economic commodity on which money can be made and livelihoods can depend. Increasingly, men are embracing firewood harvesting, primarily to sell and make money from the activity. Figure 2 once again highlights the important role played by women as primary managers of local natural resources. This is a role that has been reported by studies in different rural settings in many countries of the developing world [8, 14, 19]. Notwithstanding this important role, there continues to be a persistent gap between gender-sensitive policies and legislation and their effective implementation in practice continues to limit the full attainment of women's rights to landed property [9, 30, 38]. ActionAid [1] specifically points to the labour and effort put by women in meeting some of the challenges shown in Figure (such firewood harvesting) as work which is neither paid, recognized, nor discussed in local and national policy circles [1].

Implications on Agricultural Income and Livelihoods

Women's income from farming has fallen since the onset of Addax operations in the Makeni District (Fig. 3). In focus groups, women contend that this significant fall in income has been accompanied by a loss of economic independence since the onset of operations both in Makeni and Pujehun. Prior to the onset of these operations, income resulting from the selling of surpluses from farming was largely controlled freely by women. Presently, for those that have lost land, they have no opportunity of meeting basic household food needs, which is considered a responsibility of wives. Women report that the severity of loss of independence generally increases with the amount of land that has been lost. Even for those that have not lost land, there is greater pressure on household food resources because increasingly, there is need to provide support for other members of the extended family that have lost

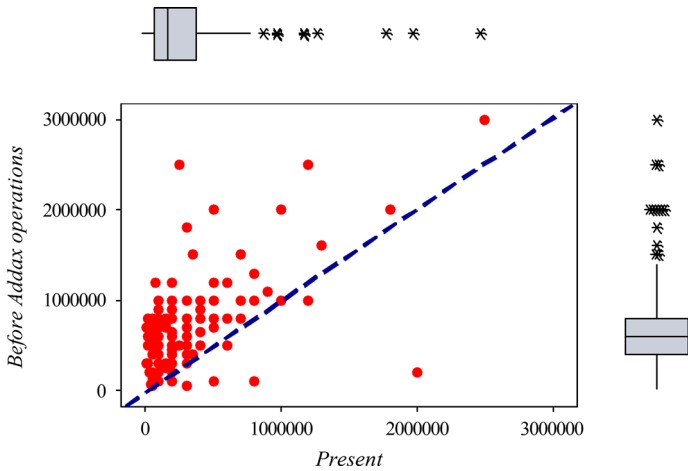


Fig. 3 Female income distributions before and after the *onset* of Addax Bioenergy operations in the Makeni District of Sierra Leone ($N = 209$ before Addax operations, $N = 166$ at present). The income is in Sierra Leonean Leones (SLL)

land. Also, the inability of offspring to find land for settlement and cultivation—permitting them to move out of their parents’ homes, is reportedly robbing women (especially) of resources that would have largely been available if the access to land was not restricted.

Large-scale land acquisitions has led to a significant fall in income earned from agricultural production among both genders. T-test comparing the difference of means for income of women before Addax operations and at present as well as that comparing the difference of means for the incomes of men finds that both genders have witnessed a statistically significant fall in income derived from farming ($p < .005$). While the fall is equally significant for both genders, based on gender division of farming tasks and responsibilities, there may be differences on the implications on households for such fall in incomes for women than it would be for men.

Through their farming activities, women are responsible for a substantial share of food crop production in Sierra Leone. In sub-Saharan Africa, women’s contribution to food crop production is reported to reach 80 % of total crop production in small-scale farming [22]. The engagement of women with a variety of agricultural decision-making and farm activities as well as their contribution to a significant share of rural food production makes them an indispensable force in local regional and national economies of many sub-Saharan countries [5, 22]. Their access to production resources has a direct bearing on the health of households and communities as well as the sustainability of development prospects of countries. When women lose control of farm produce and income emanating from crop production, it is not only their relative familial power and self-esteem that is affected, but also family well-being.

In Sierra Leone, as with most of sub-Saharan Africa, female farmers tend to engage in more of food crop production rather than the production of cash crops

than do their male counterparts [15]. Women also generally tend to sell less of their farm outputs than the men do [14, 15]. A majority of the produce from female agricultural engagement is destined for household consumption. It therefore follows that when the production potential of women is reduced, the household has the potential of suffering more from food insufficiency than when the potential of males in the household is reduced.

Gender-Based Perception of the Impact of LSLA

When asked to rank key issues associated with LSLA in local communities, men and women tend generally to agree on the severity of most key issues indicated as local outcomes of land acquisitions (Fig. 4). Such agreement can be found in issues such as: quarrels between local communities over natural resources; problems of law enforcement in local communities; corruption among politicians; and the degradation of local natural resources such as water (see Fig. 4). In many ways, this can be expected because these issues tend not to be gender-specific. They are felt by all members of the community. In case of degradation of water resources, one may expect some gender bias in its perception, given that much of the water in households is fetched by women and female children. Focus groups revealed that this bias does not exist because the degradation of water resources is generally not a problem of quantity of water for most of the communities, but rather of chemical pollution of water sources by agricultural inputs of land investing companies. Claims of such chemical pollution of water sources were reported in Worreh Yeama, Romaro, Lungi Acre in the Makeni District and in Massao, Sinjo and Jumbu in the Pujehun District.

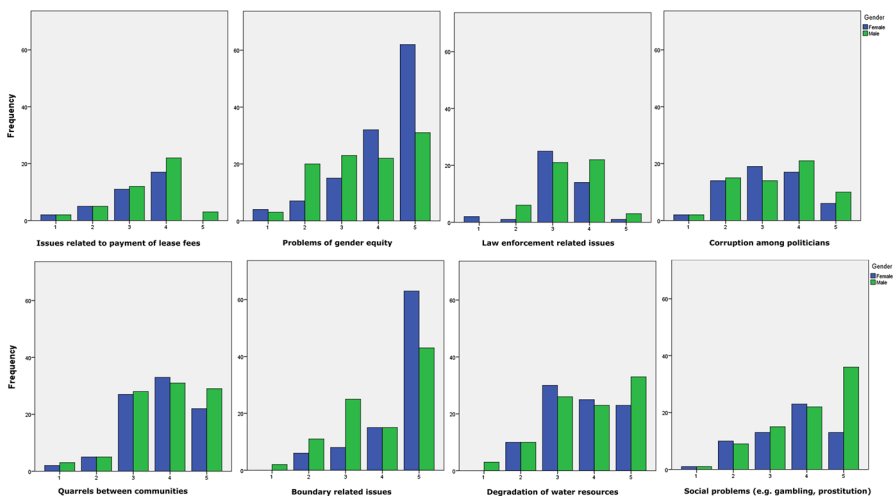


Fig. 4 Rank of key issues related to LSLA in local communities. The ranks range from 1 existing but less important, to 5 very important. Importance in this context refers to the outcomes of LSLA in relation to the specific issue presently being experienced in local communities

Women and men disagreed on the severity of three key issues. These include boundary related issues and problems of gender equity where women ranked their severity higher than men and on social issues where men ranked their severity higher than women. Women tend to perceive boundary related issues (referring to problems associated with boundaries of farming land) more than men because the female-folk tend to be more active in seeking food crop land after losing land to LSLA than the male-folk. The tendency for women to be more active in seeking farming land and hence coming across problems related to farmland boundaries can have two explanations. First, women's traditional, cultural role as primary providers of food in the household does not change with LSLA and women will normally go to great lengths to meet this expectation. On the other hand, men's traditional, cultural roles (providing schooling for children, providing and maintaining housing for the family, etc.) are not directly life-threatening on a day-to-day basis. In many instances, men's traditional responsibilities have simply been abandoned when the social and economic contexts do not favour their fulfilment. In extreme cases, men migrate out of the communities, leaving behind women to take care of the children and themselves. Second, when land has been lost by communities to LSLA, it is easier for women to access land for the temporal cultivation of food crops than it is for men. This is because the food crops that women tend to cultivate can more easily accommodate short-term land leases that may be available in neighboring communities (in cases where farmlands in these communities have not been appropriated by companies). "Men's crops" on the other hand tend to be more permanent or long-term crops that cannot be cultivated on short-term leases of land from people in other communities who would want to have access to the land at short notice, if they choose to use it themselves.

Women also rank issues of gender equality more severely than men (Fig. 4). Issues of gender equality here refer mainly to gender-differentiated impact of LSLA. In focus groups, women were inclined to raising their need to meet household food supplies and the fact that men had the "opportunity" to move away from communities in the worst case as cases of gender-differentiated impacts. Women also pointed to their unequal representation in the local workforce of the land investing company; their lack of a voice on issues regarding decisions on leasing local lands as well as on lease payments emanating from loss of vital farmlands and their means of livelihoods. That women rank the severity of problems of gender equity more than men can also be attributed to the pervasive gender blindness of women's position on issues of rights to land and associated resources on the part of the male-folk, local customs, and the customary legal framework in rural Sierra Leone. We could not explain the difference in ranking of the severity of social problems such as gambling and prostitution between men and women.

Gender Aspects of Consent and Participation in Processes of Land Leases

The majority of women in Sierra Leonean live under traditional land tenure systems that do not recognize a woman's right to own property. In Sierra Leone, the role of culture in determining the rights of women to land and landed property varies depending on the tribal group in which the woman marries into. Notwithstanding

these tribal differences, two key commonalities seem to characterize the cultural definition of women's relationship to land rights and tenure throughout rural Sierra Leone. This is because women do not own land in their family homes (homes where they were born and grew up before getting married and moving to their matrimonial homes). Hence, women are primarily seen as potentially to be married and leave their homes of birth to new homes which will become permanent for them. It is also because in her new home (the matrimonial home after marriage), culture understands that property belonging to the man will become the woman's property. This includes (most importantly) the land of the husband to which she marries.

This definition by the local culture implies that there is no need for a woman to own landed property in the home in which she was born. The assumption is based on the expectation that all women will be married to men who will all have access to land with secure rights on which they can base their livelihoods and lifestyles. The practice has therefore been that when a woman gets married, her husband will provide her with farming land from which she depends for the production of household food and to meet a host of other livelihood activities. In most cases, once farming land has been provided to the woman, the responsibility of household food supply, child care, her personal care and supplies, children's school fees, etc. now falls on the woman. The men would be responsible for long-term strategic investments such as the building of the home, family health care, etc. Farming roles are also divided. Generally the men have to clear the farms, plough and provide seeds for the staple crop (rice). The woman's farm roles are to plant, weed, and harvest the food crops. Women may provide additional labour for ploughing if need be.

Women's consent, role and contribution in the decision-making that relates to household and even community land leases is very much influenced by the prevailing culture of the land. Drawing from the basic cultural norm that women do not own land and therefore cannot decide on what becomes of land in the majority of rural Sierra Leone, the implications for women's access to financial proceeds from land deals is therefore almost pre-determined. Focus groups revealed that women's lack of decision-making on issues and processes of land transfer translates to their lack of access to and decision-making on income resulting from land leases. Lease payments tend to be made to male household heads representing the landowning members in each family [33].

Implications on Access to Land and Land Resources

Although women generally do not inherit land according to customs and traditions of rural Sierra Leone, their rights to use land belonging to their husbands or male relatives is usually assured. This is contrary to observations from previous studies that: "prior to any land deals, poor rural women often do not have reliable access to land, secure land tenure, or customary land rights" [8]. While this arrangement has been successful in meeting the land needs of women in rural Sierra Leone for several generations, recent developments in LSLA by multi-national companies has seriously jeopardized this organization. It follows therefore that while the process of LSLA would generally appropriate land belonging (traditionally) to men, the real users of these lands for activities that directly affect the lives of local households and communities are women.

LSLA therefore has a huge potential of undermining the situation of women regarding access to and use of land and associated resources, as women often lose the competition on land access and have a weaker fall-back position.

With regards to rights over landed property, it must be noted that while women have access and use rights to farmlands of the families in which they are married, these rights are not unrestricted. For example, it is not expected or common that women would plant or take control over permanent crops such as oil palms, coffee, cocoa, kola-nuts, oranges, etc. Such category of crops qualify for the description given in some studies as “male crops” [8, 17]. Also, the woman cannot lease out or sell the land. This explains why in decision-making concerning land leases in Sierra Leone, women are rarely consulted at any level in matters concerning land issues such as leasing out the land. In the Malen Chiefdom of the Pujehun District for example, the decisions on leasing farming lands was primarily made by the paramount chief of the chiefdom. Others consulted for the process were the town chiefs, section chiefs, the council chairman and the Member of Parliament for the constituency. These positions of authority are generally occupied by men who therefore tend to wield power over land transfer processes and proceeds. In focus groups, women were keen to point out that no consultations of women or women’s common initiative groups were actively sought on issues of land leases in both Northern and Southern Sierra Leone.

There does not seem to be any local arenas, such as village meetings or courts, where women can raise this issue to local authorities. In addition, it did not seem as if the issue of men leasing women’s land to companies was understood in terms of men not fulfilling an obligation. It was not considered a responsibility for men to compensate women for their loss of income generating land. It is instead a new task put on women to find other sources of income to cater for their families.

The extent of relegation of women’s opinions and voice on issues concerning and related to LSLA has garnered widespread condemnation both from local civil society groups and international non-governmental organizations. In February 2014, the Committee on the Elimination of Discrimination against Women (CEDAW) reported that rural women in Sierra Leone were disproportionately affected by LSLA [9]. Their vulnerability has its foundation on the local culture and traditions of land ownership and inheritance in Sierra Leone. This vulnerability is compounded by access to justice, education, economic opportunities, health care, credit and loans [9] with which it combines to form a vicious cycle. According to Verma [38], today’s phenomenon of land grabs “highlight historical continuities from the colonial past elite and male capture” of land and associated resources. This is why land grabs continue to occur despite strong laws and policies [38]. It can be argued that such strong laws and policies as alluded to by Verma [38] in East and Southern Africa are not common in West Africa generally, and Sierra Leone in particular, especially regarding the female dimension of land rights and ownership.

Women’s Responses to Loss of Land

When the main source of economic and social wellbeing for households is lost, family members are left with different choices of adaptation to the new reality.

Among the most common are: finding farmlands outside the community where households can engage in the activity they have the most know-how; switching to other forms of self-employment, principally petty trading; finding work with the land appropriating company; migrating out of the community; and/or revising and rationing household meal plans. There are however differences between adult males and females on how individuals respond to loss of access to land and land-based resources.

Finding Farmlands Outside the Community

Studies have reported the potential of household land ownership in helping households withstand shocks, access credit, and securing investment to improve agricultural production [14]. To meet the challenge of providing food for their families, women who have remained in their communities have tended to seek farmlands in new communities that have not been affected by LSLA. Access to such farmlands in other communities is difficult because people in other communities are either leaving them to fallow or are themselves in need of these lands. Women have to cope with new challenges. These challenges include the longer distances to farms since these new farmlands are often much farther from their resident villages. It also includes the stricter conditions for using such lands—in some cases, these farms are to be used by their owners for the cultivation of the stable crop—hence the new tenants cannot cultivate either the stable crop or any perennial crop. The land may not have firewood—an important land-resource sought after by rural women (see Fig. 2) or the harvesting of firewood may be restricted. Finally, the long-term use of these farmlands is never assured—making it difficult for women to make long-term plans on their investments in these lands.

Switching to Other Forms of Self-employment

In cases where the distances to new farms are too long to be manageable or where there are no farmlands available in neighbouring communities or chiefdoms, women will seek to sell their services as seasonal farm labourers to medium- and large-scale farmers in neighbouring communities. Compensation for such farm labour could either be in kind (mainly agreed amounts of the harvested food crop) or in cash (reported to be very modest). One key issue with depending on farming labour to support the household is the seasonal nature of the employment opportunities. For over half of the year, such employment opportunities may not be available, leaving women and the households they support seriously vulnerable to food insecurity and hunger.

Finding Work with the Land Appropriating Company

Women do not benefit equally from employment by the local land investment company as men. In our survey, women formed 21 % of the population employed by the land investing company, even though the extent of loss of production capacity as a result of LSLA is almost the same for men (22.5 %) and women (21.4 %). Women therefore bear a greater burden of the unemployment resulting

from the loss of agricultural land. Notwithstanding this vulnerability, their responsibilities as home managers and providers of food and domestic care in rural societies have not changed.

Migrating Out of the Community

Men tend to move out of communities where economic opportunities are too few to sustain their stay in such communities. This has been reported in a majority of the communities studied. Such movements could be short-term, seasonal or permanent. On the other hand, women (who have the primary responsibility of child-care) do not have as much flexibility of leaving their communities as the men do. Such movements generally involve migrations to cities and towns in search of unskilled employment or into neighbouring communities to work as hired labour in farms, mines and other sectors of primary production. In a number of focus group sessions, men are reported to have gotten married and started new families (abandoning their original families) when forced by LSLA to migrate out of their communities in search of a means of livelihood. The burden of such breakdown in families that is increasingly common in communities affected by LSLA falls almost entirely on women left behind to bear the full brunt of loss of livelihoods.

Revising Household Meal Plans (to Respond to Loss of Food Diversity and Quantity)

Participants report a significant revision of household meal plans to cope with the loss of food production capacity resulting from LSLA. This revision generally takes the form of reduction in the number of meals per day and reduction in the diversity of food consumed. The loss of surface hydrological resources that have accompanied LSLA has also led to a decline in the availability of fish—a main protein source for most of rural Sierra Leone (especially in the Southern Province).

The place and role of women in Sierra Leone (as in much of sub-Saharan Africa) is one that does not provide enabling conditions for the development of resilient food security systems for the region. Women's condition remains one of the features of the "business as usual" settings which according to the International Assessment of Agricultural Knowledge, Science and Technology for Development [25] will not permit countries in sub-Saharan Africa to address needed development and sustainability goals. Being the majority of farmers in the region, the necessity to address the specific needs of women farmers is ever more urgent as sub-Saharan Africa faces up to numerous challenges of global environmental changes. In Sierra Leone, the problem of gender equality and women's access to appropriate resources required to meet their contributions to societal welfare generally tends to span through several development sectors. Women's issues would typically feature in sectors such as agriculture, social welfare and gender, nutrition and health, etc. These sectors tend to be administered under different ministries. To adequately respond to demands on key issues such as gender, there is need for proper coordination within these ministerial sectors, a feature that is usually not appropriately handled at the national level in Sierra Leone.

Conclusion

We set out to examine the gender-differentiated outcomes of LSLA in Sierra Leone. We have found that by virtue of the dependence of women on land resources that tend to be vital for the day-to-day welfare of rural households and livelihoods, women will tend to be more profoundly and directly affected by LSLA than men. Women and men have experienced a fall in income as a result of LSLA. However, by virtue of their traditional role of household managers, the impact of the fall of women's income on households tends to be more immediate on the households than that of men. Men tend to be "blind" on the severity of the implications of LSLA on women—a phenomenon that draws from the general atmosphere of "gender blindness" in the socio-cultural, economic and political life of Sierra Leone. Finally, the coping strategies for loss of land are different for men and women in two main ways. Firstly, the role of women as home managers does not change because they have lost their production base through LSLA, hence they have to go to great lengths to provide the vital resources (food and firewood) required to sustain households from day-to-day. Secondly, while men tend to move out of the community to search for new possibilities of livelihood, women tend to remain within the communities and struggle through every means to support themselves and children left behind.

Besides illustrating the very crucial role played by women in the socio-economic and cultural lives of households and communities in rural Sierra Leone, the above findings qualify for a definition of gendered outcomes of LSLA where women are more negatively affected than men in their daily lives. Policy interventions designed to enable or promote socio-cultural and economic development should acknowledge the crucial role played by women as managers of natural resources and households (especially in rural settings). For policies to properly respond to women's dependence on vital land resources for household welfare, support should be given for women farmers to participate in decision-making at all levels. It is only by empowering women's voices by building leadership skills and through women's organizations and common initiative groups can the needs of women and their vulnerabilities to phenomena like LSLA be properly understood and addressed. Failure to design and properly implement policies that address the vulnerabilities of women to loss of production assets may seriously jeopardize development efforts and the attainment of vital goals of socio-economic and environmental sustainability. On the other hand, empowering women to fully participate in the national economy would mean taking advantage of one of the country's most vital and dynamic sources of development.

Women's social standing builds greatly on their economic independence, which in turn depends on their access to productive economic assets. In areas of rural Sierra Leone where LSLA has occurred, the land base of women's economic power has either been severely eroded or completely lost to large-scale acquisitions. The current phenomenon of LSLA has therefore created an atmosphere that is not conducive for the implementation of legislation and projects that enable or enhance the socio-economic development of women. There is a great need to especially

revisit national laws and policy regarding women's rights and access to landed resources in rural Sierra Leone. A clear effort should be made to identify and address the hurdles to gender equality in matters of rights and access to land and landed resources. At a local level, such effort should re-examine the implications of land loss on women and rural households in areas where LSLA has occurred and provide solutions that respond to both the household and gender dimension of access to landed resources.

Acknowledgments We sincerely thank all communities of the Makeni and Pujehun Districts of Sierra Leone that participated in this study. We also thank Green Scenery, Sierra Leone and the Sierra Leone Network on the Right to Food (SiLNoRF), the Rural Agency for Community Action Programme Sierra Leone for their support during this study. Our appreciation goes also to Zainab Kamara for help with our activities in Makeni and Hawa Massaquoi (Gender Representative for the Pujehun Council) for information on the gender situation in the Pujehun District. We greatly appreciate support from the Swedish Research Council VR (Contract No. 2013-187: Unintended implications of climate policies—Large scale land acquisitions) under which this study was carried out. This research was carried out within the framework of the Linnaeus Centre LUCID (Lund University Centre of Excellence for Integration of Social and Natural Dimensions of Sustainability). We gratefully acknowledge the financial support to LUCID from the Swedish Research Council Formas.

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