

Losing ground. The impact of increased biofuel production on local smallholders - A case study of Addax Bioenergy, Sierra Leone

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Abstract

Sierra Leone, one of the poorest countries in the world, has recently become a popular target for foreign farmland investors. It is estimated that about 18% of the country's cultivatable land have already been leased to foreign investors or are subject to negotiations so far.

The present paper takes a closer look at the case of the Swiss company Addax Bioenergy, which leased a huge area of farmland in the central part of Sierra Leone for the export-oriented production of bioethanol from sugarcane. The project area is home to more than 13,600 people, mostly small-scale (semi-)subsistence farmers. Based on interviews with 6 affected farming families, the paper describes the (mainly negative) effects of the project on local smallholders. These include not only losses of farmland as the smallholders' basis of existence, but also broken promises made by the company regarding employment opportunities and infrastructure development. The compensation payments and salaries do not cover the smallholders' expenses for food, education and health services. Longer walking distances, health problems and social discontent contribute to the bad situation of the smallholders.

Introduction

Farmland has always been an essential resource for human beings. While the world has never faced global deficits in farmland for centuries, there are growing signs that the non-extendable good is slowly running short.

Rising food prices, the increasing demand for biofuels and the prospering business with agricultural commodities have caused a rush for cheap farmland in recent years. Governments and private investors from wealthy and emerging countries have started to acquire huge amounts of land mainly in countries of the global South. Precise figures on the extent of foreign land acquisitions do not exist; estimations reach from 15 to 20 million hectares of farmland involved in land deals or negotiations in developing countries since 2006 (De Schutter 2009, p.3) up to 227 million hectares since 2001 (Oxfam International 2011, p.5). That is a surface of almost the size of Argentina (UNdata 2013). Critics point out that large-scale land deals often cause the dispossession of local farmers. In this context, the terms "*land grabbing*" and even "*neo-colonialism*" or "*recolonialisation*" are often used (Akram-Lodhi 2012, Baxter 2011, Bommert 2012, Daniel & Mittal 2009, Liberti 2012, Maillard Ardeni 2011, Ziegler 2011).

The present article takes a closer look at the case of a large scale land deal in Sierra Leone - a nation that has become a leading target country for foreign investors in western Africa. Thirteen years after a long-lasting civil war, Sierra Leone

remains a least developed country (UNCTAD 2012, p.xii), ranked eight last in the Human Development Index (UNPD 2011, p.126). According to a survey by the World Food Programme (WFP) (2011, p.3), 45% of the households do not have enough to eat throughout the year. The country is dependent on food imports, even though almost two thirds of the population are employed in agriculture. Most of them are (semi-)subsistence farmers who grow food for their own consumption and for sale (AfDB & OECD 2009, p.561 & Matus, Acs & Gomez y Paloma n.d., p.1).

The government of Sierra Leone regards the traditional and - due to missing inputs and infrastructure - rather inefficient way of farming critically and aims for a shift towards modern agriculture (Matus, Acs & Gomez y Paloma n.d., p.6). It has therefore started to actively promote foreign investments in farmland (The Oakland Institute 2011a, p.12). President Koroma is convinced that investors would boost the development in the country by bringing in capital and know-how, creating jobs and developing much-needed infrastructure (Sierra Express Media 2010). In order to attract investors, the government released a number of deregulations to make the implementation of foreign investments easier, cheaper and faster - at the cost of the local population (Daniel & Mittal 2010, p.23).

The Sierra Leonean NGO Green Scenery estimates that approximately 18% of the country's cultivatable land have either already been leased or are subject to negotiations (Green



Source: Wikimedia Commons 2011.

Fig. 1. Location of Sierra Leone

Scenery 2012, p.1). The local population has no means to defend their land against large-scale agricultural projects. As it is not possible to formally own land in most parts of Sierra Leone, the rural population only holds rights of use on the land (The Oakland Institute 2011a, p.18). The usage rights are transmitted from generation to generation within families or extended family circles. Their land extends along imprecise boundaries and shifts quite often due to the rotational farming method¹ applied by most peasants. Their fields are not registered in any land cadastre which makes the farmers very vulnerable to displacement (The Oakland Institute 2011a, p.18).

The present case study aims to examine the situation of smallholders who are directly affected by a large-scale foreign land investment by using the example of Addax Bioenergy. The Swiss company recently leased a large area of traditionally cultivated land for the export-oriented production of bioethanol from sugarcane. Since the European Union has started to promote the use of biofuels, large-scale farmland acquisitions have multiplied. In the light of the hotly debated “food or fuel discussion”, the study concentrates on the following questions: Which effects does the replacement of (semi-)sub-

sistence agriculture have on local smallholders and their food security? How did their livelihood and dependence on local (food) prices change? And can the affected farmers profit from the project at all?

The following section will briefly describe the Addax Bioenergy project and the area it affects. The article will then give an overview of the methods applied in the case study. The last section represents the main part of the article and deals with the outcomes of a field study conducted in Sierra Leone in late 2012.

1. Description of the case-study area and the Addax Bioenergy Project

The area which Addax Bioenergy leased for its bioethanol project is located in the central part of Sierra Leone, about 20 to 30 km south-west of Makeni, the fourth largest city in Sierra Leone and 100 km east of the capital Freetown and the Atlantic coast. Not far from the project site runs the Lunsar-Makeni highway, which directly connects the area with the capital. The Rokel River, which is the biggest river in Sierra Leone, surrounds the project area in the south, the west and in parts of the east. Also, a number of smaller water streams cross the territory. The area is characterized by a high soil fertility and a number of very sensitive vegetation types,

¹ *Shifting cultivation is widespread in Sierra Leone. After one or two years of cultivation, the fields are abandoned in order to let the soil regenerate (Binns 1982, p.116). After a fallow period of several years the land is being re-cultivated. This way, the soil remains fertile despite the lack of fertilizers and agricultural machinery.*

Tab. 1. Interviews

Interview	Main respondent	Other respondent(s)	Community
1	smallholder, female	family	Worreh Yeama
2	smallholder, male	-	Worreh Yeama
3	smallholder, male	family	Robung / Magbansa
4	smallholder, male	family	Robung / Magbansa
5	smallholder, male	friend, male	Mabilafu
6	smallholder, male	family	Mamudu

Source: own selection, based on recommendations by SiLNoRF.

such as wetlands, riparian forests, terrestrial forests and village forests (AfDB n.d., p.4). The project-affected area lies in the middle of one of the three major rice producing areas responsible for the supply of staple food for the most part of the country's population (WFP 2011, p.20). Moreover, the territory is home to 13,600 people living in approximately 60 settlements (AfDB n.d., p.7). As in most parts of Sierra Leone, the majority of people in this area live off small-scale (semi-) subsistence agriculture and do not have formal land titles.

In 2010, Addax Bioenergy started to clear land for its sugarcane plantations. By 2014, when the project is supposed to become fully operational, 14,000 ha of land will be used for plantations and project-related infrastructure (Addax Bioenergy 2013b, p.1). The sugarcane fields are arranged in round centre pivots which allow an automatic irrigation necessary throughout half of the year. In four implementation phases, the company intends to plant 150 round sugarcane fields, each of which has a size of 50 to 70 hectares (Addax Bioenergy 2011a, p.6). The fields are bordered by very sensible ecological corridors and human settlements which the company doesn't use for plantations. This however means that the plantations spread over a much larger area than actually needed for sugarcane cultivation. Altogether, 57,000 hectares - a surface bigger than the urban area of Vienna (AfDB n.d., p.2 & Magistrat der Stadt Wien, MA 23 2013) - will get to feel the consequences of the project. The project is set for a duration of 50 years with the option for an extension of 21 years (The Oakland Institute 2011a, p.24).

The sugarcane production is mainly based on mechanical labour input. After the harvest, the sugarcane is transformed into ethanol in the company's on-site refinery. When the project becomes completely operational, the refinery is estimated to produce an annual ethanol output of 90,000 m³ which will be almost entirely exported to Europe (AfDB n.d., pp.1-2). From the 258 million Euros investment, the company expects an annual return of 15%, which corresponds to the sum of 38.7 million Euros each year (Maillard Ardeni 2011, p.8).

The Addax project is actually considered a very positive example of large-scale land investment. Unlike many other investors, Addax - which is besides sponsored by a number of development banks - has at least made certain efforts to involve the local population and provide transparency in the

land lease process. However, even this project - standing under a great pressure by the public as well as by its donors - turns out to have a number of deficits that threaten the local population, as will be demonstrated in the present case study.

2. Methodology

The findings of the case study are based on the review of existing surveys, a field study in Sierra Leone in November / December 2012 and the interpretation of satellite images. In Sierra Leone, I had conversations with local experts, namely the Canadian journalist, development researcher, anthropologist and author Joan Baxter as well as the team of the NGO Sierra Leone Network on the Right to Food (SiLNoRF)² which is involved in both research as well as the support of farmers who are affected by the Addax project. With their help and expert input, I was able to prepare and conduct interviews with 6 affected farming families in 4 different communities across the Addax project area (see Tab. 1). The communities as well as the interviewees had to be carefully selected. Some communities have a quite positive attitude towards Addax, since they receive special treatments from the company. This may include extra payments, infrastructural facilities or presents, which the majority of affected communities does not receive. These communities therefore do not represent the widespread opinion on Addax.

The interviews were based on a standardized questionnaire with both open and specified questions. Much additional information could be gained from the personal statements and stories my interview partners and their families / friends were ready to tell.

Additionally, I compared satellite images dated from 2001 and 2012 in order to identify changes in the physical environment which were caused by the project.

² It is primarily thanks to the commitment of three persons from the SiLNoRF staff, namely Lansana Hassan Sowa, John Brima Kargbo and Abass J. Kamara, without whose support I would not have been able to conduct this case study.

3. The project's effects on local smallholders

The present case study clearly shows that the Addax project causes many negative impacts on the local population which overshadow some few potentially positive outcomes. Addax cannot be blamed for all problems - some of them are the result of the unfavourable initial situation in Sierra Leone. This, however, should have been considered by the company, its sponsors, the controlling institutions and, of course, the Sierra Leonean government.

3.1. Loss of self-sufficiency

Loss of farmland

Through the Addax project, many farmers had to give up their agricultural land which is probably the biggest loss for the farming families. Although the company states that "[t]he plantation avoids the main cultivation areas in the project area" (Addax Bioenergy 2013b, p.4), all of the six interviewed families reported to have lost either all or parts of their land. The satellite images in Fig. 2 exemplarily show that the sugarcane fields do not spare traditionally cultivated areas.

Addax is aware that the project might have negative effects on the smallholder's food production. It has to be admitted that the company has tried to "mitigate potential impacts on food security" (Addax Bioenergy n.d.) by launching the "Farmer Development Programme" (FDP). This programme was developed with the support of the FAO, the International Institute of Tropical Agriculture and the Sierra Leone Ministry of Agriculture, Forestry and Food Security (Addax Bioenergy 2013a, p.2).

The FDP consists of two parts: One is the Farmer Field Life School, a "training programme to educate smallholder farmers in better agricultural practices" (Addax Bioenergy 2013a, p.2). Its aim is to provide education to 1,838 farmers (ibid.). The second is the creation of what Addax calls "community fields". Every community, which gave up agricultural land, is entitled a free community field from the FDP.

Although the programme is certainly a gesture of good will, it shows grave deficits and does not compensate the loss of the land: First, the "community fields" are much smaller than the land which the farmers used to cultivate before. Addax emphasizes the amount of 2,000 hectares of community fields (ibid.). Taking into account the fact that more than 13,600 affected people depend on the fields, that is not much. Five of six interviewed families complained that the size of their community fields has strongly reduced compared to the size of their old fields. A farmer in Robung / Magbansa reported that seven families now have to share only 1 acre³ of land, while they used to cultivate about 10 acres before (int. 3, pers. comm. 29 Nov. 2012). Another farmer in Robung / Magbansa (int. 4, pers. comm. 29 Nov. 2012) clearly stated that his community does not have enough land left to feed everyone.

Addax aims to justify the calculation of the community fields by stating that 0.143 hectares are enough land to produce the

amount of the average per capita rice consumption in Sierra Leone (Addax Bioenergy 2011b, p.4). This assumption made by Addax and the responsible politicians is grossly false since it ignores the way farming is practiced in this region. The large dimension of the project makes it impossible for the farmers to keep on practicing shifting cultivation. The smallholders would actually be required to abandon their traditional farming habits and change to intensive farming. Intensive farming, however, requires fertilizers and agricultural machinery in order to keep the soil fertile and the yields at a stable level. Most peasants cannot afford to buy these things (SiLNoRF, pers. comm. 26 Nov. 2012).

That is also the reason why, according to Bread for All (BfA) (2011, p.3) and the interview partners, the farmers cannot apply what they have learned in the Farmer Field Life School, whose agricultural training is based on the utilization of fertilizers. A farmer in Mabilafu stressed that "Addax brings no improvement in agriculture" (int. 5, pers. comm. 29 Nov. 2012).

The Addax project not only reduces the amount of agricultural yields but also the biodiversity in the project area. According to the company, most of its sugarcane fields are set up in the uplands (Addax Bioenergy 2013b, p.5). However, Addax and the authorities appear to have neglected the fact that the uplands are the place where the smallholders mainly practice mixed intercropping⁴. Some of the most important food plants and palm trees almost exclusively grow in the uplands. Joan Baxter (pers. comm. 22 Nov. 2012) pointed out that important nutrient suppliers such as beans which provide essential proteins to the children cannot be produced any more.

Additionally, some interviewed farmers told to have lost at least parts of their backyard gardens which also served for both food and cash crop⁵ production. The gardens are usually located very close to the villages in some kind of surrounding green belt. Four out of six interviewed farming families reported that the sugarcane fields have been located so close to the villages that they either partly or entirely lost their gardens.

The interviews showed that Addax obviously makes no efforts to protect the smallholders' biodiversity in any way. The FDP community fields are only designed for rice cultivation (Baxter, pers. comm. 22 Nov. 2012) although the land would be suitable for mixed intercropping as well.

Tab. 2 shows that all of the interviewed farmers are affected by a strong decrease of biodiversity. They were asked how many different crops out of a list of 18 most commonly produced crops in central Sierra Leone they used to cultivate before the lease and how many they are growing since Addax leased their land. Five out of six interviewed farming families have lost more than half of their crop production. Three families only have their rice production in the FDP community fields left, but lost all other crops they used to grow before. One family in Mamudu even had to completely quit farming because their FDP field is infertile and inaccessible.

⁴ „Mixed intercropping“ means that a high variety of crops is grown in mixed stands (Matus, Acs & Gomez y Paloma n.d., p.2).

⁵ Cash crop = "a crop produced for its commercial value rather than for use by the grower" (Oxford University Press 2013).

³ 1 acre = 0.4 hectares



Both images show the same section - before and since the land lease. The black dotted lines indicate the location of smallholders' fields before the land lease.

Source: Left image: own illustration, based on: Google, DigitalGlobe (2013), image taken on 15 December 2001; Right image: own illustration, based on: SPOT data/ISIS Programme, CNES Copyright (2012), image taken on 22 April 2012.

Fig. 2. Displacement of traditional agriculture

Tab. 2. Biodiversity before and since the land lease

Interview	Community	Number of crops (before the lease)	Number of crops (since the lease)	Decrease in biodiversity
1	Worreh Yeama	15	6	-60%
2	Worreh Yeama	11	6	-45%
3	Robung / Magbansa	18	1	-94%
4	Robung / Magbansa	17	1	-94%
5	Mabilafu	18	1	-94%
6	Mamudu	18	0	-100%

Source: own survey.

Loss of fallow land

Fallow land is of a high importance for (semi-)subsistence farmers in Sierra Leone. The company as well as the government believe that the bush land is unused. This, however, is wrong due to the following reasons:

First, as already mentioned, farmers need it in order to practice shifting cultivation. Secondly, the smallholders do not only depend on what grows on their fields, but also on what they can find in the bush. Smallholders usually obtain a lot of material and collecting goods from the fallow land. Mainly women collect sticks, wood, timber and charcoal there. Also

herbs which are used as natural medication and condiments are affected (Baxter, pers. comm. 22 Nov. 2012). The cutting of trees leads to a significant deficiency of wood and nuts.

Also bushmeat almost disappeared. The bushmeat which men hunted on the fallow land is the only available meat for most farming communities. Through the Addax project, the natural habitat of the animals was destroyed and they migrated to other areas (Baxter, pers. comm. 22 Nov. 2012). Although Addax has spared ecological corridors between the sugarcane plantations, too little land remains for wild animals.

Loss of water resources

Many communities lost access to important water streams. Close to Worreh Yeama for example, Addax planted a sugarcane field around a water stream which was “the only perennial source of water in and around the village” (Anane & Abiwu 2011, p.39). Addax has admittedly built a new water well in the village, residents however complained that the water has low drinking quality (int. 2, pers. comm. 28 Nov. 2012). Also, the land bordering the stream is very well irrigated and served women as year-round gardens. This secured their food supply during the dry season when usually less food is available. Since Addax uses that land, the women have lost those gardens (SiLNoRF, pers. comm. 26 Nov. 2012).

Also two communities located along the Rokel River (Robung / Magbansa and Mabilafu) complained about heavy water supply problems caused by the Addax project. Sugarcane is among the thirstiest crops used for agrofuel production (The Oakland Institute 2011b, p.1). The water for the irrigation of the sugarcane comes from the adjacent Rokel river. Between February and April Addax draws up to one quarter of the water flow from the river (WaterLex & BfA 2011, p.6).

Many people made their living from fishing and struggle with the loss and contamination of water which negatively affects the fish’ habitat. People in both communities (int. 4, pers. comm. 29 Nov. 2012; int. 5, pers. comm. 29 Nov. 2012) reported that they were observing a significant decrease of fish.

Even more threatening is the fact that the pesticides used by Addax pollute the water of the river and other water streams. Besides the organic fertilizer Vinasse the company applies Pesticides, Herbicides and Fungicides (AfDB n.d., p.12). Many communities use the water as drinking water because they do not have any other source of water. Despite harsh complaints by the population, Addax didn’t care to construct water wells in most of the villages. The situation was identically described by residents in both of the visited communities next to the Rokel River, where residents referred to a

noticeable increase of diseases (int. 3, pers. comm. 29 Nov. 2012; int. 4, pers. comm. 29 Nov. 2012; int. 5, pers. comm. 29 Nov. 2012).

Loss of homes

Although Addax often underlines that the location of its plantations and infrastructure has been carefully selected, a number of settlements will have to be physically resettled. This affects 77 persons (AfDB n.d., p.7). According to Addax, they “will be offered compensation, i.e. either Addax Bioenergy will re-build the settlement somewhere else or offer cash compensation if that is preferred.” (Addax Bioenergy 2013b, p.5). The resettlement will be realized on the basis of a “Resettlement Action Plan” to take place depending on the project’s progress (AfDB n.d., p.17). Unfortunately, not much official information on which settlements will be affected or on the current status of resettlements is provided. Bread for All found out that some houses close to the factory site in Mabilafu might be affected. However, there is a great uncertainty regarding the details of the resettlement which worries the residents (Anane & Abiwu 2011, p.9).

3.2. Increase in expenditure

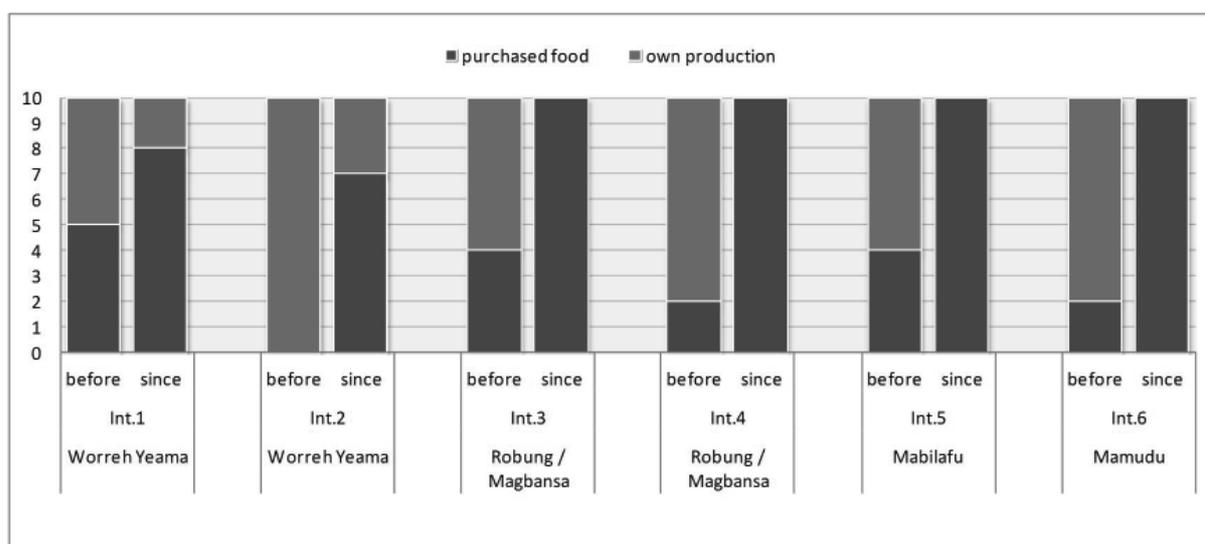
The loss of farmland and access to natural resources as well as decreasing yields from fisheries have made many smallholders lose their self-sufficiency. Throughout generations they used to live from their own products and from what they got from the bush. For the first time the smallholders now have to buy most of what they consume, which makes them dependent on commercial goods and services.

In the course of the interviews, the dimension of the farmers’ dependency on purchased food became clear. Fig. 4 illustrates the modified degree of self-sufficiency in food in the interviewed communities. Farmers were asked which part of their total food consumption (out of ten) they were able to



Source: own illustration, based on SPOT data/ISIS Programme, CNES Copyright (2012), image taken on 22 April 2012.

Fig. 3. Inaccessible water stream close to Worreh Yeama



Source: own survey.

Fig. 4. Self-sufficiency before and since the land lease

produce on their own and which part they used to buy before Addax leased their land. All of the interviewed smallholders replied that they used to obtain at least half of their food consumption from their own farming output. When asked what the situation is like since Addax leased their land, four out of six interviewed farming families said that they now completely or almost entirely rely on purchased products. These are the same families who only have their reduced rice production on the FDP fields left as well as the before mentioned family who had to quit farming because the provided community field is not arable.

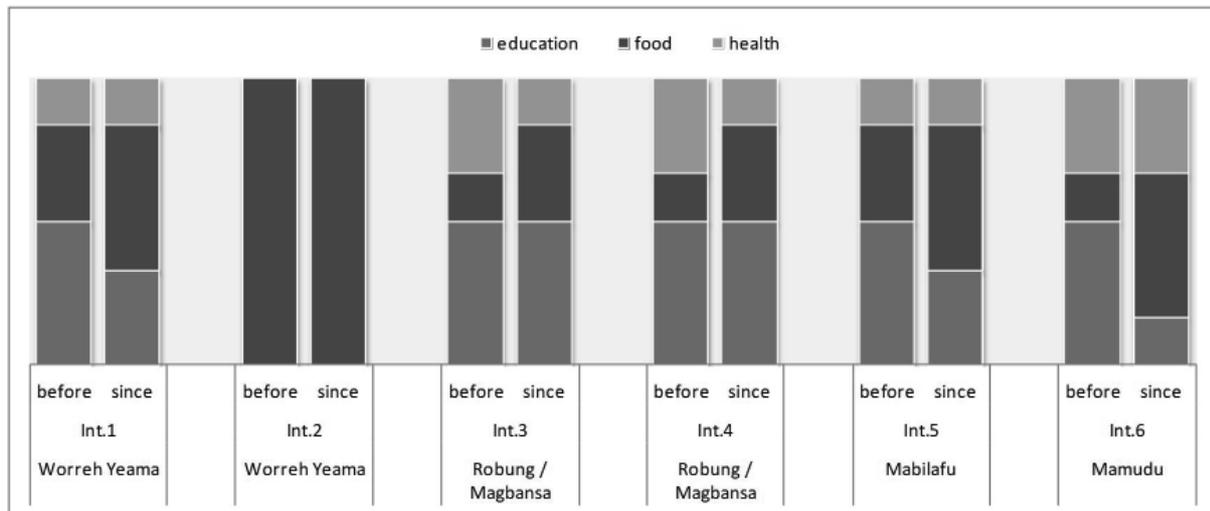
The dependence on commercial goods risks to become a major threat for the food security of the affected people. Without any financial backing, the smallholders have to rely on the market-determined prices. It is generally known that least developed countries often struggle with instable food prices. According to a study conducted by the FAO, Sierra Leone is one of the countries which are "most vulnerable to the recent global food prices crisis." (Gomez y Paloma et al. 2012, p.59). Farmers said that the prices in the region have gone up very high. Aside from the global trend of increasing prices on staple food, this phenomenon is also due to the increased cash flow in the whole Addax project area. The company may be right when pointing out that "the average household income in the area has risen" (Addax Bioenergy 2013a, p.2), which is mainly attributable to the incomes from jobs offered by Addax, compensation payments and the land lease (see below). There is little doubt that farmers who get a job at the company have a higher income than they used to have as (semi-)subsistence farmers. It is however necessary to consider that the farmers have much higher expenses now. Many goods they were able to produce themselves before have to be purchased now at high prices. Also the prices for fish and bush meat have gone up. Since wild animals have been expelled from the whole project area, it has even become hard to get meat on the local markets, as an interviewed farmer in Mamudu

explained (int. 6, pers. comm. 30 Nov. 2012). If they actually find it on the market, its price is so high that they can seldom afford it.

It was also stated that the prices for commodities and services have increased in the project area. Farmers in Worreh Yeama (int. 2, pers. comm. 28 Nov. 2012) and Robung / Magbansa (int. 4, pers. comm. 29 Nov. 2012) reported that people outside the Addax area erroneously believe that the affected population has become wealthy through the project and therefore demand higher prices. Another farming family in Worreh Yeama (int. 1, pers. comm. 28 Nov. 2012) complained that school fees and medical services are more expensive now. Also the costs for transportation have gone up dramatically. A trip to the nearby city of Makeni, where farmers make parts of their purchases, costs up to four times as much as it did not long ago.

But also services inside the communities have become more expensive and therefore unaffordable for many families. This mainly concerns the availability of communal labour. It is quite common in Sierra Leone that farming families who are not able to harvest all crops on their own during the peak season hire communal labour groups to assist them against payment. A farmwoman in Worreh Yeama (int. 1, pers. comm. 28 Nov. 2012), for example, explained that she usually needs to hire up to 10 additional persons for the production of sweet potatoes. However, during the most labour-intensive months of the year, many young men are employed by Addax. The salary the workers get from Addax is higher than what other farmers can afford to pay them. This pushed the overall wage level within the communities. As a result, communal labour has become hardly available. The aforementioned farmwoman therefore had to give up her sweet potato production (ibid.).

Although several goods and services have become more expensive in the project area, food is the most important expenditure for many now. School fees always used to represent a



Interview partner 2 was not sure about the main expenses of his family but said that food is and has always been a very important expenditure.

Source: own survey, based on the idea of Joan Baxter.

Fig. 5. Main expenses before and since the land lease

major expenditure. Since the land lease, food expenses have gained importance. When asked about the shift of their three main expenditures, five families reported to spend a bigger share of their money on food now than before the land lease (see Fig. 5). More than half of the interviewed families said that food represents their main expense now. This mostly happens at the cost of health and / or education.

3.3. Insufficient cash income

Cash income from farming

Palm oil production provides the major cash income for the (semi-)subsistence farmers in the project-affected part of Sierra Leone (Gomez y Paloma et al. 2012, p.104). This income is usually used to pay school fees (Baxter, pers. comm. 22 Nov. 2012). Through the project, many families lost their palm tree plantations. Usually located in the uplands, they had to clear the way for Addax' sugarcane plantations. Five of six interviewed farming families used to produce palm oil before the land lease and reported to have lost the entirety of their production. Also the production of other cash crops such as groundnuts and peppers which women usually grow in their backyard gardens, is affected.

Moreover, most farmers lost an important part of their income which they usually got from the trade of agricultural surpluses. All of the six interviewed smallholders indicated that they used to sell parts of their agricultural produces. Since the land lease however, only one family in Worreh Yeama still earns money from rice production (int. 1, pers. comm. 28 Nov. 2012).

Land lease and compensation payments

The affected farmers receive an annual payment of 7.90 USD (5.98 EUR) per hectare of land. The payment consists of a part of the surface rent (the rest goes to the authorities) and an additional direct payment (Maillard Ardeni 2011, p.8). Regarding the fact that an average smallholder family in Sierra Leone cultivates only 1 - 2.5 hectares (Brush & Turner 1987, p.158), it is obvious that this income is largely insufficient to survive. Even more dramatic is that only a part of the population, so-called "land owners"⁶, persons who hold usage rights on land, receive these payments. Persons who have no usage rights due to certain reasons (commonly called "land users"⁷), cannot claim land payments at all (SiLNoRF, pers. comm. 26 Nov. 2012).

Besides the compensations for land, farmers receive compensation payments for not harvested crops and trees. In contrast to the payments for land, these compensations also apply to "land users" (see Tab. 3). They are based on a one-time payment which depends on the different crops and the type of trees. This way, the smallholders receive quite a lot of money at a time. A farming family in Robung / Magbansa (int. 3, pers. comm. 29 Nov. 2012) positively stated that they were able to afford to build a house from the tree compensations, which they couldn't do before. However, the payments are too low to cover the value of the trees and crops or the risen

⁶ The term "land-owner", which is commonly used in Sierra Leone, is misleading: it does not mean that land is formally owned but that a person holds usage rights on it.

⁷ „Land users“, who represent 20 - 40% of chiefdom populations, are persons who do not belong any specific chiefdom such as former combatants, tenants, displaced people, refugees, migrants and foreigners. In contrast to „land owners“ they have no usufruct rights at all. However, in most cases, they cultivate parts of a „land owning“ family's land (Unruh 2008, p.102).

Tab. 3. Addax' payments to affected farmers

"Land owners" ⁶	<ul style="list-style-type: none"> • 50% of the surface rent (annually) • Direct payment for farmland (annually) • Compensations for crops and trees (once)
"Land users" ⁷	<ul style="list-style-type: none"> • Compensations for crops and trees (once)

Source: own survey.

expenses of the farmers' daily lives. In the interviews it was often mentioned that the once-paid compensations are not sufficient in the long run. According to SiLNoRF the prices were directly negotiated with the national government (pers. comm. 26 Nov. 2012). An elder in Robung / Magbansa said that he hopes that the government will intervene by raising the prices for the compensations. He quite dramatically expressed that "if the government doesn't change anything, the whole community will die." (int. 4, pers. comm. 29 Nov. 2012).

Employment

The farmers were aware that the land rental and the compensations would not suffice to survive. Thus, they heavily relied on the prospect of employment opportunities in the company. For many, a job in the company was an important precondition for giving up their land. Especially the younger generation was decoupled by the prospect of a job with a secure income. Rural communities are often confronted with young people's decreasing interest in farming. Many search to replace their farm work in the family business through an alternative employment (Gomez y Paloma et al. 2012, p.50). The opportunity of getting a job in the company appeared quite promising to them.

Indeed, the company does create a large number of jobs. Officially, the company is supposed to create 4,000 jobs until the end of 2015 (Government of the Republic of Sierra Leone 2010, p.2). However, the government has never brought into question whether this number will actually suffice to benefit the population. More than 13,600 persons will have lost their life existence at the time the Addax project becomes fully operational (AfDB n.d., p.7). By the end of 2012, so SiLNoRF (pers. comm. 26 Nov. 2012), only about 2,000 jobs have been created for the local population.

The low number of jobs for the local population can be explained by the fact that most of the smallholders in the project area are considered as "low-skilled" by the company. Since Addax relies on the mechanical production of sugarcane, it doesn't need a lot of "low-skilled" workers to carry out physical labour on the fields. The more qualified workers are recruited from outside of the project area. Many workers come from other parts of the country, mainly from the nearby city of Makeni and the capital Freetown. But Addax also employs a number of foreign workers in higher positions (Anane & Abiwu 2011, p.42).

According to an interview partner in Mabilafu, the company had held out the prospect of training for younger workers in order to gain professional skills, but this promise never came true (int. 5, pers. comm. 29 Nov. 2012). Addax pays a salary of 10,000 SLL (1.74 EUR⁸) per day to its local workers (The Oakland Institute 2011c, p.1), which would be a maximum income of 53.94 EUR per month⁹. The company emphasizes that its employees receive "more than twice the average minimum salary" (Addax Bioenergy 2013a, p.2). According to the Oakland Institute however, the "daily wage does not cover even their daily food needs" (The Oakland Institute 2011a, p.29).

It is very important to mention that most of the local workers in the company are only employed seasonally, as reported by all of the 6 interviewed families, Bread for All (Anane & Abiwu 2011, p.41) and Joan Baxter (pers. comm. 22 Nov. 2012). In the visited communities people unanimously explained that Addax employs its workers only during the planting season when the company needs a lot of workforce. After three months, Addax usually terminates the workers' employments, which means that they have no income during three quarters of the year.

Such a practice is only possible in a country where the rights of workers are not sufficiently protected. In the case of Addax, the employees also have no right for sick leave nor other social benefits. "Bread for All" reports that the workers neither are offered lunch nor medical services, although the work in the company can be dangerous. Although promised, the employees do not receive free transportation and therefore have long daily walks (Anane & Abiwu 2011, pp.41-42).

3.4. Economic consequences for affected farming families

The combination of increased expenditures and low incomes leads to severe financial problems for the affected farmers. An interview partner in Robung / Magbansa affirmed that the income he used to achieve from selling cash crops was higher than what he earns since he depends on the company's payments (int. 4, pers. comm. 29 Nov. 2012). Another farmer in Worreh Yeama literally stated that his salary from Addax does not suffice to survive (int. 2, pers. comm. 28 Nov. 2012). It is to be expected that this situation will become even more

⁸ Exchange rate of 2 August, 2013.

⁹ provided that the employees work 31 days per month.

Tab. 4. Children attending school before and since the land lease

Interview	Community	Number of children attending school	
		before the lease	since the lease
1	Worreh Yeama	5	3
2	Worreh Yeama	n/a	n/a
3	Robung / Magbansa	7	5
4	Robung / Magbansa	5	1
5	Mabilafu	10	4
6	Mamudu	4	1

Source: own survey.

dramatic over time because neither the salary nor the land lease and compensation payments seem to be adjusted to inflation.

Already few years after the project has started, farmers are forced to cut back on many things they were able to afford before they gave up their land. The probably most serious consequence is the decreased food availability in the project area. According to Joan Baxter (pers. comm. 22 Nov. 2012), the affected people are eating less and fewer times than before. Instead of positively contributing to food safety, the project made the people more prone to food shortages. This also affects their food balance. Due to the high food prices, people cannot afford to purchase the same diversity of food-stuffs which they used to have from their own production. A farmer in Robung / Magbansa (int. 3, pers. comm. 29 Nov. 2012) mentioned that he often does not have enough money to buy as much meat as before.

The lack of income also forces parents to take their children out of school. Since they lost their income from cash crops, they cannot afford to pay for the education of all of their children any more, as five different farming families unanimously explained (see Tab. 4). Joan Baxter (pers. comm. 22 Nov. 2012) points out that this affects mainly girls who usually are the first to be taken out of school.

The weak economic situation of affected families makes many of them run into debt. According to Joan Baxter, this problem is very common. Some people even have to borrow money to buy food (Baxter, pers. comm. 22 Nov. 2012). In order to bridge the lack of income, people started to go into other off-farm businesses. A former farmer in Mamudu for example told me that he now manufactures baskets in order to earn at least a little income apart from the Addax salary (int. 6, pers. comm. 30 Nov. 2012).

3.5. Lack of expected infrastructure development

Infrastructure is poorly developed in many parts of Sierra Leone, especially in rural areas, where many communities lack the most necessary. Initially, the situation was expected to improve through the Addax project. Indeed, the company has, according to its own indications, already built 240 km of roads in the country (Addax Bioenergy 2013a, p.2). Also,

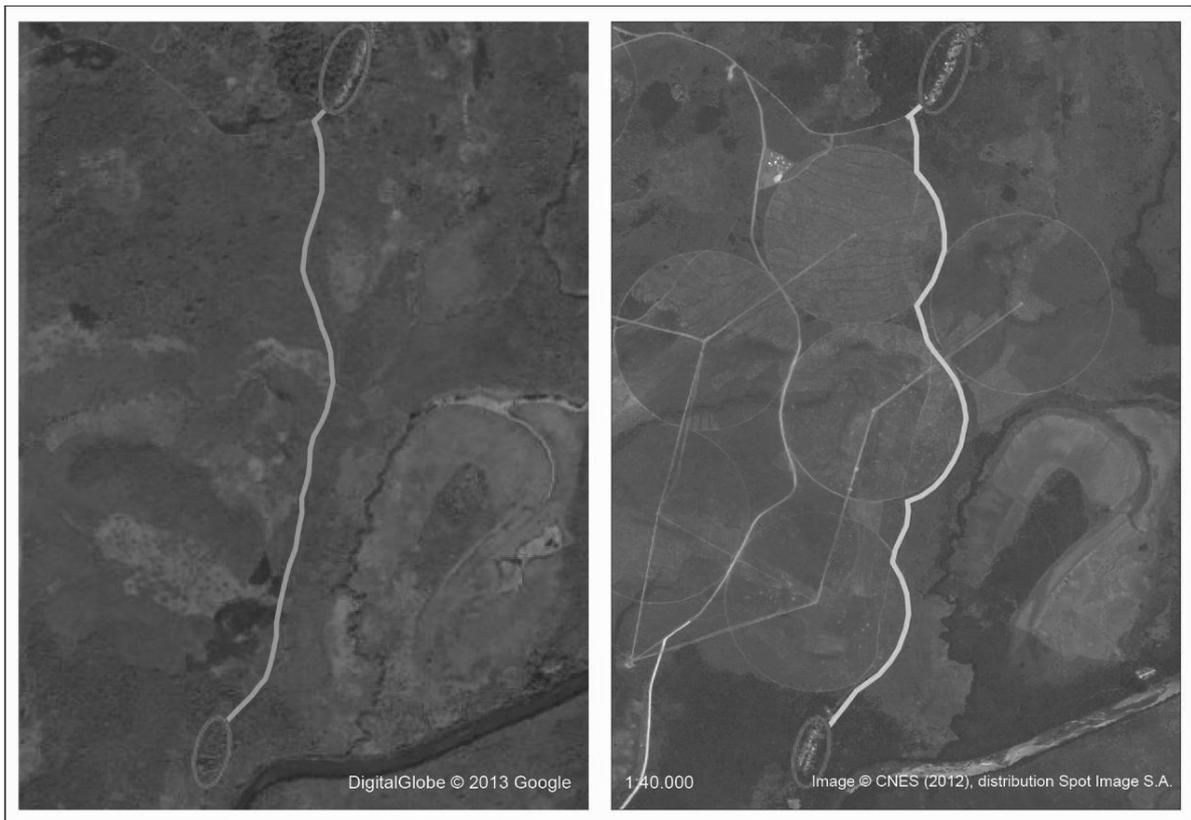
Addax is ready to provide parts of their produced electricity to the national power grid (AfDB n.d., p.1). Both developments will certainly have positive effects on the long run in a country that lacks good roads and struggles with frequent blackouts.

Anyway, these developments are of minor relevance for the actually affected population. Most of the villages are not connected to the power grid and since the smallholders do not have motorized vehicles they might not gain much benefit from modern roads either. An essential reason for them to give up their land were Addax' promises to construct schools, houses, paved ways, bridges, water wells, storage rooms, community centres, health centres and the more; all of which were things the communities have long been hoping for. "Farmers knew that the compensations and land rent are very low, but they relied on the promises that Addax made", a SiLNoRF member explained (pers. comm. 26 Nov. 2012). In every village visited during the case study, residents enumerated different things the company was supposed to provide. However, things happened differently: As the communities didn't insist on a formal written agreement, Addax now denies having made promises to the communities. Apart from one water well in Worreh Yeama, none of the promised improvements in all of the six visited communities have been implemented so far.

3.6. Destruction of the existing path network

Walking is the predominant form of locomotion in most rural parts of Sierra Leone. Motorized vehicles are almost non-existent and only few bicycles were seen within the Addax project area in the course of the case study. As far as natural conditions allow, the shortest possible ways along small footpaths or through the bush are used.

Since Addax has started to plant its sugarcane fields, many paths have been destroyed. Although Addax has kept a road along the axes of most plantations' irrigation systems which makes it possible to cross the fields along its diameters, the walking distances for the local population have generally increased. The satellite images in Fig. 6 illustrate the problem. The comparison of the former and the current situation shows that a footpath which connected two settlements had to be displaced which results in an extended walking dis-



Both images show the same section - before and since the land lease. The grey line (left image) indicates the former footpath between two villages, the white line (right image) the current situation.

Source: Left image: own illustration, based on: Google, DigitalGlobe (2013), image taken on 15 December 2001; Right image: own illustration, based on: SPOT data/ISIS Programme, CNES Copyright (2012), image taken on 22 April 2012.

Fig. 6. Footpath before and since the land lease



Source: own illustration, based on SPOT data/ISIS Programme, CNES Copyright (2012), image taken on 22 April 2012.

Fig. 7. Walking distances for school children before and since the land lease

tance. Since the affected people transport heavy things on their daily walks, even a short detour means a lot of additional effort in their daily lives.

It also happened that existing roads were destroyed by Addax' heavy machinery. As SiLNoRF (pers. comm. 29 Nov. 2012) reported, this happened close to the village of Ropotaw, whose access way was badly damaged when the company entered the dirt road with its machines. So far, the company has made no effort to repair the damage. The problem is that this footpath used to be the school way for more than 100 children in the village, who attended the school in the nearby village Masori. The destroyed path easily gets flooded and becomes impassable for smaller children during the frequent rain falls. The only alternative way leads over the main road and means that the children have to walk a quite longer way to school than before (see Fig. 7). Since the former way already represented the maximum distance the children were able to walk daily, most of them cannot go to school anymore. Only 11 older children are able to make the way to school under the difficult circumstances today.

4. Conclusion

The present case study has proven that - behind the facade of alleged benefits - the local people are the actual losers of the Addax Bioenergy project. The outcomes of the case study demonstrate that the Addax project has put the affected population into an even worse situation than they were in before. Project-caused problems are a loss of self-sufficiency and income together with higher expenditures, longer travel distances, diseases and social discontent. The affected farmers have become more dependent on instable food prices which results in a higher vulnerability to food insecurity. Some services, including education and medication, have become unaffordable for many.

The question is whether "our" (the global North's) policies and handling of resources - with respect to the global South that suffers the consequences of it - can be justified in any way. Can environmental protection through the use of bio-fuels still be regarded as sustainable if it causes displacement and exploitation? Is it responsible to subsidize the business if badly needed land resources for food production get lost in the poorest countries? Only very slowly some European politicians are starting to raise concerns about the concept of bio-fuels (Der Standard 2012, Der Standard 2013). However, as long as the business flourishes and motor traffic in the global North does not decrease, farmers in the South will keep on losing their land.

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