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# **Agricultural transformation and socio-economic dynamics in rural areas**

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## Executive summary

Agro-ecological conditions differ considerably between the 7 different research sites that have been examined. This is reflected by different intensity and forms of land use: In the two Tanzanian sites annual crops dominate while in the more humid southern Ghana perennial crops are most common. In the three Cameroonian sites a mix of perennial and annual crops are grown although annual crops are now dominating due to a decline of coffee production. Two wet seasons in all the Cameroonian sites allow for a more intensive land use with multiple growing seasons per year supported by more heavy use of inputs. Smallholders have a diverse portfolio of crop production with most cultivating at least three or more different crops (this tendency is strongest in the Bamboutos and Moungo sites). Diversification of crop production may reflect agro-ecological considerations (crop rotation, different off-season crops) and/or a need to reduce production and market risks.

Smallholders generally cultivate a mix of cash crops and food crops. The distinction is, however, difficult to make since traditional food crops are increasingly directed to the market. This development is caused by growing importance of regional and urban markets, for instance in Cameroon where coffee destined for the global market has declined in importance while being replaced by potatoes, maize and vegetables for domestic and regional urban consumers.

Despite the variety in the crop portfolio, all research sites share a common characteristic, namely the prevalence of a dominant crop that to various degrees and different ways shape a vigorous socio-economic dynamism in the particular research site. In all sites smallholders perceive that land use is in a process of intensification; this is also reflected in the increased use of labour and inputs on their plots. The trend applies for both the producers of the dominant crop and the non-dominant crop producers although the trend is strongest for the producers of the dominant crop across almost all sites.

Despite this overall dynamic development trend, technological development of agricultural production seems to be rather stagnant in all the sites. High-cost agricultural implements are persistently absent among smallholders in the sites: they do not own and only to a limited degree rent or borrow tractors, ploughs etc. for use in production. This may indicate that accumulation of income is insufficient to increase productivity by mechanisation and/or that a large pool of cheap agricultural labour is available. Some of the crops may, however, dictate a certain investment in equipment: in the potato growing areas there is a clear difference between potato growers and other farmers as the former own more sprayers.

A clearer distinction between the two groups of smallholders is revealed in the use of 'modern inputs': there is a higher uptake of pesticides, purchased seeds and inorganic fertilizers among producers of the dominant crops in all the sites in both Cameroon and Ghana. This exposes the other side of an increasing commercialization of agricultural production through higher dependency of inputs acquired via the market. For Ghana this is likely to be a consequence of the contractual arrangements with the corporate buyer while for Cameroon it is most likely caused by the agro-ecological requirements of the crops.

There are quite clear indications of an increasing commercialisation of production in the dynamic areas, i.e. an increasing share of agricultural production is being directed towards the market. The general causes include new and strengthened market demand, improved infrastructure (particularly roads), and more

transportation options (trucks and motorbikes). Nearly all the site reports stress the importance of infrastructure in the commercialization of agricultural production and the subsequent socio-economic change in the rural areas. Rural roads, availability of telecommunication technology and decreasing transportation costs are very important for smallholders to reach the market more easily and reduce the risks and costs of getting agricultural products to the market.

Smallholders consider changes in input and producer prices as main reasons for changing land-use from one crop to another. In this way competition between crops is often a result in changing market prices and changing agricultural policies, for instance if state-run marketing systems or fertilizer subsidies are dismantled. The most prominent example is the case of coffee in Cameroon. Coffee used to be the dominant cash crop in western Cameroon but coffee production has been in crisis for many years due to decreasing world market prices and changing agricultural policies. Farmers have responded by changing crops that are produced for a completely different market. The decline in profitability of perennial crops might be more severe than for annual crops where farmers more easily can divert from one crop to another due to smaller sunk costs in production. This suggests that marketing systems with an ability to sustain profitability from year to year is relatively more important for perennial crops. This is also supported by findings from the oil palm and rubber value chains in Ghana; the organisational system of the former outgrower scheme is quite labile due to temporary non-competitive prices offered by the foreign plantation company compared to local and regional market prices.

In general, the producers of the dominant crop have larger landholdings and larger areas of crop production. This may indicate the existence of a 'self-selection procedure' where relatively more wealthy smallholders venture into the dominant crops. However, in Cameroon the tendency is the opposite, i.e. dominant crop producers have generally less land. This could be related to higher labour requirements and costs for the specific crop (e.g. rice production in Noun) compared to other crops. It could also be because a certain type of producers ventures into production of the specific crop, for instance resource-poor groups like youngsters and women (e.g. potatoes in Bamboutos).

Evidence from the two Ghanaian sites point to a situation where investment in land from external investors changes land tenure systems with more leasehold agreements as opposed to traditional land tenure arrangements. This has the potential to squeeze out smaller farmers and evidence suggests that some of the poorer smallholders sell their labour as a livelihood strategy rather than cultivating their own land which has become relatively more expensive.

It is more prevalent to make use of hired agricultural labour among the dominant crop producers in the sites located in Ghana and Tanzania (no data from Cameroon). Not only is this the case for production of the dominant crop but also for the second most important crop in all the sites. It is primarily local labour that is hired which may indicate an increasing social stratification between smallholders who adopt the dominant crop and those that do not – the latter may need to sell their labour in order to ensure their livelihoods while the other group benefits from allocating resources to substitute or assist family labour. It may also indicate that traditional labour sharing practices are phased out and replaced by wage labour – another element in the increasing commercialisation of agricultural production.

In many of the sites, previous outmigration from rural areas are replaced with a significant inflow of labour migrants who are looking for work related to the dominant crop, particularly in periods of the crop cycle

where high input of manual labour is required, e.g. during harvests or planting. Hence, the dominant crop has created new employment opportunities while improved infrastructure and transportation facilities have eased access to work places – even on a daily basis (e.g. Ahanta).

Non-agricultural income is very important in all sites. Notably, smallholders who do not produce the dominant crop are highly dependent on alternative income outside agriculture. The trend may be another indication of a jessant group of commercial and relatively more specialised farmers - and on the other hand a group of rural peasants who are attached to agriculture but for various reasons choose to base their livelihoods on a combination of agricultural and non-agricultural activities. This may even in some cases express a gradual dispossession of certain segments of the rural population. The increasing importance of non-agricultural activities also reflects the increasing 'urbanisation of the country-side' as is evident in especially the Cameroonian sites where more small businesses open up and more young people work in non-agricultural sectors such as transportation and construction.

Common pool resources for livestock rearing are not particularly important in any of the case study areas. Many of the areas, especially the Cameroonian sites, have a very high population and cultivation intensity and because of that livestock are kept around smallholders' residences and on the fields in fallow. The more important common pool resources relates to collection of timber products for fuel and areas for fishing, particularly important in the Noun and Lindi sites.

The most prominent feature in regard to new organisational patterns of the corresponding value chains is the increasing diversification of trading channels in the dynamic regions. In particular, the emergence of a plethora of local traders and urban-based buying agents significantly benefits the smallholders involved in the dominant crop: competition among buyers have increased and access to markets improved – given the concurrent upgrading of infrastructure and transportation alternatives. Former monopsony positions have been dismantled and corporate buyers (including state owned companies) need to offer competitive prices and services – if not the nature of the specific crop or the market restricts competition among buyers (e.g. rubber and palm oil in Ghana). National marketing systems seem to decrease in significance while urban demand-driven value chain development has a profound impact on land use and socio-economic change in the rural areas.

These transformations of the agrarian production system are reflected in changing rural-urban connections: The flows in goods and information have been stimulated by the decreasing cost of transportation and communication, exemplified by mobile phones, motorcycles and trucks. This allows a broader range of actors to participate in the market exchange and to facilitate market information from towns and cities to villages. In turn, this may lead to more rapid changes in land-use due to a quicker response on changing market signals by smallholders.

Labour flows also change. Rural areas are increasingly a destination for labour migration although rural-urban migration is still very important. Again, transportation technology facilitates this development as well as the increasing urbanisation of the rural areas with the emergence of attractive small towns as urban centres with many service facilities and as centres for market exchange.

New forms of capital flows materialize where urban-based and other non-local citizens invest in land because they anticipate that production of the dominant crop becomes highly profitable. This results in

private accumulation of land – partly facilitated by increasing formalisation and titling of traditional tenure systems.

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RurbanAfrica. Agricultural and rural livelihood survey

### **Appendix II.**

SPSS Manual & Codebook - Agricultural and rural livelihood survey

### **Appendix III.**

SPSS Notebook - Agricultural and rural livelihood survey

### **Appendix IV.**

Template for WP1-WP2 – Site reporting

### **Appendix V. Site report - Ahanta, Ghana**

Owusu, G.; Osei, R.D; Essah, N. and Frempong, R. (2015): *Rurban Africa - AGRICULTURE AND RURAL LIVELIHOOD SURVEY - A draft report on rubber out growers versus non-outgrowers in the ahanta west district, GHANA*

### **Appendix VI. Site report – Kwaebibirem, Ghana**

Owusu, G.; Osei, R.D; Essah, N. and Frempong, R. (2015): *Rurban Africa - AGRICULTURE AND RURAL LIVELIHOOD SURVEY - A draft report on oil palm out growers versus non-outgrowers in the Kwaebibirem district, GHANA*. RurbanAfrica site report.

### **Appendix VII. Site report – Moungo, Cameroon**

Kuete, M.; Kelodjoue, S.; Pasini, J. and Yaka, L. (2015): *Site report: Maize, Moungo Cameroon*. RurbanAfrica site report.

### **Appendix VIII. Site report – Bamboutos, Cameroon**

Kuete, M.; Kelodjoue, S.; Douanla, L. and Kaffo, C. (2015): *Site report: Irish potatoes, Bamboutos Cameroon*. RurbanAfrica site report

### **Appendix IX. Site report – Noun, Cameroon**

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### **Appendix X. Site report – Njombe, Tanzania**

Lazaro, E.A., Mishili, F.J. and Msese, L.R. (2015): *Agricultural Change and Rural Livelihoods. The case of Irish Potatoes in Njombe Region Tanzania*. RurbanAfrica site report

### **Appendix XI. Site report – Lindi, Tanzania**

Hansen, N.T. and Birch-Thomsen, T. (2015): *Agricultural Change and Rural Livelihoods. The case of Sesame in Kilwa District, Lindi Region Tanzania*. RurbanAfrica site report



## 1. Introduction

This report is a condensed version of the results from case studies in Ghana, Cameroon and Tanzania. The report is the second deliverable of RurbanAfrica's WP1 on 'Agricultural transformation' and reflects the work carried out in relation to 'Task 2' of WP1: to examine the socio-economic dynamics in rural areas. Socio-economic dynamics in rural areas are manifold as the driving factors may differ and vary in importance depending on the context. The aim is therefore to outline different patterns and trajectories that have been significant for a reduction or strengthening of rural-urban connections (here interpreted as flows of goods, labour and money related to specific dominant crops) and to outline the driving forces behind these changes. Of particular interest are the following 'drivers':

- 1) Increasing commercialization of agricultural production and the impact on land use systems and agricultural practices
- 2) changes in land tenure rights and conflicts over access to land
- 3) changes in household labour allocation and use of wage labour (including the role of hired labour in family farming)
- 4) infrastructural development (primarily the establishment and improvements of roads).

The work took place as a number of case studies of selected rural areas in the three countries. The selection of rural areas was carried out according to a number of criteria (see section 2 for details) but of overall importance is the prevalence of a dominant crop that to various degrees and different ways shape a vigorous socio-economic dynamism in the particular research site. The rationale for this interest in dynamic rural areas is caused by the observation that recent agricultural transformation processes are taking place as a consequence of the increasing globalisation of African agricultural production. Obviously, agricultural products have been exported for a long time in Africa's history, particularly in the form of tropical beverages (coffee, cocoa, and tea) but new products like various fresh fruits and vegetables are increasingly produced – and not only directed towards the global North: new dietary patterns and emerging urban middle classes in many African countries create new outlets for food crops of which some are fairly traditional (rice, maize, palm oil) whereas other are quite novel (e.g. Irish potatoes). Hence, new patterns of trade flows between African countries are seeing the light of the day in addition to growing supplies to domestic urban areas. One element in this process is that certification of producers and compliance with retailer-instigated product and process standards promotes new forms of agricultural production based on more stringent organisation of small-scale farmers (out-grower schemes, farmers' groups, etc.). Another element is the comprehensive 'retailer-revolution' (increasing share of food provided by supermarkets) in many African cities as a result of the new demand from rapidly growing urban middle classes. All in all, some rural areas experience new forms of incorporation in the world market dynamics that may lead to reduction of poverty – but perhaps also increase inequality within and between rural areas.

These new forms of agriculture stimulate rural dynamics in the sense that new investment opportunities open up in agricultural production or agriculturally-related processing, servicing and trading. Some of these processes also take place in rural areas where traditional cash crops are produced but where prices for

some reason markedly increase. For instance, oil prices have until recently sky-rocketed for an extended period and have resulted in new commercial interests in production of natural rubber to replace synthetic products. From being spaces characterised by resource drains and households' survival strategies these areas change to attractive places for deploying investments, seeking employment and selling goods - which actually may lead to reverse resource flows from urban to rural areas.

This is the general rationale for the selection of research sites and data collection for the 7 case studies treated in this report. Each case study consists of a survey of households in the selected research site. The selection of research sites as well as the planning and implementation of the survey took place in close collaboration with colleagues engaged in WP2 'Rural livelihoods' in order to ensure validity and coordinate the collection of survey data in the most efficient way. A common standard questionnaire was developed by the WP leaders over a period of 6 months, aiming at a protracted dialogue with country team members from both WP1 and WP2. The purpose of using a standard questionnaire was to create a series of data bases that would enable comparative analysis while at the same time also allowing for minor site specific modifications. The process included listing of topics, sorting and arranging of issues, drafting of questions and design of the questionnaire format. The questionnaire was finally tested in the countries and revised accordingly (Appendix I). In order to assist the collection and storage of data a package of instruments were provided for the teams, including a SPSS template for keying in the data, a 'Manual & Codebook' (Appendix II), and a 'Notebook' (Appendix III).

The actual sampling procedure varied somewhat according to local conditions and available information for the construction of sample frames but generally the aim was to have the survey consisting of 100 households selected randomly among households involved in the dominant crop and another 100 households also selected randomly from a 'control group', i.e. households who do not cultivate the dominant crop but live in the same area as the first group. The total number of respondents (about 200) was chosen on the basis of budgetary constraints while ensuring a sufficient number of observations for case study analysis. It was also the intention to collect data for proper value chain studies but it turned out to be impossible due to human resource constraints. Hence, the report maps out basic characteristics of the value chains for the dominant crops but there are no further examination of the organisational structure, institutional framework and governance forms in the corresponding national value chains.

For analytical purposes a template for each site report was developed (Appendix IV). It consists of a series of topics with several questions attached to each topic. Most questions need to be addressed by considering and using the quantitative survey data but some questions address issues of a more qualitative nature and require site specific knowledge that needs to be embedded in a narrative approach. The intention was to use the template to align the site reports so they appear with a fairly common structure and content, thereby providing a suitable input to the condensed reports for WP1 and WP2, respectively. The resulting site reports are attached to this report as appendices (Appendix V-XI). All data, analysis and other types of information in this synthesis report are based the site reports.

However, a somewhat different approach to analysis and different displays of the data collected from the different sites has made comprehensive cross-site comparison of variables quite challenging if not impossible. The data compiled in this report reflect these challenges and only parts of the descriptive data have been sufficiently comparable to be compiled.

The methodological inconsistencies include:

- Lack of data for some variables in some sites.
- Inconsistencies in data analysis (for instance appliance of different variables across sites to answer the questions in the template (Appendix IV) or misinterpretations of the intentions of different questions in the template
- Lacking interpretation and explanation of data (challenging a sensible understanding and subsequent use).
- Difference in the sampling frame of households for the survey (one of the surveys do not adhere to the recommended sampling frame: 100 dominant crop producers and 100 non-dominant crop producers)

Due to these challenges, this report has focused on a more descriptive account of the process of agrarian transformation across sites. Reservations regarding the comparability of data will be stated in the report wherever relevant. We refer to the site reports for explanations regarding data analysis and methodology.

The synthesis report consists of different sections, each of them dealing with an element of agricultural transformation processes: land use changes, technological level, changes in crop composition, land tenure and salient land conflicts, the role of wage and family labour, the significance of non-agricultural activities, and types of market integration. Each section starts by summing up the cross-comparative findings and subsequently emphasizes some salient traits from each site. However, before the substantive treatment of these elements, the rationale of the site selection and the actual sites are presented in the next section. Finally, a conclusion extracts the main lessons, sums up the different relationships between agricultural transformation processes and rural-urban connections, and suggests avenues for further work.

## **2. Rationale for site selection and presentation of case studies**

The identification of research sites for examination of change dynamics is based on the results of the WP1 literature review ('Task 1'). Here the key objective was to identify policies and impacts of national models of agricultural transformation, in particular to identify the 'technocratic' ideas, political discourses as well as the major economic forces behind the prevailing models over time. These sequential models are manifest in territorial and agricultural structures and they will heavily influence the rural-urban connections as well as setting the constraints for future local economic growth. Obviously, structures and dynamics of actual spatial formations (i.e. concrete regions) cannot be simply deduced from strategic intentions and regulatory institutions. It is, however, important to contextualize empirical research within a broader understanding of the spectrum in which agricultural development has been conceptualised and governed from rather incremental changes to more dramatic shifts caused by abrupt breaks with former political ideologies and policies.

The review was structured according to a broad periodization that captures the main approaches to agricultural development on the African continent in terms of ideology, strategy and policy elements. The five periods includes the Colonial Heritage (up to 1950s), Independence and State Dirigisme (1960s and

1970s), Liberalization (1980s to mid-1990s), Post-Washington Consensus (PRSPs) (late 1990s to early 2000s), and Growth and Structural Change (late 2000s). Three main models were identified namely the large estate model, the elite demonstration model and the peasant/smallholder model. These 'building blocs' for agricultural transformation have by and large been maintained over the periods – in other words, the 'palette' of models for national agricultural transformation reflects a quite striking temporal and substantive resemblance. Clearly, there are notable differences in the implementation and outcome of the models between the countries due to their colonial past, different agro-ecological potentialities and barriers, resource endowments, social classes and ethnic groups, and many other factors. In addition, over time the relative importance of these models changes in the national development strategies, the internal content of the models are modified and there are cases of hybridization. The three models are briefly outlined below although prominence is given to the peasant/smallholder model. The latter is the designated conceptual framework for the case studies - keeping in mind, however, that the model seldom occurs in a 'pure' form but as hybrids that are heavily influenced by changes in strategic prioritization and policy content as well as interactions with other models.

The large-scale estate model was established during colonial rule and dominated by large plantation companies that produced tropical commodities on alienated land for the European market. In the recent decades large-scale farms/plantations have been reinstated as key drivers of agricultural transformation with advantageous incentives for foreign direct investment in land and agricultural production, and state support for contract farming schemes.

The elite demonstration model was also initiated in the colonial period and aimed at agricultural transformation by diffusion of techniques and technology from wealthier households to poorer peasants. In the most recent period the group of efficient and fully market oriented smallholders is considered as one of the important actors in the efforts to increase agricultural growth and supported via capacity building of farmers' organisations, improvement of input supply systems and access to credit.

Finally, the peasant/smallholder model was initiated somewhat later than the large-scale model in the colonial period. It relied on new marketing channels primarily in the form of state-run marketing boards specialising in export crops. These institutions also covered parts of whole functions related to extension, input supply, purchase, transportation, exports, etc. After Independence public support to the marketing boards was expanded although the system retained its basic exploitative nature by serving the as a means for financial transfers to other sectors, manufacturing in particular. Top-down organisation of smallholders in cooperatives became common and initiatives of resettling poor and landless farmers also gained importance in this period. However, most of the support measures and subsidies to smallholders were removed during the structural adjustment period, including the dismantling of marketing boards. Instead incentives to promote dynamic and market based peasant/smallholder production were initiated but private actors were hesitant to replace former public institutions. Partly as a consequence, new public institutions that served the production needs of smallholders saw the light of the day in the following period – although the benefits were difficult to capture for smallholders with limited resources. Somewhat surprising, new versions of cooperatives (farmers' organisations) and marketing boards (crop parastatals) were also re-introduced. However, in the recent period agricultural growth is prioritized over social equity and support measures are directed towards commercially viable medium-sized farms whereas poor and subsistence-like smallholders are envisaged to leave agriculture and find alternative employment or

increasingly accept state-managed rationalisations of agriculture like land titling, land consolidation, land use planning, etc.

It is within this overall understanding of the peasant/smallholder model that the research sites have been selected and the case studies have been planned and implemented. The following criteria for a 'dynamic rural region based on smallholder agriculture' were considered over a period of about a decade. The purpose was to produce a gross-list of potential research sites and subsequently decide on a conclusive selection:

- Introduction of new crop or expansion of traditional crop with significant importance for the local economy
- Aggregate growth of production and income
- Increasing productivity (in agriculture)
- New and/or increasing investments in productive facilities (e.g. equipment, inputs, agro-industry, etc.)
- New patterns of labour allocation and use
- Increasing quality of infrastructure and service provision (physical, social and functional, e.g. communication)
- Growth of urban settlements
- Economic diversification (including spin-off effects to non-agricultural activities; e.g., artisans, SMEs, shops, other services etc.)
- Demographic changes (increase or decrease of rural population; changing household composition)
- Changed and/or accelerated mobility patterns
- Presence of 'new actors' (corporate interests, external entrepreneurs, traders, migrant labourers, etc.)

The criteria were applied to potential research sites in a non-rigid fashion: Not all criteria needed to be fulfilled and because quantitative evidence for all criteria and all sites were not available, anecdotal and 'impressionistic' forms of knowledge were also accepted and considered. In total 7 sites were selected – they are listed in Table 1, including the dominant crop, number of villages located in the rural area considered, and the number of respondents in the survey. The location of the research sites are indicated on Figure 1. All sites are briefly described below; elaborate descriptions of the research sites are found in the individual case studies (see Appendices V-XI). Unless otherwise stated, all data and information used in the following sections originates from the individual site reports.

**Figure 1. Location of the research sites in Ghana, Cameroon and Tanzania.**



Source: Openstreet map

**Table 1. Main features of the research sites**

Countries	Name of site	Dominant crop	Number of villages	Total sample size
Ghana	Kwaebibirem	Oil Palm	4	200
	Ahanta	Rubber	4	200
Cameroon	Bamboutos	Potatoes	3	200
	Noun	Rice	2	200
	Moungo	Maize	2	200
Tanzania	Njombe	Potatoes	4	200
	Lindi	Sesame	3	165 (+ 36 non-farmers)

### **Kwaebibirem – Ghana**

This site is dominated by smallholder oil palm cultivation organised around a previously state owned oil palm plantation with matching processing facility (Ghana Oil Palm Development Corporation - GOPDC). The nucleus estate and processing factory is now controlled by a private foreign owned company but the Ghanaian state remains as an important shareholder. Smallholder cultivation of oil palms in this area depends on wage labour but recently nearby mining activities has challenged the availability of access supplies. The majority of the smallholders are contractually linked to the GOPDC as outgrowers; they have borrowed money for initial investments in oil palms and have to sell their products to the company. However, during the recent decade alternative market outlets have emerged. One is the burgeoning number of small and medium processing units in the local area who serve the national market or sell to exporters. Another is the regional (West-African) market in neighbouring countries, notably Nigeria. The GOPDC usually sell the processed products to domestic manufacturers or export to the international buyers.

### **Ahanta – Ghana**

Rubber is the dominant crop in this site as it has been for almost a century; the site is situated in and nearby an extensive area with rubber trees. Until recently it was primarily produced by a large-scale plantation company controlled by a foreign company (Ghana Rubber Estates Limited – GREL). About 1995 the company started a program for smallholders organised in a program for outgrowers. Those selected for

participation in the scheme were able to borrow money and buy extension services and seedlings of high yielding varieties from the company. After about four to five years the rubber trees are mature and the outgrowers may start to tap the latex and transport it to the company's processing facility. Due to a comparatively high purchasing price it has become quite popular to start smallholder production; also urban and other external investors are eager to buy land and start independent production. Labour for regular tapping is usually hired to supplement or replace family labour but the recent start of activities related to off-shore oil production in area has increased competition for labour, particularly for those of a younger age.

### **Bamboutos – Cameroon**

This site is dominated by production of Irish potatoes but this is a relatively new phenomenon. It is partly caused by the spread of urban dietary habits to most of the population, including rural inhabitants and low-income groups in both rural and urban areas. An interesting feature is the much higher consumption of Irish potato in the producing regions, indicating the importance of the crop for subsistence. The potential of Irish potato as a cash crop is indisputable, however, and irrespective of gender farmers are eager to get involved in production. Even younger people are attracted to the new 'hot spot' for production on the mountain slopes in this part of Cameroon. Demand for Irish potatoes is also booming in neighbouring countries and exports are increasing. Buying and selling of smallholder produced Irish potatoes are dominated by traders operating at local and regional markets. They are often pre-financed by urban-based wholesalers who constitute the major end-buyers before the potatoes are distributed to consumers. Some of the larger producers are linked directly to major buyers and some medium-sized producers buy from smallholders in order to offer adequate quantities for exporters.

### **Noun – Cameroon**

Rice dominates this site and has done so for a number of decades since the state controlled Upper Nun Valley Development Authority (UNVDA) was established in 1970 and started to promote rice production in the area. The objective was to stop out-migration and provide a new source of income for the rural population; also rice was increasingly consumed by the local population. The UNVDA acted as a monopsony in the area; it was the only buyer up to the mid-1990s and offered very favourable prices but the economic crisis crippled the parastatal. It could not pay for supplies and rice producers lost confidence. Gradually new traders and processors have established operation in the site in tandem with rapidly growing demand from urban areas in Cameroon and neighbouring countries, particularly Nigeria. As a result the role of the reinvigorated UNVDA has diminished and farmers' organisations are now active on the producer side together with traditional cooperatives.

### **Moungo – Cameroon**

Maize now dominates this site after a dramatic shift from the late 1990s and onwards. Before the turn of the century the area was primarily known for its coffee production but the severe decline in coffee prices resulted in a comprehensive diversification into maize production. Maize is prioritized in national policies on food security and demand increased rapidly because of growing consumption in urban areas (as a staple

food), in the food industry (notably by breweries) and by the livestock sector; the latter increasingly relies on manufactured feed as part of the intensification process. Traditionally, a substantial part of maize has been produced for subsistence but smallholders consider it more and more as a cash crop that is intensively produced with use of fertilizer and two to three annual harvests. Maize trade is controlled by major buyers located in big cities; they employ salaried agents who operate on local markets and buy directly from farmers. Moreover, traders from neighbouring countries (e.g. Gabon, Chad, and Equatorial Guinea) are also actively buying maize in the site.

### **Njombe – Tanzania**

Irish potato is also the dominant crop in this site. As in the case of Bamboutos (Cameroon) production is increasingly commercialized but in Njombe Irish potatoes were previously considered as a traditional subsistence crop. Likewise, increasing urban demand caused by new dietary patterns is the main factor that drives the production which in this site is based on high yielding varieties and also irrigation in some locations. Interestingly, the commercialization of the traditional crop has resulted in considerable local value adding activities such as packaging, peeling and small-scale processing into chips. Moreover, jessant systems of labour task specialisation are visible offering opportunities for both male and female villagers to earn supplementary income as harvesters, packers, transporters, etc. The marketing channel includes local villagers who now act on behalf of urban buyers and thereby position themselves in a new role as middlemen.

### **Lindi – Tanzania**

The dominant crop in this site is sesame but this situation is quite new as production essentially emerged from about 2010. Whether the 'boom' is of a sustainable nature is therefore hard to tell; sesame is very popular annual crop among smallholders who add it to their product portfolio without having to accept a severe investment burden. An interesting feature in this site is the involvement of external investors who purchase land with the purpose of using the land only for mono-cropping of sesame – and in a scale much bigger than the local smallholders. These external investors consist of a wide range of different types (e.g. migrants from neighbouring districts, wealthy traders from nearby towns, entrepreneurs and business people from Dar es Salaam, etc.). Marketing of sesame produced in the site takes place through extensive networks of local traders and their agents and prices are comparatively favourable. Some of the larger buyers based in Dar es Salaam takes actively part in purchasing activities at the local level while also organising export trade mainly to India and China, the main importing countries.

## **3. Land use**

All sites in Cameroon and Tanzania are characterised by cultivation of annual crops, while the two sites in Ghana are dominated by perennials, although annual crops are also grown. The intensity of farming varies considerably owing to the difference in agro-ecological conditions. The Ghanaian and Cameroonian sites



are more humid than the two Tanzanian sites allowing for more intensive land use (less fallow periods and more perennial tree crops).

**Table 2. Overview of main crops cultivated is the research sites**

Sites	Main crops
Kwaebibirem	Oil palm, cocoa, cassava, plantain, oranges, maize, cocoyam
Ahanta	Rubber, cassava, maize, pepper, plantain, tomatoes, oil palm, coconut
Noun	Rice, maize, beans, potatoes, cassava, plantain
Bamboutos	Potatoes, maize, beans, carrots
Moungo	Maize, beans, plantain, coffee, cocoyam, cassava, potatoes
Lindi	Sesame, millet, maize, pigeon peas, cassava, rice
Njombe	Potatoes, maize, beans

Farmers generally grow a mix of cash crops and food crops. However, it is quite difficult to distinguish between them as traditional subsistence crops are grown for sale as well. Crop diversity is large and many farmers cultivate at least 3-4 different crops. This diversification might be attributed to both preferences for food crops, reduction of risk in terms of cash crops and agronomic considerations (crop rotation, intercropping etc.). Farmers state that their land use is mainly a result of changes in the input and output markets. For instance, in the Bamboutos and Moungo sites a decline in coffee prices has induced a veritable coffee crisis in the areas. As a result, farmers have tried to substitute coffee with other crops, in particular to ‘garden crops’ such as potatoes, peppers etc. destined for urban markets. In this case food crops for the domestic and regional markets were a more economically viable option than the traditional cash crop directed towards the world market. In the Lindi site, there is a majority of farmers who abandon crops due to a perceived change (for the worse) in the climatic conditions. This perception is confirmed by looking at the mean precipitation in the area in the 1961-90 climate norm compared to the 2000-2009 average (World Bank Climate Portal, 2015<sup>1</sup>). This is not the case in the other sites, however. The recent 10 year trend seems to be towards cultivation of more marketable crops across all sites. This is especially significant for the farmers who are engaged in the production of the dominant crop.

<sup>1</sup> World Bank Climate Portal: <http://sdwebx.worldbank.org/climateportal/> (visited, 20-3-2015)

**Table 3. Change in the use of labour and non-labour inputs over the last 10 years.**

		Use of labour inputs				Non Labour inputs			
		Less	Same	More	No answer	Less	Same	More	No answer
<b>Ahanta</b> <i>Number of cases (all crops)</i>	Outgrower	40	99	93	-	46	74	111	-
	Non-outgrowers	46	154	56	-	44	118	94	-
<b>Kwaebibirem</b> <i>Number of cases (all crops)</i>	Outgrower	19	72	187	-	31	76	172	-
	Non-outgrowers	28	73	187	-	19	92	175	-
<b>Bamboutos</b> <i>Number of cases (all crops)</i>	Potato producers	10	42	31	4	6	42	25	3
	Non-potato producers	30	79	36	4	18	61	43	4
<b>Noun</b> <i>Number of cases (all crops)</i>	Rice producers	7	74	59	7	no info	no info	no info	no info
	Non-rice producers	61	179	109	7	no info	no info	no info	no info
<b>Moungo</b> <i>Number of cases (all crops)</i>	Maize producers	94	64	163	0	no info	no info	no info	no info
	Non-maize producers	81	77	155	3	no info	no info	no info	no info
<b>Njombe</b> <i>Number of cases</i>	Potato producers (potato)	3	63	21	-	4	51	33	
	Potato producers (maize)	5	64	20	-	5	57	27	
	Non-potato producers (maize)	11	56	8	-	18	62	8	
<b>Lindi</b>	Very few observations								

Notes: the table shows the change in input allocation on a crop by crop basis across sites.

Table 3 shows that across all sites respondents share the perception that use of both labour and non-labour (fertilizer etc.) inputs have increased over the last ten years. In Ahanta, Bamboutos and Njombe this tendency is more profound among the producers of the dominant crops. These perceived changes signify an increase in the intensity of land use with a higher application of labour and non-labour inputs.

Smallholders in Ahanta grow a mix of perennial and annual crops. Besides rubber the main perennials are oil palm, plantain, cassava and coconut while the most important annual crops are maize, pepper and tomatoes. Use of modern input is very limited: only a very few farmers have access to ploughs and tractors but depend on cheaper implements. Use of purchased seeds and inorganic fertilizers is very common especially among outgrowers who use it on 61% and 53 % of their plots, respectively. Within the last 10 years most the size of landholdings have remained the same but especially the outgrowers (32%) have increased their landholdings. None of the plots owned by the households are left for fallow or pasture as all owned land is under cultivation. Only a minority of households own livestock. Around half of the households own chicken and around 25% owns goats or sheep. Only a single household owns cattle.

Like in Ahanta, smallholders in Kwaebibirem grow a mix of perennials and annual crops usually around 3-4 different crops pr. Household. Besides oil palm the most important perennials are cocoa, plantain, cassava and oranges while maize and cocoyam are common annual crops. Almost all land is under cultivation: only seven households have land in fallow. It is much more common to have access to tractors in Kwaebibirem than in Ahanta. Notably, there is not the same difference as in Ahanta between outgrowers and non-

outgrowers in relation to the use of inputs for cultivation purposes. Only in terms of inorganic fertilizer, outgrowers have a higher use pr. Plot. Most of the households (135) own chicken while almost half of the households own sheep or goats. No households own cattle.

The Bamboutos is located on a hilly plateau and is considered as a granary of Cameroon due to the agro-ecological conditions that allow for a wide array of crops to be grown. The attractiveness of crop production has led to an intensification of land use in terms of higher frequency of cultivation per plot. Another feature of the site is the comprehensive fragmentation of plots between land-owners due to inheritance practices. More than 35 crops were cultivated by the respondents and intercropping is very common, often with intercropping of three to five different crops on each plot. The area used to be dominated by coffee as the main cash crop but declining producer prices has led to a 'coffee crisis'. As a consequence, smallholders have divested from coffee and have instead focused on other crops. In particular, new crops include different forms of vegetables destined for urban and regional markets. This change in land-use is reflected by the perceived increase in labour and non-labour inputs in Bamboutos for both potato and non-potato growers. Notably, many young people adopt these new cash crops as a strategy for making a cash-income.

Like the Bamboutos, Moungo is located on higher altitude plateaus of the foothills of volcanic mountains. This location offers favourable agro-ecological conditions to grow a variety of crops. Previously, robusta coffee was the main cash crop in the area but it has been replaced by food crops such as maize, plantain, beans and cassava which now are mainly destined for the market. Intercropping is practiced and multiple growing seasons for annual crops like maize are possible due to two rain seasons in combination with the use of irrigation. There is a relatively widespread adoption of agro-inputs by both maize producers and non-maize producers in the site: especially organic fertilizer and pesticides are used by farmers. Use of agricultural implements is mainly restricted to low-cost equipment. It is worth noting that the frequency of owning sprayers is higher among non-maize producing households which may be a result of their cultivation of other cash crops with a higher need for plant protection. Land holdings are generally larger than in the other sites and remarkably large compared to the neighbouring Bamboutos site.

Noun is characterised by low-lying plains under monocrop rice cultivation, upland fields with polyculture and increasing cultivation of vegetable crops like in the two other Cameroonian sites. Land fragmentation is pervasive and farmers generally have small areas of land although the non-rice producers tend to own relatively more land. Tractors are used in the preparation of the rice fields although quantitative data for the usage is missing. Some rice paddies are too moist for heavy machinery and manual labour replaces the mechanized land preparation. The use of agro-inputs is very high among rice producers the majority of whom use irrigation, pesticides and inorganic fertilizer on their plots.

In Njombe, rain-fed crop production is the most dominant form of land use. Besides potatoes, smallholders grow maize, beans wheat, and sunflower. Crops are grown almost throughout the year in crop rotation. Use of ox-ploughs is more common here than in the other sites. A significantly higher number of potato growers own sprayers which is due to the need for plant protection in potato production. Livestock ownership is quite common: more than half of the households own chicken and around a quarter own either cattle or oxen, while ownership of pigs and goats is less widespread.

Lindi differs from the other sites as rainfall is concentrated in a single rainy season resulting in only one growing season. Agriculture is rain-fed and the crops cultivated are characterized by a short growing season: sesame, maize, millets, and cassava (although the latter is a perennial crop it is very drought tolerant). Leaving aside land for fallow is a quite common practice in the site. The majority of sesame producers have adopted sesame recently (since 2010) and it has become one of the major cash crops in the area. The other cash crops are more traditional food crops such as maize and cassava. Use of purchased inputs (especially seeds and pesticides) has become more important in the area with the growth of sesame cultivation.

## 4. Role of technology

### 4.a Implements, inputs, etc.

Ownership of expensive agricultural implements (tractors, milling machines, ox ploughs or carts) is generally very low; only a few respondents in each site possess such items. Many, however, have access to this kind of equipment through renting or borrowing options. Cheaper production assets such as hoes, cutlasses and sprayers (in the Bamboutos and Njombe) are commonplace. There are no remarkable differences in the ownership of expensive agricultural assets between the growers of the dominant crops/outgrowers and the other farmers. The most remarkable difference is in terms of ownership of sprayers in Njombe where potato-growers to a large extent have adopted the use of pesticides in their production which is uncommon in smallholder agriculture there. In Mounjo the opposite is the case: non-maize producers have a significantly higher ownership degree of sprayers than commercial maize producers. Since the use of pesticides in the cultivation of maize is not commonplace in African smallholder agriculture, it is likely that the non-producers have chosen other crops than maize, for instance potatoes or vegetables which require more treatment with pesticides.

**Table 4. Ownership or access to agricultural implements**

Sites		Ox Plough*	Tractor*	Cart*	Milling machine*	Hoe	Sprayers	Machete/Cu tlasses etc**
Kwaebib irem	Outgrowers	0	14	0	24	48	-	94
	Non-outgrowers	0	14	0	23	50	-	100
Ahanta	Outgrowers	0	2	0	23	70	-	73
	Non-outgrowers	0	1	0	18	73	-	77
<b>Noun</b>		-	-	-	-	-	-	-
<b>Bamboutos</b>		6	6	9	37	184	45	165
Mounjo	Maize producers	0	1	3	19	83	22	81
	Non-producers	0	3	0	17	84	75	22
Lindi	Sesame Producers (n=117)	9	9	9	62	114	-	114
	Non-producers (n=48)	4	4	4	21	43	-	41
Njombe	Potato producers	16	0	14	2	99	65	98
	Non-producers	4	0	2	0	100	23	92

Note: Households owning one or more agricultural implements. \*includes having access to (this includes renting and borrowing) without owning. The four first-mentioned implements are only owned by a very small minority (0-5) in each sample. \*\*If data contained several of these handheld cutting tools, the data shown in the table will be the most common of these tools

In general there is a higher uptake of inputs of all kinds among the dominant crop producers. The most prominent difference is in terms of pesticides, inorganic fertilizer and irrigation. In particular, pesticides application is much higher among potato and rice growers in the two Cameroonian cases (Bamboutos and Noun). This may be attributed to the specific plant production requirements for those two crops. In the two Ghanaian sites, the outgrowers have a higher uptake of inorganic fertilizer while organic fertilizer is more prevalent for the non-outgrowers. This may be attributed to the contract schemes where the plantation/processing companies offer inputs through the contracts. There is no data from the two Tanzanian sites but generally a low uptake of agricultural inputs is noted except for purchased seeds and pesticides in Njombe for the potato production. For Lindi, increasing use of pesticides and purchased seeds associated with the cultivation of sesame is noted.

**Table 5. Use of inputs**

Percentage of plots, where inputs are used	Ahanta		Kwaebibirem		Bamboutos		Noun		Moungo	
	Outgrowers	Non-outgrowers	outgrowers	non-outgrowers	potato producers	non-producers	rice producers	non-producers	maize producers	non-producers
Bought seeds	64.10	48.21	48.30	50.00	49.66	46.33	89.06	71.84	61.25	53.50
Org fertilizer	18.97	20.83	4.64	6.07	64.19	59.17	88.28	87.36	89.38	71.97
Inorg. Fertilizer	52.82	32.74	55.42	43.21	63.18	57.80	93.75	74.14	85.63	78.98
Pesticides	21.03	16.07	13.62	15.71	43.92	33.03	68.75	31.03	63.75	64.33
Irrigation	-	-	-	-	9.46	5.50	53.91	3.45	5.00	8.92

In general, production of the dominant crops is associated with a more intensive land use in terms of application of 'modern' inputs. However, the difference is not significant which indicates that a higher uptake of inputs is more and more common in crop production in the different sites.

Ahanta and Kwaebibirem, the sites in Ghana, are different from the other sites as the smallholders here have the possibility of obtaining loans through their contracts in the outgrower schemes. This is also reflected by a significantly higher use of inputs, especially in the Ahanta case. Outgrowers also have a higher frequency of access and ownership of agricultural implements because they are being supplied through the outgrower scheme.

In terms of use of inputs, Noun differs from the two other Cameroonian sites. The initiative to start rice cultivation in the area was taken in the 1960's when the state run agency UNDVA was established to develop the land for rice cultivation and establish marketing systems for input and produce. The presence of UNDVA entails that the usage of agricultural implements and agro-inputs would be expected to be higher than in 'conventional' smallholder agriculture. This is also the case, especially in terms of inorganic fertilizer and pesticides. In addition, recent purchase of tractors by the UNDVA has increased the number of farmers who have access to mechanical ploughing. However, some plots are too wet for heavy machinery and logistics may prevent the efficient distribution of the machinery. Hence, in these places manual labour replaces the tractors. However the increase in the number of machines has overall resulted in a declining demand for manual labour.

In Njombe and Bamboutos, Irish potato production requires a larger use of pesticides than many other crops grown by African smallholders. This is evident in the two ‘potato-sites’ where pesticides use is higher for the potato producers than for the non-producers. The increased need for plant protection is common when new non-native species are introduced to tropical agriculture. However, the Bamboutos site also documents that a very rich experimentation of new potato varieties is taking place: 12 different varieties are cultivated by farmers in this site.

#### 4.b. Communication, roads, transportation, etc.

Costs in transportation and communication are declining across the different sites. Explanations of increased mobility or change in land use (crops) are in many cases related to the increased easiness of transportation and communication. It is likely that the continuous increase in the accessibility of rural areas will result in further commercialisation of crop production. It is a general finding that increased access to the rural areas and improved connections to towns is an important factor in the development of cash crop production. This includes both the construction of new infrastructure and the much increased prevalence of motorized transportation in the forms of motorcycles, lorries, etc. Furthermore, the rise in the use of mobile money transfer (reported in the Noun and Bamboutos sites) is considered to be very important for the increasing commercialisation of agriculture. Money transfer agents appear in the rural areas and facilitate market transfers across time and space. This is also reflected in Table 6 which shows that a relatively high number of farmers use mobile money transfer facilities for savings, payments, remittances etc. Actually, in Njombe and Ahanta a relatively higher number of producers of the dominant crops uses these facilities. The use of mobile phones to obtain market prices at local and regional markets potentially reduces the price risks of farmers.

**Table 6. Use of mobile money transfer**

Percentage of households using mobile/money transfer	Ahanta	Kwaebibirem	Njombe	Lindi	Bamboutos	Noun	Moungo
Dominant crop producers	12	23	40				
Non-dominant crop producers	7	23	27	26.5	23.6	10.9	1.1

Both in Ahanta and Kwaebibirem the two plantation/processing companies have contributed substantially in the construction of rural infrastructure, notably rural roads, sanitation, power lines, etc. Some of these investments have been made through the social responsibility programmes of the companies and they have had a profound impact of rural development in the areas.

All the Cameroonian sites (Bamboutos, Noun and Moungo) in the Western part of the country are located close to the main road that leads to Cameroon’s largest city Douala. This has a profound impact on the commercialization of smallholder agriculture in the area: the high increase in motorcycles and other means of motorized transportation is very important for cash crop production of ‘garden crops’. The low quality of rural roads is, however, also noted as a significant constraint to the marketing of cash crops and distribution of inputs. In Western Cameroon the recent completion of an all-year road to Nigeria also stimulates crop production for exports.

In Njombe, access to the rural areas has been improved by the construction of new rural roads as well as the upgrading of existing ones. This has been followed by an increase in transportation facilities and emergence of additional trading agents located in the rural areas. It is now much easier to bring trucks to the rural areas to pick up the produce. Furthermore, mobile phones are now used to obtain market prices for the main crops in the area, potentially reducing transaction costs faced by farmers due to better market information.

For Lindi, it has been documented that the construction of the Mkapa bridge across the Rufiji River in 2003 has substantially increased timber trade from the region to urban and international markets (Cooksey, 2004)<sup>2</sup>. Moreover, it is likely that the increased access to the region from Dar es Salaam also has an impact on cash crop production although the recent surge in the sesame production started several years later.

## 5. Competition between 'dominant crops' and other crops

Smallholders often have a diverse crop portfolio for a variety of reasons, e.g. agro-ecological considerations (crop rotation), responses to market signals (changes in input and producer prices of the different crops), reduction of risks, cultural reasons and habits. The dominant crops surveyed are all major cash crops in their respective areas and their growth in cultivation is likely to replace other cash crops or subsistence production.

In the two sites in Tanzania the data suggest that farmers growing the dominant cash crops (sesame and Irish potatoes) are farmers that have increased their area under cultivation during the last 10 years whereas the other farmers have more stagnant or decreasing areas under cultivation. Hence, it seems that cultivation of sesame and potatoes are associated with farmers who are in a process of increasing their landholdings and cash crop production

In Ghana oil palm and rubber cultivation seems to be associated with farmers who generally increase their area under 'traditional' cash crops, such as oil palm, cocoa, rubber and oranges, where the non-outgrowers have increased their areas under 'traditional' subsistence crops such as plantain, yam and cassava that require fewer investments. However, the traditional subsistence crops might just as well be cultivated for the market. Taken together, the two Ghanaian sites have seen an increasing competition between the dominant cash crop and other traditional cash crops as well as food crops. External investors have started to acquire larger patches of land in the areas but located further away from the villages. Cocoa and other tree crops have traditionally been grown less intensively here. This competition also affects the tenure arrangements in the area where land sales and renting have become more common. In the Kwaebibirem gold mining also takes up land and competes for land.

The western highlands of Cameroon has traditionally been a globally important coffee producing region and in the late 1980s Cameroon ranked 8<sup>th</sup> in coffee exports worldwide. Removal of subsidies in the 1990s

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<sup>2</sup> Cooksey, B. (2004): *Tanzania: Can PRS Succeed Where SAP Failed*. HakiElimu Working paper.

coupled with the decline in world market prices led to a veritable coffee crisis the region and in recent years, national production has declined to only about a third of what it was in the late 1980s. In Moungo and Bamboutos smallholders responded by abandoning coffee production and turning to food crops such as potatoes, maize and vegetables destined for urban and regional markets.

## 6. Land tenure and land issues

Landholdings are generally small with very few farmers having large landholdings partly due to lack of suitable and 'idle' land and partly due to lack of capital accumulation for reinvestment in land and cultivation. Hence, the concentration of land among few larger farmers is thus not significant in any of the sites. Landholdings for dominant crop growers are generally higher in the two Tanzanian and Ghanaian sites, while there is a tendency to the opposite in the Cameroonian sites. In the two Ghanaian sites, land under cultivation is much higher than owned land for outgrowers – and also for non-outgrowers in Kwaebibirem but not in Ahanta. This means that outgrowers tend to rent and borrow land for cultivation and may indicate that non-outgrowers lease out their land to farmers who participate in the outgrower scheme.

**Table 7. Land ownership**

	Kwaebibirem		Ahanta		Noun		Bamboutos		Moungo		Lindi		Njombe	
	Out-grower	Non-outgrower	Out-grower	Non-outgrower	Rice farmer	Non-rice farmer	Potato farmer	Non-potato farmer	Maize farmer	Non-maize farmer	Sesame farmer	Non-sesame farmer	Potato farmer	Non-potato farmer
Mean area under cultivation pr HH(ha)	4.99	3.18	2.54	0.83	No info	No info	No info	No info	No info	No info	1.63	1.09	1.58	0.89
Mean number of plots pr. HH	3.29	2.75	1.99	1.65	2.96	1.74	3.31	2.32	3.54	3.35	1.20	0.91	1.22	0.81
Mean owned land pr. HH (ha)	3.18	1.79	1.79	1.11	1.30	2.14	1.29	1.32	2.69	3.15	2.68	1.80	2.35	1.46

Household ownership is the most common land ownership in all the sites except for the Bamboutos site where rental and borrowing is most common due to extreme fragmentation of plot ownership. There is no general relationship across all sites between the participation in cultivation of the dominant crop and perceived decrease in plot ownership. However, there is a strong positive relationship in the two Ghanaian sites and in Lindi. On the other hand there is a strong negative relationship in Njombe. It is important to note that the perceived changes are in fact perceived, and that perceptions might be influenced by other factors than the actual changes, for instance exaggerations (for various purposes) and poor recollection.



**Table 8. Percieved change in landholdings**

	Kwaebibirem		Ahanta		Noun		Bamboutos		Muongo		Lindi		Njombe	
	Out-grower	Non-outgrower	Out-grower	Non-outgrower	Rice farmer	Non-rice farmer	Potato farmer	Non-potato farmer	Maize farmer	Non-maize farmer	Sesame farmer	Non-sesame farmer	Potato famer	Non-potato farmer
Percentage of used plots owned by the HH	67.7	60.7	79.9	76.5	No info		21.1	19.6	No info		80.8	79.3	77	83
Percentage of HH with an overall perceived increase in landholdings over the last 10 years	21.5	15.5	32.4	17.1	10.0	12.0	19.2	No info	17.0	23.0	33.3	22.9	16.7	33.3
Percentage of HH with an overall perceived decrease in landholdings over the last 10 years	2.2	1.6	4.5	8.1	2.0	7.0	13.6	No info	16.0	25.0	30.8	31.4	26.7	0.0

In Lindi there is no evidence of land conflicts as land so far is perceived to be plenty for newcomers. This is most likely also the reason why there has been an increasing influx of large-scale investors who get permission from the local authorities and buy ‘unused’ land in Lindi thereby adding to the ‘boom’ in production of cash crops. However, this is apparently not considered as a source of conflict by the local inhabitants. Some of the households also expand their land further into the bush/forest if land is insufficient in their previous village. Anyway, a relatively high number of household in Lindi report a perceived decrease in landholding in the past 10 years but the only example of conflict in the area relates to farmers who had settled illegally in protected forest reserve from where they were subsequently sent away.

In the two Cameroonian sites (Bamboutos and Moungo) there seems to be a more articulated perception of land conflicts, partly a result of the influx of non-local Cameroonians during the colonial period and partly a result of land scarcity. In all three Cameroonian sites, renting of land and occupation of state land is also more common than in the other countries. Land conflicts seems to stem more from local disputes over demarcations etc. and less as a result of dispossession by state or external investors.

Ahanta and Kwaebibirem (Ghana) have the lowest frequency of households reporting a decrease in landholdings over the past 10 years. This is more pronounced for the outgrowers who may have had more capital for land investments. In the Kwaebibirem site the Ghanaian state acquired large patches of land in the post-independence era and lack of compensation to farmers is still a contested issue today. Changes in land tenure relates to changing land tenure forms from freehold and communal holdings to leaseholds. This has led to a situation whereby small scale farmers and the poor are increasingly displaced as they are unlikely to afford the increasing prices for land. Rubber and oil palm is grown in larger patches of land further away from the villages while food crops mainly is grown in the vicinity of the villages. Communal land has slowly diminished due to the spread of cash crop production and this may lead to a decrease in access to various assets for households. For households who have not been able to increase their landholdings this could result in an overall decrease in livelihood assets.

## 7. Labour issues

Traditionally many smallholders rely on family labour for cultivating the land but casual labour - local or migrant - is increasingly used for producing 'new' or traditional cash crops. In most of the sites, the dominant or contracted crop is produced with higher inputs of hired labour compared to the non-dominant crop producing households. Only in the Moungo case there is no sign of a higher adoption of hired labour among the maize producing households. Probably this is because maize is a relatively less labour demanding crop in comparison to vegetables, potatoes etc. In the Noun, Bamboutos and Njombe sites the higher adoption of hired labour among dominant crop producing households is likely because of higher labour requirements of potato and rice cultivation compared to the other crops grown in the areas, e.g. maize. For the Njombe and Lindi sites, potato and sesame growing households are also more likely to hire labour for the other crops they cultivate. In Njombe, migrating labour is getting more prevalent with the growth in potato production. The generally higher prevalence of hired labour in the Cameroonian sites is most likely because of the higher population density. In the Ahanta site, an increasing influx of land investors push smallholders into work as agricultural labour on rubber plantations and large farms especially those under outgrower self-financing schemes. Even for small-scale and other subsistence farmers evidence from the Ahanta and Kwaebibirem indicate that some of these continue farming on their own land while also earning an income from wage labour on the plantations and large farms.

**Table 9. Use of hired labour for cultivation of main crops**

Use of hired labour		Percentage of hh that use migrant labour for the production of the dominant crop	Percentage of hh who use local labour for the dominant crop	Percentage of hh that use migrant labour for the production of the second-most important crop	Percentage of hh who use local labour for the second most important crop
Lindi	Sesame grower	0	26.5	0	18.8
	non-sesame grower		-	0	15.8
Njombe	Potato grower	no info	55.7	no info	49.5
	non-potato grower			no info	19.4
Ahanta	Outgrowers	26.7	70.3	9.3	35.2
	non-outgrowers	9.52	52.3	11.1	35.8
Kwaebibirem	Outgrowers	1	92.7	1.4	89.9
	non-outgrowers	0	92.2	1.3	83.1

Notes: No info on crop level data in the Cameroonian sites. Second most dominating crop: Lindi - Maize; Njombe - Maize; Ahanta - Cassava; Kwaebibirem - Cocoa

Table 9 shows that hiring of labour is more prevalent for the dominant crops compared to the second most prominent crop – both in the Ghanaian and Tanzania sites. Migrant labour is relatively common in rubber production while in the oil palm cultivation hardly any migrant labour is used. In Njombe, the use of hired labour on the second most important crop is more prevalent among the producers of the dominant crop while the picture in Lindi is somewhat unclear.

Ahanta and Kwaebibirem are distinct to Tanzanian sites with a higher use of hired labour especially among outgrowers in the two sites. Local hired labour is most common but in Ahanta migrant labour is relatively common as well. The vicinity of the rubber area to a large urban centre (Takoradi) might facilitate the higher uptake of migrant labour.

In Njombe potato farmers are able to spend money on labour for work on their other plots. The same applies to the other sites but to a smaller degree. Using the survey as well as additional qualitative data from the Njombe field site, Ørtenblad (2015)<sup>3</sup> argues that the increasing importance of cash crop production has led to new labour hiring processes where paid wage labour has replaced traditional labour practices in which neighbours used to help each other with land preparation. At the same time outmigration from the villages to towns to earn cash income has decreased as smallholders are now able to earn cash income from potato production.

Information on the three Cameroonian sites indicates the existence of well-developed rural labour markets in the Western region of Cameroon. The agricultural labour force consists mainly of younger men or women who earn cash incomes for their families by conducting seasonal agricultural labour. This migrating labour is destined for plantations and other agricultural production sites where demand for labour is high. Noun in particular is a host for this type of labour; labour from the surrounding areas is trucked to the areas to work in the harvest or land preparation period. This rural-rural migration has even led to specialisation of some villages as suppliers of idle labour that can easily be picked up and transported in trucks to where labour is in short supply.

## **8. Non-agricultural activities**

Agriculture is the dominant activity in all the seven sites but there are considerable differences between the sites in terms of the relative importance of non-agricultural income. In Lindi, there are very few non-agricultural activities among the households (discarding the fishing households who are included in the survey). There seems to be a general concurrence of more dependency on agriculture among the outgrower/dominant crop producers (although data on this level is only available from a few sites), perhaps as a result of a pattern of self-selection among the farmers. For instance, older or poorer smallholders with cash income from other activities might not venture into contract farming or into dominant crop production. Non-agricultural income and migration for income seems more important in the Cameroon sites than in the sites of the two other countries. In Noun and Bamboutos, some of the most common non-agricultural activities that provide additional income include construction, trade and transportation. In Noun, where rice cultivation takes place in low lying areas, fishing is also a prominent income generating activity, particularly women. While outmigration used to be the only option for young people seeking non-agricultural incomes, the rural areas are increasingly supplying non-agricultural income opportunities in the local area. In particular, the building sector absorbs rural non-agricultural labour in trades such as brick making, quarrying, lumbering, and masonry. An increasing urbanization of the country side also brings about small scale industry, repair shops, and other forms of services.

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<sup>3</sup> Ørtenblad, S B. (2015) *Livelihood strategies in the light of rural transformations and changing rural-urban linkages*. Master's thesis.

**Table 10. Main income generating activities**

	Kwaebibirem		Ahanti		Noun*	Bamboutos*	Moungo*	Lindi	Njombe	
	Outgrowers	Non-outgrowers	Outgrowers	Non-outgrowers					Potato growers	Non-potato growers
Share of households with agriculture as their main source of income	73.5	70.6	58.2	38.2	67.8	69.3	46.8	55.3	90.9	50.5
Share of households with livestock as their main source of income	1.0	1.0	0.0	1.0	9.7	9.6	11.4	6.7	0	0
Share of households with self-employed work as their main source of income	15.3	18.6	23.5	32.4	12.1	9.6	3.0	21.2	4.0	14.1
Share of households with salaried (casual+salaried employment) work as their main source of income	5.1	7.8	14.3	22.6	0.7	7.2	13.2	2.8	4.0	18.2
Share of households with pensions as their main source of income	2.0	0.0	0.0	1.0	1.8	0.3	6.3	0	0	0
Share of households with remittances as their main source of income	3.1	2.0	4.1	4.9	7.8	3.3	19.4	1.7	1.0	14.1
Share of households with 'other' income sources as their main source of income	0	0	0	0	0.0	0.8	0.0	12.3 (no income)	0	3.0

Notes: \* Figures represent the summarized income as a share of total household income in the sample

## 9. Role of common (pool) resources

The access to common pool resources vary greatly among the different sites. Access to communal land is more comprehensive in Lindi than the other sites: 56% of households in Lindi have access to common pool resources and this figure does not include the number of fishing households who depend on 'another' common pool of resources (the ocean) for their livelihoods. The reason for this extensive access to common pool resources is the low population density and large areas of forest and bushland that is available for collection of firewood etc. Quite surprisingly no smallholders indicate that they use communal land for grazing. In Moungo, Bamboutos and Kwaebibirem the same figure for the share of households is 12%, 16% and 12 %, respectively while somewhat higher in Njombe and Ahanta with 22% and 20 %, respectively. This pattern reflects the population density and agricultural intensification of the areas where little unused bush/forest is left in the Cameroonian; the same situation is valid for Kwaebibirem. The only site where there is a significant difference between dominant crop producers and non-producers of the dominant crop is in Njombe where potato producers are twice as likely to have access to common pool resources, mainly grazing and agricultural land. Access to common pool resources has seemingly no profound impacts on the agrarian transformation processes in any of the sites.

## 10. Types of market integration

The value chains for the dominant crops vary in geographical extension. Most of the value chains are predominantly national or regional while some products are destined for international markets. The potato (both in Cameroon and Tanzania) and maize value chains are mainly destined for national and regional urban markets. Palm oil and rice are produced for national, regional and international markets, while rubber and sesame production are almost exclusively directed to the world market.

**Table 11. Characteristics of sale transactions**

Frequency of destination of sale and type of buyers for the dominant crops	Ahanta	Kwaebibirem	Noun	Njombe	Lindi
Crops sold at farm gate	14	13	61	87	97
Crops sold at market	4	49	50	4	0
Crops sold at company gate	56	54	38	0	2
Crops sold at coop	0	0	24	0	2
Sold to other villager	1	13	55	7	0
Sold to coop	19	4	38	0	3
Sold to local trader	2	47	80	87	97
Sold to company (agent)	52	52	0	1	1
Sold to other	0	0	0	0	0

Note: No data available for Bamboutos and Mounjo

In addition, the value chains also vary in the way smallholders are organisationally incorporated. Most of the exchange between farmers and their buyers is coordinated through market relations. Farmers sell to middlemen in their village or elsewhere without entering any kind of contracts. Middlemen are often on contract with urban buyers but some of the value chains are coordinated via market relations throughout the chains. The value chains with the most pronounced vertical integration are those for rubber, palm oil and rice. In the rubber value chain a plantation/processor has a *de facto* monopsony on rubber purchase in Ahanta. In the value chain for palm oil contractual relationships also exists between a plantation/processor company and smallholders but alternative outlets (smaller processors/traders) compete for the produce.

As can be seen in Table 11, the two Tanzanian sites are characterised by highly localised market relations between farmers and buyers. Local middlemen who might be independent or contracted by urban buyers are present in the village and buy directly from farmers. Njombe provides an interesting account of how changing marketing systems have affected rural livelihoods and production systems. Ørtenblad (2015) reports a significant change in the commercialization of Irish potato production in the area. Previously farmers would migrate for work in plantation agriculture or other places where agricultural labour would be in demand. But infrastructure development as well as the appearance of trading agents in the villages has made relatively perishable crops like Irish potatoes more marketable for farmers. Hence, the emergence of a new type of actor in the local areas has had a profound impact on land use and local labour markets.

In the Noun site cooperatives were initially established to support irrigation, input provision and marketing of the produce – cooperatives used to be the sole sale outlet for farmers. However, quite a lot of farmers

now sell to local traders and villagers suggesting that the cooperative may be operate inefficiently. In the Ghanaian sites and in Noun it is relatively more common for farmers to transport their goods to the buyers/market themselves. In Ahanta and Kwaebibirem the presence of the two outgrower schemes explain the high number of farmers selling to company agents/cooperatives and at company gate. It is remarkable though, how many farmers in Ahanta and Kwaebibirem who actually sell to traders or other villagers even though they are likely to be in a contract relationship with the company.

## 11. Conclusion

The point of departure for this synthesis report was an ambition to understand more about the socio-economic processes taking place in dynamic rural areas dominated by one particular crop. These areas are characterized by rapid and comprehensive changes in land use, technological adaptation, land tenure, labour use and new organisational patterns in the marketing chain. Also important is the role of non-agricultural activities in smallholder households' income portfolio. Within the recent decade parts of African agriculture in certain areas have undergone quite remarkable growth and change processes despite the documentation of widespread agricultural stagnation and rural marginalisation which is somehow favoured by the media. By zooming in on these types of rural areas that are dominated by a single crop it is envisaged that the structure and causes of the agricultural transformation processes are be easier to capture and interpret. The aim is to understand the structural conditions for new rural-urban connections embedded within a framework of aggregate economic growth and social change. It is anticipated that the traditional pattern of rural to urban flows of goods, labour (migration) and capital assume a different manifestation in a dynamic context. Hence, massive outflow of resources from rural areas are expected to be replaced by inflows of resources in a more complex pattern, including rural to rural flows and 'reverse' flows from urban to rural areas.

In order to carry out the examination, research sites were selected in the three countries according to a number of criteria, surveys including producers and non-producers of the dominant crop were implemented. The tools and instruments for collection, storage and analysis of data were homogenised and designed with the purpose of establishing a platform for comparative analysis. Practical problems encountered in the work process have, however, to some extent limited the possibilities for direct cross-site and cross-country comparisons. Instead, the different cases are compared in a less rigid manner. The key findings are the following:

- There are quite clear indications of an increasing commercialisation of production in the dynamic areas, i.e. an increasing share of agricultural production is being directed towards the market. The general causes include new and strengthened market demand, improved infrastructure (particularly roads), and more transportation options (trucks and motorbikes).
- In general, the producers of the dominant crop have larger landholdings and larger areas of crop production. This may indicate the existence of a 'self-selection procedure' where relatively more wealthy smallholders venture into the dominant crops. However, in Cameroon the tendency is the opposite, i.e. dominant crop producers have generally less land. This could be related to higher labour requirements and costs for the specific crop (e.g. rice production in Noun) compared to other crops. It

could also be caused by the type of producers that venture into production of the specific crop, for instance resource-poor groups like youngsters and females (e.g. potatoes in Bamboutos).

- Despite the overall dynamic development trend, technological development of agricultural production seems rather stagnant in all the sites. High cost agricultural implements are persistently absent among smallholders in the sites: they do not own and only to a limited degree rent or borrow tractors, ploughs etc. for use in production. This may indicate that accumulation of income is insufficient to increase productivity by mechanisation and/or that a large pool of cheap agricultural labour is available. Some of the crops may, however, dictate a certain investment in equipment: in the potato growing areas there is a clear difference between potato growers and other farmers as the former own more sprayers.
- A clearer distinction between the two groups of smallholders is revealed in the use of 'modern inputs': there is a higher uptake of pesticides, purchased seeds and inorganic fertilizers among producers of dominant crops in all the sites in Cameroon and Ghana. This exposes the other side of an increasing commercialization of agricultural production through higher dependency of inputs acquired via the market. For Ghana this is likely to be a consequence of the contractual arrangements with the corporate buyer while for Cameroon it is most likely caused by the agro-ecological requirements of the crops.
- Likewise, it is more prevalent to make use of hired agricultural labour among the dominant crop producers in the sites located in Ghana and Tanzania (no data from Cameroon). Not only is this the case for production of the dominant crop but also for the second most important crop in all the sites. It is primarily the use local labour that is hired. This could indicate an increasing social stratification between smallholders who adopt the dominant crop and those that do not – the latter may need to sell their labour in order to ensure their livelihoods while the other group benefits from allocating resources to substitute or assist family labour. It may also indicate that traditional labour sharing practices are phased out and replaced by wage labour – another element in the increasing commercialisation of agricultural production.
- Previous outmigration of rural areas are in many of the sites replaced with a significant inflow of labour migrants who are looking for work related to the dominant crop, particularly in periods of the crop cycle where high input of manual labour is required, e.g. during harvests or planting. Hence, the dominant crop has created new employment opportunities and improved infrastructure and transportation facilities have eased access to work places – even on a daily basis (e.g. Ahanta).
- Non-agricultural income is very important in all sites. Notably, smallholders who do not produce the dominant crop are highly dependent on alternative income outside agriculture. The trend may be another indication of a jessant group of commercial and relatively more specialised farmers - and on the other hand a group of rural peasants who are attached to agriculture but for various reasons choose to base their livelihoods on a combination of agricultural and non-agricultural activities. This may even in some cases express a gradual dispossession of certain segments of the rural population.
- In terms of new organisational patterns of the value chains, the most prominent feature is the increasing diversification of trading channels in the dynamic regions. In particular, the emergence of a plethora of local traders and urban-based buying agents significantly benefits the smallholders involved in the dominant crop: competition among buyers have increased and access to markets improved – given the concurrent upgrading of infrastructure and transportation alternatives. Former monopsony positions have been dismantled and corporate buyers (including state owned companies) need to offer

competitive prices and services – if not the nature of the specific crop or the market restricts competition among buyers (e.g. rubber in Ghana).

These findings on the nature of agricultural transformation processes in the dynamic rural areas also point towards a simple typology of the resulting new rural-urban connections. Concerning flows of goods and information, increasing flows of the dominant crop has been stimulated by rapid growth and changes in dietary patterns, primarily among emergent urban middle classes. These flows of agricultural products materialize due to substantially improved road systems that connect the rural areas to market outlets and a substantial growth of transportation alternatives, notably in trucks and motorbikes. Parallel to the unidirectional outflow of goods is an extensive inflow of mediators who organise the agricultural outflow – traders of all kinds and importance, from local agents to regional wholesalers tied up in different sorts of financial arrangements with urban-based end-buyers and distributors – who also may be involved in the organisation of exports to neighbouring countries or overseas. Not to forget is the modest and frail reverse flow from urban to rural areas of modern inputs like fertilizers, pesticides, seed, etc. which also constitute an important element in the agricultural commercialisation process.

Flows of labour are taking on new forms. Seasonal labour migration is related to peak periods of the dominant crops where manual labour is needed not least because of the low adaptation of mechanical equipment by smallholders. Again, accessibility of work places has been substantially changed by vastly improved road networks and transportation options. The pool of available labour, however, is primarily constituted by locals who find new employment opportunities by being engaged ‘indirectly’ in the dominant crop. Many among this group have abstained (for whatever reason) from participating ‘directly’ in the new opportunities offered by own cultivation of the crop. Also important is the new status of rural towns in dynamic areas as an attractive locus for settlement for population groups from elsewhere or former migrants who decide to stay permanently. In this respect there are strong indications of new rural-rural flows. All in all the growth of rural settlements and agricultural dynamism linked to the dominant crop in dynamic areas have a tempering impact on younger generations’ motivation for rural outmigration

Indications of a new type of capital flows have been encountered in many of the sites. This is primarily in the form of external investors who see the opportunities in starting up production of the dominant crop. Usually the landholdings involved in this type of acquisitions are considerably bigger than the land that is traded among local smallholders. Available information from the sites reveals that internal land accumulation is taking place but apparently in a much lower scale than the land taken over by the external investors.

This latter finding constitutes the starting point for the next task (‘Task 3’) of WP1. Examining the drivers and nature of the recent influx of external (domestic) land investments in dynamic rural areas would produce knowledge on the impacts of external investors on agricultural transformation processes. The examination would also shed light over new practices of hiring and deploying agricultural wage labour in dynamic rural areas; external investors seldom personally settle and cultivate the acquired land but hire different types of labour to manage, monitor and work the landholdings. In sum, examining the importance and impact of external investments would contribute to an understanding of the nature of new rural-urban connections and how they impact on local communities in terms of induced economic dynamism.



## 12. Data sources

The table gives an overview of the sources of the data presented in this report. Authors' own compilation of data has been done for the two Ghanaian sites, where some data was missing from the reports. Stata was used for the extraction of the descriptive statistics.

**Table 12. Overview of data sources**

Tables	Content of the tables	Ahanta	Kwaebibirem	Moungo	Bamboutos	Noun	Njombe	Lindi
<b>Table 1</b>	Basic information on research sites and sample	Introduction sections						
<b>Table 2</b>	Overview of main crops	Various sections and authors' own data extraction						
<b>Table 3</b>	Change in the use of labour and non-labour inputs	pp. 23-25 (authors' own change in the unit of measurement)	pp. 25-26 (authors' own change in the unit of measurement)	p. 104	pp. 95-96	pp. 114-115	pp. 70-73	very few observations
<b>Table 4</b>	Ownership or access to agricultural implements	authors' own data compilation	authors' own data compilation	pp. 112-120	pp. 104-106	no data	pp. 86-93	pp. 95-98
<b>Table 5</b>	Use of inputs	authors' own data compilation	authors' own data compilation	pp. 61-67 (calculated percentages)	pp. 72-75 (calculated percentages)	pp. 69-76 (calculated percentages)	no data	no data
<b>Table 6</b>	Use of mobile money transfer	authors' own data compilation	authors' own data compilation	p. 124	p. 109	p. 127	no data	p. 105
<b>Table 7</b>	Land ownership	authors' own data compilation	authors' own data compilation	pp. 57-59 (units of measurement changed by authors)	pp. 66-70 (units of measurement changed by authors)	pp. 66-68 (units of measurement changed by authors)	pp. 51-54	pp. 58-60
<b>Table 8</b>	Perceived change in landholdings	p. 22 + authors' own data compilation	p. 24 + authors' own data compilation	p. 91	pp. 71+81	pp. 95+97	pp. 52+59	pp. 61-62+67
<b>Table 9</b>	Use of hired labour for cultivation of main crops	authors' own data compilation	authors' own data compilation	no data	no data	no data	pp. 66-67	p. 72
<b>Table 10</b>	Main income generating activities	authors' own data compilation	authors' own data compilation	pp. 126-129	pp. 111-112	pp. 118-119	p. 29	p. 109
<b>Table 11</b>	Characteristics of sale transactions	authors' own data compilation	authors' own data compilation	no data	no data	pp. 108-109	pp. 68-69	pp. 74-76

