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Agrarian transformations in Ghana: exploring changes at the level of gender relations

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Acknowledgement

While a lot of BIN students were dying to work on a subject which is not related to agriculture, I explicitly wanted to look at agriculture. This is because when I was a child my parents both did research on crops in Uganda (yes I am a Wageningen baby). As a young child I would look through the microscope and hear stories about how important agriculture is for Uganda. If we go on a holiday my mother always quizzes us what kind of crop you can see in the field, if we are wrong she will tell us everything about the crop. This experience helped me choose for the bachelor International Development.

While searching for a subject to write my thesis about I kept my internship in Ghana in mind. There I will work at CIP, an institution which promotes and does research on orange fleshed sweet potatoes in Ghana. I wonder if my ideas about agriculture which I have made up during my thesis, eventually fit the reality or if reality is much more complex and complicated than in the books.

I would like to thank my supervisor Paul Hebinck who has send me a lot of articles, who had to read thons of pages and who gave me a lot of inspiration about the African society. He has helped me with such enthusiasm that writing became a lot more fun.

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I hope you enjoy reading this paper,

With regards,

Tessa Speijer BSc

Abstract

This paper examines the way agriculture has transformed in Ghana and in what way this transformation has reshaped gender relations. This paper is based on literature review. We examine this transformation by looking at the agricultural division of labour and land tenure systems. In what way has the land tenure system changed and how did this affect gender relations? For the crops cassava, yam and cocoa this transformation has been described. We found that gender relations and land tenure systems are dynamic and ambiguous.

Key words: Agrarian transformations, Ghana, gender, land, yam, cassava, cocoa

Introduction

During the colonial era Ghana was called the Gold Coast. The country received this name when the Portuguese came to Ghana in the 15th century and found an extraordinary amount of gold. This name was later adopted by English colonisers (Ghanaweb.com).

Colonisers not only searched for gold but also for agricultural products, which could bring more wealth to the motherland. Agriculture has transformed since the colonial time. Not only the crops that are being cultivated have changed, but also global food markets have emerged. These global food markets have created new opportunities for marketing of tropical products (Amanor, 2009). Examples of a tropical products that are being exported from Ghana are pineapple and cocoa (Goldstein et al., 1999; R. V. Hill et al., 2014). Global food markets have also created opportunities for new technologies for agriculture, like chemical fertilizer and new crop species (Morris et al., 1999). With the changing of economic opportunities, the gender division of labour changed (Doss, 2001). The commercialisation of crops is widely considered to disempower woman (Orr, et al., 2015). Interpretations of gender roles and responsibilities within the African continent are that woman take care of the children and farm subsistence crops, while men cultivate cash crops. But is this notion true/does it still count in an era of globalization and revolutions in agricultural technology? Important aspects of agrarian transformations are the division of labour and land. This paper examines the way agriculture has transformed in Ghana and in what way this transformation has reshaped gender relations.

This paper is entirely based on literature review. This literature is of significant academic level. A literature review introduces the problem and develops the background by providing a history of work written by scholars on the subject. In this case the literature which was used to describe the agrarian transformation in Ghana. Literature review helps to identify major issues in the research domain and finds cracks in the current literature about the subject. This paper examines how the agriculture in Ghana has been transformed from a gender perspective. Papers by different authors have developed a clear view about processes of transformation from a gender perspective. Different authors have different opinions about this transformation and these clashing ideas are being highlighted.

This paper tries to crack and highlight the received wisdoms related to gender relations in agriculture. Received wisdom is knowledge that is accepted without relativizing or examining it. (Leach et al., 2000). Can we believe everything that is thought about the agrarian transformations at the level of gender relations, without relativizing and examining it? Leach and Fairhead (2002) argue that the dominant discourses and analysis's are often not debated and when they are it is not important for the political relations. The idea that woman cultivate subsistence crops and men

cultivate cash crops is a good example of received wisdom. A lot of development politics still use the idea that woman cultivate subsistence crops while men cultivate cash crops. But is this distinction still true? How does the agrarian transformation have influence on this distinction? It is important that development politics use gender relations in their analysis, but they have to base their analysis on true findings and not on received wisdom. They have to reflect their knowledge and wisdoms before they implement practices. It is clear that donor-government relations can strongly influence the adoption or persistence of agenda's on national level (Leach et al., 2000).

This paper is relevant in practical terms because it helps development agencies to better understand the gender relations in Ghana and with this in mind shape the way they interfere in Ghana. This paper is relevant in theoretical terms because it shows that different authors have clashing ideas about the gender relations in the agriculture of Ghana and agrarian transformations.

Before we can answer the main question in what way the agrarian transformation in Ghana has reshaped gender relations, we first have to examine what the agrarian transformation actually is. The starting point of the agrarian transformation is the colonial period. After this we will examine what gender crops are and if there really is such thing as a gender crop. It is the common assumption that woman cultivate subsistence crops while men cultivate cash crops, but is does this assumption fit practical experiences? The next section examines if the agrarian transformations have effect on land tenure and land rights. How are gender relations shaped through land tenure systems? In the last section we will look at three crops cultivated in Ghana, yams, cassava and cocoa. How are the gender relations shaped there and how has the agrarian transformation been formed. It is important to look at these crops, because then you can see how these gender relations have transformed in practical terms. Yam, cassava and cocoa are three important crops in the livelihood of many Ghanaians. In the end the paper examines if these notions about gender relations in agriculture still fits the current practices Ghana, or have they changed and in what ways?

1. What are agrarian transformations?

It is widely believed that the agrarian transformation has disempowered woman (Lado, 1992; Orr et al., 2015). These agrarian transformations have widened the productivity gap between men and woman. Before we examine why the agrarian transformation has disempowered woman, we first have to elaborate what the agrarian transformation is.

An agrarian transformation is a multidimensional process of how farming systems adopt to change and initially change in the context of the interplay of knowledge, technologies, ideas and markets. Important aspects of this multidimensional process are the change of market intensification, change in the object labour, change in gender relations and class and new forms of land tenure. Agriculture changes through mechanization, chemical inputs and new high yielding varieties (Amanor & Pabi, 2007). An important aspect of the agrarian transformation is the commercialisation of crops. Commercialisation is the situation where farmers have greater access and engagement with markets, for input or/and outputs (Asuming-Brempong, et al., 2013). This commercialisation of agriculture is considered to be an important pathway to development (Forsythe et al., 2016). There are more opportunities to cultivate for world market. Economic liberalization opens up national food markets to international competition. This sometimes leads to a decline of prices, because the local products have to compete with cheaper international products. During the 1870's the World Bank defined rural development as the modernization and monetarization of rural development, it was the transformation from an isolated traditional form to a form which is integrated into the national economy (Amanor, 2009).

Agrarian transformations also include gender relations (Martina Aruna Padmanabhan, 2002). Gender relations involve the gender division of labour (Bryceson, 1995). A gender division of labour implies that households member participate in different activities based on gender roles and their responsibilities (Forsythe et al., 2016). These roles can be divided by type of crop or type of agricultural task. In areas of shifting cultivation men tend to cultivate different plots and different crops than woman. It is the common assumption that woman tend to cultivate subsistence crops, while men cultivate cash crops. Access to land, labour, technology and inputs are important for the agrarian transformation. But men and woman have different dimensions of access, which can reshape these gender relations. Land rights are also gendered in Ghana. Legal land rights only tend to recognize the land rights of men and forget the land rights of woman. While men are the legal land owners, woman work on the land as well.

In the next section we will examine how the colonial period has had influence on the agrarian transformation.

1.1 Agrarian transformations during colonial time in Ghana

The colonial era in Ghana is our starting point for looking at the processes of agrarian transformation. Colonialism is the implementation of settlement in distant territory. This group of countries or territories is developed for settlement or commerce (Gallaher et al., 2009). Colonisers usually had to ideology of civilization. The traditional customs, beliefs and religions were barbarian and the people living inside the territory should be civilized (Gallaher et al., 2009). This ideology of civilization is based on the idea of superiority of the culture of Great Britain. The native people living in the colonies were portrayed as being too backward to govern themselves (Buescher et al., 1996).

From 1873 until 1957 Ghana was a British colony. This meant that the Gold coast stood in a relationship of dependence with the metropolis Great Brittan. Ghana's main role in that relations was the supply of raw materials to Europe so that Great Britain could make a profit out of their colony through processing and marketing. The colonisers especially favoured exotic protects for export, like palm oil and cocoa (Sutton, 1989). The colonisers wanted to establish a market by capital investment in cheap sources of raw materials and labour. The Gold Coast, like most of the British colonies, was run along a system of indirect rule (Gocking, 1997). The basic assumption of indirect rule is that local traditional chiefs continued to rule locally like before the colonisers came, but then under supervision of the colonisers.

The introduction of farming of tropical export products by the colonisers also has had influence on the multiply of migration of men (Lado, 1992). Regional variation in farming activity provide the basis for seasonal migration. Men are underemployed in the dry season in the Savannah region. In the forest region, where the conditions are suitable to grow crops for export, labour is scarce in the harvest season. This migration of men also has had influence on the social division of labour within households (Bryceson, 1995). While men migrate to work as a labourer to pay for taxes, the woman are left to shoulder the farming responsibilities. More information about the division of labour will follow.

Land and agrarian relations in Ghana have been influenced by the rise and decline of export crop development, which was imposed by the colonisers to bring cash to the motherland. This rise and decline have distressed the relationship between the available land and labour migration, the commoditisation of land and the relationships between people cultivating the land (Amanor, 2009).

Since pre-colonial times Africans have gained access to land, labour and capital for agriculture via membership and status in various social institutions (Berry, 1989). Or in other words people gained access to land via customary land rights. During the colonial era the way people gained access to

land changed, with the change in economic and political circumstances. The mining boom in the late nineteenth century was one of the changes in the economic and political system, this boom created a large demand for land speculation and concession (Amanor, 2009). Formal land registration processes occurred, which differed from the customary land tenure systems. Now it was in writing who owned the land and people could refer to that legal land script in order to access land. This transformation to formal land registration is linked to the ideology of civilization. The formalisation of land registration has changed gender relations.

Another aspect related to land that changed during the colonial time, was the payment of rent and taxes (Hymer, 1970). In pre-colonial times there were not tax payments or rents needed to cultivate a piece of land. This absence of rent might be explained due to the low population density of the surplus of land. In economic terms, the rent was zero because the marginal productivity was zero because of the absence of supply (Hymer, 1970). This taxation led to that men migrated to work as a wage labour migrant to be able to pay for the taxes. These men usually migrated to plantations where they had to cultivate export products. The wages paid to men were generally not sufficient to make a livelihood, so women were in charge for subsistence food production. This led to a change in the gender division of labour. Later in the paper there will be more information given about the changes in land tenure systems and gender division of labour.

The Pax Britannica stimulated the growth of urban areas and the development of commercial activities. In the end this led to labour migration (Berry, 1989). This growth of urban areas also helped women to earn a cash income (Lado, 1992). Because big cities increase the demand for food crops.

The British colonial power may also have had an influence on the creation and the perpetuation of men's dominance. By the implementation of the European model as the man as the bread winner, while the woman depends on him (Martina A Padmanabhan, 2007). It became the fashion that women should be placed at home behind the stove, although it did not fit the traditional African practices (Lado, 1992). This triggered the interest of African men, which legitimized them to channel resources and services towards themselves.

When you think about Ghana during the colonial time you eventually think about the gigantic slave forts that still exist along the Ghanaian coast. The European-instigated slave trade in Africa dates back to the sixteenth century in West-Africa (Bryceson, 1995). These forts along the coast were connected to the trans-Atlantic slave trade, where around 12 million Africans were relocated to the Americas to work on plantations (Kankpeyeng, 2009). Not only transatlantic slavery was in Ghana

but there was also indigenous slave trade. Indigenous slavery pre-dated the arrival of the trans-Atlantic slave trade (Kankpeyeng, 2009). The northern part of Ghana was important in this indigenous slave trade. An impact of slavery in northern Ghana was depopulation. The insecurity by slave raiding led to migration (Kankpeyeng, 2009). These slave raids also stimulated the growth of market centres.

The emergence of export crops in west Africa went along with the decline of slave holding (Austin, 2009). Pre-colonial slave trade functioned as a labour market, moving slaves to places where there were markets. When slavery was abolished, former slaves kept working for their masters on the plantation or left to make their own plantation (Austin, 2009).

Concluding we can say that the colonial period has changed a lot of things in Ghana. Not only did the land tenure system change, but also the gender division of labour changed.

2. Is there such thing as a woman's and men's crop?

Boserup (1970) was one of the first scientists which acknowledged the important role of woman in African agriculture. She argued that woman make a greater contribution to African agriculture than men, both in terms of labour and time input. Lado (1992) states that woman make up about 80 percent of the agrarian labour in most of rural African societies. Boserup was the first scientist that put woman on the agenda (Bryceson, 1995). Her statement brought gender into the agendas of development agencies.

In shifting cultivation systems there is the tendency for woman to have different spheres of operation than men (Bryceson, 1995). Woman cultivate different crops and have different plots of land. Therefore gender is an important aspect in agriculture in Ghana (Kevane, 2012). This division of labour is in every society a part of the ideological system, the way the economy is organized and how the politics are structured (Guyer, 1980). Men and woman may face different forms of access to land, labour and new technologies (Ribot et al., 2003). And therefore men and woman face different constraints and make different decisions (Doss, 2002). Men and woman play different roles in particular systems of agricultural production and profit different socio-economic positions. There is a gendered division of labour when it comes to agriculture. Gender in Ghana may have influence on accessing land, in what extend technology is adapted.

2.1 What are gender crops?

Gender crops is a term that tries to classify crops as either cultivated by men or women. Plants are labeled either female or male in order to fulfill a function in social life. It is the common assumption that male crops are cash crops while female crops are subsistence crops (Carr, 2008; Goldstein et al., 2004; Lado, 1992; Martina A Padmanabhan, 2007; Von Braun et al., 1989). It is important to note that cash crop production holds a big potential to help rural households to improve their livelihoods, woman are thus excluded from one of the most lucrative rural income opportunities. Besides producing food for consumption, woman sometimes earn money from petty trading. It was found that the more the woman and men trade in a household, the better the nutritional status of the household (Lado, 1992). While the profit from woman's trading is much lower, their profits go directly into the household. That the female income is invested in a better way may be because the female income are often more regular, than men's income because they often only come a few times a year.

A common explanation for the division of crops is that woman are responsible for feeding the family and therefore grow subsistence crops, while men are responsible for providing cash income and therefore grow cash and export crops (Doss, 2001; R. V. Hill et al., 2014). Woman have multiple tasks, including taking care of the children, making sure the dinner is ready, and earning money on the local market. The income of the man can be used to pay for the school fees or school uniforms of the children. Lado (1992) notes that African rural woman spend 25% of their working day on domestic work, including cooking, taking care of the children and cleaning (Lado, 1992). Taking care of children might reduce woman's ability to leave the house for a long period.

Orr et al (2015) identifies four attributes to woman's crops. The first one is that there are no national markets for woman's crops and therefore the price is low. The second attribute is that for these crops there is little labour supplied by man. The third attribute is that the crops is used as a seasoning for the meal. Woman do not cultivate the staple crop, but the crops which makes the dish taste nice. The last attribute is that cultivating the crop requires patience because the crops needs to be shelled or picked from a pod.

Together men and woman create a proper meal; the staple food is provided by the man and the crops needed for seasoned soup are cultivated by woman (Martina A Padmanabhan, 2007). The staple food requires a lot of labour. An example of a staple crop only grown by men is millet. The growing of millet has always been a man's duty. It has always been the idea that woman are too clumsy to move around though the young harmful plants (Martina A Padmanabhan, 2007).

2.2 Is there a difference between cash crops and subsistence crops?

Quite a number of classical literature makes a distinction between cash crops and subsistence crops. Assuming that men cultivate cash crops, while woman cultivate subsistence crops. But is there really a distinction between these crops? Before we examine if there is actually a distinction we will look at the literature that assumes there is a difference.

Cash crop production differs from subsistence agricultural production, because you need to enter the market to make sales and buy inputs (Hill & Vigneri, 2014) . This requires reliable access to markets. As we will read below, woman have less access to market than men (Ribot et al., 2003).

Another explanation why woman cultivate less cash crops than men is that woman in Ghana have had less education than men. This education is needed to grow cash crops. Morris and Doss (2001) found that female farmers in male-headed households have less education than the male farmers, and that female farmers in female-headed households have even less education.

Cash crops in general require a higher level of technology than subsistence crops. These technologies can for example be chemical fertilizer. Because woman in Ghana are less educated than men, woman will have less ability to process the relevant new information to cultivate the cash crop (Hill & Vigneri, 2014). Agricultural extension services play an important role in the provision of information and new technologies for crops. The problem with these extensive services is that they often do not reach female farmers (Hill & Vigneri, 2014).

The growing of cash crops and or subsistence crops is subject different decision-making procedures. When the crop is directly sold to the market, profitability, or the expectation to reap a profit, will be the main criterion. But when the crop is grown for home consumption storage, processing and taste may be important (Doss, 2001). But international markets will also have requirements which the crop has to fulfil. International food retailers have strict quality control systems, where these products have to go through (Amanor, 2009; Handschuch et al., 2016). This quality control over production is considered as critical for building brand confidence and loyalty among customers. For example the tomatoes for a supermarket have to be a certain size or colour. If the cultivated tomatoes do not fulfil these demands the farmer cannot sell them to the market. While for home consumption the size and colour of tomatoes does not particularly matter, as long as the tomato tastes good.

Carr (2008) assumed that subsistence production will help households cope with shocks in market prices. Because of the commercialisation, the crops cultivated need to compete with international food markets. These prices are not stable due to differences in supply and demand (Amanor & Pabi, 2007). Besides price differentiation there are high input costs and dependence on one or few buyers

(Handschuch et al., 2016). But the market sale of cash crops which gives income, helps the households cope with environmental shocks. When a harvest has failed due to drought, the farmer can buy their meals on the market with the money they earned for the cash crops.

But is there really a distinction between cash crops and subsistence crops?

The distinction between cash crops and subsistence crops is often ambiguous. A good example of this ambiguity and the change in gender division of labour is given by Padmandan (2007). In his study he looked at traditional local and improved or introduced varieties of beans. These local varieties are based on local knowledge (Mackenzie, 2003). The knowledge is based on experience and practical skills and not based on scientific labs. The local variety has always been cultivated by men and woman, but the improved varieties only cultivated by men. In general the local variety is cultivated to feed the household, while the improved variety is cultivated to sell on the market. The improved variety also needed specific knowledge to be able to cultivate, which was only in the hands of the men. While the local beans do not need any chemicals to cultivate, the improved varieties do. These chemicals are conceptualized in being 'medicine', which can only be used by men. With the introduction of spraying chemicals new gender relations are created (Martina A Padmanabhan, 2007).

Another example of the ambiguity of the distinction between cash and subsistence crops is given by Doss (2001) about maize. Maize can be a cash as well as a food crop (Doss, 2001). Certain varieties (often local traditional varieties) are preferred for home consumption and other varieties (high yielding varieties) are preferred for the market. The local varieties are often considered as woman's crops, while the high yielding varieties are often considered as men's crops. Thus not only the crop but also the variety of a crop may vary by gender.

2.3 Do gender crops (still) exist?

The cultural construction of crops as men's and woman's crops may not however match current practices in African households (Doss, 2002; Orr et al., 2015). There are gendered patterns of cropping, but these patterns may be more complex than used to be thought. With the commercialisation and the introduction of new varieties of crops and technologies these gender differentiation undergo a process of change and renegotiation (Orr et al., 2015; Martina A Padmanabhan, 2007). The gender division of labour is complex and dynamic. With agrarian transformations, gender relations change.

Evidence has shown that the shift to cash crops led to that men began to cultivate crops that used to be determined as 'woman's' crops (Doss, 2001; Hill & vigneri, 2014; Orr et al., 2015). Traditionally

tomatoes were considered a woman's crop, but now are increasingly been grown by men, because you can earn a lot of money by cultivating them (Doss, 2002).

The assumption that woman do not have access to market has changed as well. With the arrival of big urban spaces, local markets develop. In these cities people occupy professions outside farming, so they are not able to cultivate food for themselves. With this development the distinction between cash and subsistence crops becomes more vague. Because woman are more and more involved with the cultivation of crops for the local market (Von Braun et al., 1989).

New technologies are an important aspect of the agrarian transformation. These new technologies reshape the gender division of labour.

2.3.1 Do new technologies have influence on the gender division of labour?

As we have mentioned before the agrarian transformation is noted to disempower woman. Gender affects farmers access to labour, land and other agricultural inputs (Doss, 2001). Doss (2001) says that new technology is needed in Africa to improve agricultural production. These new technologies are usually based on improved agricultural inputs like fertilizer, seed and extension services. In a lot of literature it is noted that men are more likely to adopt modern agricultural technology, than woman (Morris et al., 1999) (Doss, 2001). But it is important to notice that technology adaptation and technology impacts are a complex thing, and depend on ambiguous interactions.

New technologies often change the division of labour within households. This change in division of labour started with arrival of British colonisers. Colonial powers in Ghana introduced the extensive farming of cocoa and palm oil for export products and mining. This change reshaped the gender relations. Because while men had to migrate to work on a cocoa plantation or coal mine, woman were left at home to work on the farm. Thus the shift from subsistence farming to cash crop farming has affected the production patterns of woman. While the men are away to work on plantations, they would usually send remittances to pay for their normal share of the agricultural production (Lado, 1992). With this remittances woman can pay for wage labours, who can work on the land. But although woman have taken over some of the males work, most men have been reported unwilling to do woman's work.

One reason why men are more adaptable for modern agricultural techniques is that men are the people who make production decisions and control productive resources such as land, labour and capital (Akudugu et al., 2012).

Abunga (2012) notes that large fixed costs are often a constraint for new technology adoption, this particularly counts for small farms. On average woman have smaller plots than men. Which means

that woman will feel more burden with the large fixed costs than men. Boahene (1999) notes that innovation adoption is a multidimensional process. Elements such as anticipated profitability, realisation costs and amount of information are important for innovation adoption (Boahene et al., 1999). In a way the willingness to adopt a new technology depends on the farmers expectation of a multiply of outputs due to this new technology.

3. Does the agrarian transformation have influence on land tenure and land rights?

Land and land rights are a primary factor of production in rural Ghana. Land rights are a claim whose validity is recognized by law (Orr et al., 2015). The nature of the system of land rights can shape and has influence on investment in agriculture and economic activity (Goldstein et al., 2004) (Goldstein et al., 2002).. Gender relations are a central factor in the transformation and organisation of landholding systems. These landholding systems change and are dynamic.

Ribot and Peluso (2003) make an distinction between access and property. Access is defined as the ability to derive benefits from things, while property is defined as the right to benefit from things. Rights in this case is associated with laws and regulations. But literature on land tenure and property rights has shown that law can never completely lay out all the pathway and approaches of resource access, because there are complex and overlapping webs of power (Goldstein et al., 2004; Ribot et al., 2003). For example people can make use of forum shopping (the ability of some actors to select the arena of law, custom or convention that will benefit their aspiration), in this case they can sometimes select from their customary law and sometimes from the lawful law, these laws can overlap and are complex (Ribot et al., 2003). According to Shipton (1994) African tenure are neither communal nor individual in essence. Early frequent studies often failed to recognize the complex sets of rights and responsibilities, through which land tenure issues are defined (Mackenzie, 2003).

Land tenure in Sub-Saharan Africa can best be conceptualized in terms of rights of access and control instead of ownership (Mackenzie, 2003). Ownership is something Eurocentric where you have exclusive control over your land. Property rights in Africa are a complex system of overlapping rights. Property in this case can be seen as a 'bundle of rights' (Baron, 2014). Each person holds a bundle of rights related to specific functions connected to the land, like cultivation and grazing. Land rights are thus just one right, but more rights next to each other.

Before the colonial era Africans gained access to land, labour and capital for agricultural production through social relations and membership to a social community (Berry, 1989). It is custom for customary land tenure systems that ownership lies within the community (Lastarria-Cornhiel, 1997).

In these communities rights per person varied according to gender, status and office holding. Marriage, family structure and inheritance were important in customary land tenure systems (Lastarria-Cornhiel, 1997). Rights to access land and labour were in pre-colonial times rarely sold for cash or material goods. Under colonial rule mechanisms of access to land changed. As we have mentioned before the formal legal land right registration has effect on gender relations. Men are usually the legal land right owners and thus the rights of woman are not taken in to account in the formal legal land right registration processes. But customary law still remains a means through which people assert rights to land (Mackenzie, 2003).

The spread of the Islamic culture and the particular gender ideology of the colonisers, reinforce male dominance and stimulated a male domination over land and labour (Lastarria-Cornhiel, 1997).

To answer the question in what way the agrarian transformation has influence on land tenure and land rights, we first have to answer two other questions. The first question is how gender relations are shaped through land rights. The second question is if land security has influence on the way farmers adopt new technologies.

3.1 How are land rights shaped through gender relations?

The evolutionary theory of landholding systems assume that 'Traditional' landholding systems transform and move more into the market (Ystrom, 2002; Amanor & Pabi, 2007). According to Boserup's thesis landholding systems move into individualised systems due to the growing land scarcity correlated with increasing population density, improvements in farming technology and the emergence of agricultural markets (Salehi-Isfahani, 1988). Shipton (1994) states that the way an individual or communities settle and agriculture is technique change with demographic growth. Boserup argues that population density has led to the intensification of agriculture and the increasing of productivity (Plange, 1979). According to the evolutionary theory land titlement brings security and creates investment.

But the evolutionary theory does not take into account female land claims and their insecurities. Gender is central for understanding the transformation of landholding systems. A view which was proposed by Jean-Philippe Platteau argues that titling should be banned all together, because it cuts off the spontaneous shift to individualization (Yngstrom, 2002). Because there are different overlapping customs and laws individual land rights can create uncertainties for those who rely on customary laws. Customary tenure systems still play an important role in African rural communities. New systems of land tenure do not seize existing rights (Mackenzie, 2003). But the introduction of

formal land administration processes have added a new layer of interpretation and debate, which complicated rather than clarified the nodes of authority and exclusion (Goldstein et al., 2004).

Woman get access to land via their husband or family (Shipton, 1994). Thus woman rely more on the land allocated by their family, while men are more active on the land market. Formal land registration processes only take into account the rights and obligations of the legal landholders, these are men, the rights of the woman who are working on the land are not recognized (Yngstrom, 2002; Goldstein & Udry, 2004; Doss, 2001; Lado, 1992) . Thus woman will be disadvantaged in the formal land registration processes.

3.2 Mechanisms that influence the access on land in relation to gender

Ribot and Peluso (2003) determine seven mechanism that have influence on access to land. With mechanisms it implies means, processes and relations which help people to gain control and maintain access to resources, in this case land. Access to land is determined by gender relations.

Access to technology. Access to technology shape the way people can make use of new technology which eventually lead to higher yields. These new technologies include the use of new agrarian inputs, chemical fertilizer and new sources of information (Doss, 2001). Male farmers are more likely to adopt modern agricultural technologies, than woman (Akudugu et al., 2012; Doss, 2001, Morris & Doss, 1999. Men control the productive resources like labour, capital and land. The willingness to adopt new agricultural technology depends on the farmers expectation multiply of output and production. Access to technology is gender related, because men are more likely to adopt modern agricultural technologies then woman.

Access to capital. Access to capital is a factor shaping who is able to gain from resources by controlling or maintaining access to them. Access to capital is mostly linked to the fact that it will generate access to wealth, in form of finances and technologies. Via the purchase of rights people can control access to resources and capital can be used to maintain resources by using it for paying rents and/or access fees. A lot of new technology is capital intense, only those farmers who have enough wealth will take the risk without the fear that the new technology will fail and his or her livelihood will negatively be affected (Akudugu et al., 2012). Credits may also be given by the lenders only when they think that the farmers can eventually pay the loan (Doss, 2011; Hill & Vigneri, 2014). This means that large scale farmers who produce for the market may have better access to credit then small scale farmers who do not produce for the farmers. Woman have more constraints in accessing capital than men, because woman usually have no legal rights over the land and thus lenders are less likely to be willing to lend to woman because the lack these legal rights (Guyer et al., 1988).

Access to markets. Market access is the ability of actors to gain, control or maintain entry into exchange relations. Access to markets may affect the ability to benefit from a resource. Physical distance to markets is important, because some crops will rot within a certain amount of time. But also the access to transport services and market information, like radio and mobile phones, are important (Hill & Vigneri, 2014). It is the common assumption that men mainly cultivate crops for the market, woman cultivate crops for subsistence use. But due to urbanization and the demand for food within these cities, woman have more access to local markets.

Access to labour and labour opportunities. Labour is a second primary factor of production. Access to labour opportunities are the abilities work for yourself and to maintain access to hire labour. Market access can have effect on the labour opportunities and eventually in the allocation of benefits. The farmers access to labour will affect the choices of activities and technologies the farmer will use. Labour markets reflect important gender influences, because female wage labour earn a much lower income than male wage labours (Doss, 2001). Labour access is often more constrained in female-headed households and also for woman within an household headed by a man.

Access to knowledge. Access to knowledge and information may have a big impact on technology adaptation and agrarian productivity, because it increases the ability of an individual to process relevant information. Expert status via privileged information and education can give people powerful labour opportunities. Education and adoption create favourable mental attitudes for the acceptance on new practices. A lot of new technology is complex and complicated, only those with enough knowledge and education will eventually take over this technology (Akudugu et al., 2012). Men are much more likely to have attended school than woman (Goldstein et al., 2004). In a sample done by Goldstein in 2004, men had 4 yeas more of schooling than woman. Gender differential in farm plots is larger if you condition education as well, because more education is negative correlated with plot profits. Lower levels of education among female famers can be a factor for woman receiving less information.

Access to authority. Strong relationships with people or institutions who implement law, can have influence who benefits from the resources. Land rights over plots vary within the power and status of the owner.

Access through social identity. Access to resources is often moderated by social identity. Social identity is based on age, gender, religion, status profession and education.

Access via negotiation of other social relations. Access to resources depend on the ability to negotiate successful with social relations. Access to membership in corporations and farmer initiatives may be based on gender.

3.3 Does land security have influence on the way farmers adopt new technologies and investment?

Fenske (2011) identifies three key reasons why more complete and secure land rights eventually encourage investment.

His first claim is that land rights strengthen claims to the fruits of investment (Fenske, 2011). When the investor is convinced that he will eventually make more profit out of his investment he is more willing to invest. The type of crop a farmer introduces to cultivate might have impact on the type of contract the landlord will offer including the terms and conditions (Goldstein et al., 1999) Shifting cultivation is the main way of farming in Ghana. Shifting cultivation implies that land will be periodically put into fallow in order to restore soil fertility. It is suggested that fallowing is not only an outcome of low population density but also a strategy to manage difficult and uncertain ecological aspects. In that period the nutrients are being restored and weeds and other pests are being controlled. An additional year of fallowing the land leads to an increase in profit of 400.000 Cedis (Goldstein et al., 2004). Land rights become stronger if long-term investments are made, like tree planting. Land rights however become weaker if land is put in to fallow for a long time (Goldstein et al., 2004). But there is no strong guarantee that the person can keep the land when it is in fallow, because this was a notion of insufficient need of the land. Therefore the most feasible strategy to guarantee user rights is to keep the land constantly in use (Goldstein et al., 2004). But as noted before one year of fallowing does have a positive effect on the profit per hectare, so constant use of the land will eventually lead to a decline of profit over that land. While fallowing your land keeps you in insecurity, planting trees or building a structure helps to straighten your claim, because that is a long term investment. This insecurity over land tenure could eventually lead to the over exploitation of land. Land rights over plots also vary within the power of the owner. With power it is meant the political position of the individual and his family background. Concluding the security of land tenure will often affect the adoption of technology. Woman and poor male farmers are those with the least secure land tenure rights, and thus are less likely to adopt new technologies. But land access and tenure is not static, when circumstances change the farmers access to land might change as well (Goldstein et al., 2004).

Fenske (2011) his second claim is that land rights increase access to capital, this is because you can use land as collateral. If your land rights are secure you do not have to spend money on conflict for defending your land rights.

Fenske (2011) his third claim is that access to credit might be hindered if property rights are not well defined. If there are bumps and holes in the contract, the farmer will have less security over the land rights. The last insecurity is that the ability to capture potential gains from trade might reduce the investment in that land (Goldstein et al., 2004).

Now that we have examined important aspects of agrarian transformations, we will take a closer look at three different crops that have been transformed due to the agrarian transformation.

4. In what way has the cultivation of yam, cassava and cocoa changed and does this have influence on gender relations?

In this section we will look at three different crops that are important for the livelihoods for many people in Ghana. These crops are examined in the way the cultivation has changed in recent years and how this change has had effect on the gender relations. The three crops examined below are yam, cassava and cocoa. Yam and cassava can be seen as 'old' crops, they have been grown before the colonialist entered Ghana. Cocoa can be seen as a 'new' crop. Because cocoa was introduced by British colonisers as a way to make a lot of money for the motherland. Cocoa is also different compared to the other crops, because cocoa is only cultivated for the market, while the other crops are also cultivated for subsistence.

4.1 Yam

Yam is a root crop, which is frequently misapplied for sweet potatoes, but is certainly different (Ayensu et al., 1972). Yam is an important crop in Ghana, about 6.32% of Ghana's arable land is used to cultivate yams (Amanor, 2005). Yams make up about 16% of Ghana's agricultural gross



Figure 1 Yam mounds

domestic product.

Many scientists have predicted that yams will not be brought to the market, because they are difficult to store, vulnerable to diseases and do not adapt well to modern inputs (K. S. Amanor et al., 2007). Besides this yam is an expensive crop to grow and needs a lot of labour (Amanor, 2005). Yams are bulky and traders usually do not come to the farm themselves to trade them. So farmers have to go and look for a way to bring their yams to the market themselves. These transport costs will be high.

But during the 1970's and 1980's yam cultivation expanded in an enormous amount. In the 1990's the production of yam contributed to about 16% of the gross national product in Ghana (K. S. Amanor et al., 2007). This unexpected commercialisation of yam is due to hired labour and new varieties of yams that are less vulnerable.

In recent years however the production of yam has become increasingly vulnerable due to the decline of market price. Because the prices asked by traders is so low, the costs for cultivating the yams are not covered. This has resulted into that farmers have diversified their farm, with intercropping yam with maize and cassava (K. S. Amanor et al., 2007). Traders also force farmers to transport their yams to the main market, which brings along high transport costs. Because of the high costs of producing yams, men have entered to cultivation of groundnut and cassava.

Yam have always been seen as a men's crop, because for cultivation they need a big mound to grow in, this requires a lot of tough labour. The cultivation of yam stands for manliness and is often subscribed as the king of crops (Ozumba, 2005). Most yams in Ghana are produced in a system of shifting cultivation (Amanor, 2005). As we have noted above Yam has always been intercropped with for example maize, groundnut or cassava, woman would cultivate these crops (Amanor, 2005). But in recent times men have seen that you can make a lot of money out cultivating groundnuts, cassava and maize. While the prices of yams go down the prices of groundnuts, maize and cassava go up. This changes the way the land is divided between men and woman. While the men used to cultivate yam for one year and give the land to his wife the next year, the land is now divided into two different pieces. One smaller one for the woman to cultivate and one big one for the men to cultivate (Amanor, 2005). So the division of labour for cultivating yams have changed and in the way this shaped the way land is divided.

4.2 Cassava

Portuguese traders introduced cassava in the 16th century, it originates from Brazil (Nweke, 2005). Cassava is one of the most important staples in Africa (Nweke et al., 2002). Cassava supplies 38.6

percent of the calories required for Africa (Okigbo, 1980). Besides being one of the most important staples, it is also one of the cheapest forms of calories and helps the rural poor to survive (Nweke et al., 2002). It can be produced with family labour, land and manual labour, making it an attractive crop to grow for poor farmers (Nweke, 2005).

Although cassava is rich in calories, they have a lack of proteins, fat and some other minerals and vitamins (Okigbo, 1980). Nweke (2002) notes that cassava serves three roles: as a famine-reserve crop, a rural food crop and as a cash crop.

Cassava is sometimes cultivated as a famine reserve (Nweke et al., 2002). Cassava suits the role of famine reserve very well because it adapts to poor soil on which other crops would fail, its harvest can be delayed and it can be planted any time of the year. If crops like maize and rice die because of drought, farmers will harvest cassava.

Cassava is often characterized as a woman's crop, because it is the common thought that women are the principle grower of the crop (Timothy et al., 2006) (Nweke et al., 2002). This association is derived from a lot of factors including the low market value of cassava and low input requirements and drought tolerance (Forsythe et al., 2016). But this is a misleading statement (Nweke et al., 2002). Both men contribute to the cultivation of cassava. Women contribute to the cassava cultivation with high labour intense and non-mechanical activities. While men's contribution to the cassava cultivation is often mechanized and commercialized (CTA and FARA, 2011). This division of labour is influenced by power intensity of the different tasks that need to be performed (Nweke et al., 2002).

The cassava yield are lower on women's plots than men's plots (Nweke et al., 2002). This can be related to the fact that the land has a lower soil fertility and the cassava is harvested earlier on women's lands than men's lands. This can also be a result of women's relatively low access to credit and inputs. For example men have more access to information than women, because they are more socially mobile (CTA and FARA, 2011). Men also seem to have more access to formal credit than women, because they are formally the land owners (CTA and FARA 2011).

The statement that cassava is a woman's crop could not be valid because men usually own the cassava fields (Nweke et al., 2002). As we have seen in the piece about yam, cassava changes towards a cash crop. With this the gender division of labour changes.



Figure 2 Cassava as a woman's crop

Nweke (2002) states that when cassava is grown as a subsistence crop for home consumption, women are the dominant participants for production. But when the crop is grown as a cash crop for urban centres, men are the dominant participants in production.

The introduction of labour saving technologies for cassava has redefined gender relations (Nweke et al., 2002). When cassava cultivation becomes increasingly mechanized, the proportion of participation by men increases.

Traditionally cassava was produced as a subsistence crop for home consumption. But due to urbanisation and consumer demand, there is increasingly more demand for cassava in rural areas (Nweke et al., 2002). This cassava transformation could emerge due to new high-yielding cassava varieties and labour-saving harvesting methods (Nweke et al., 2002). This transformed cassava from a subsistence crop to a cash crop (Nweke et al., 2002). This commercialisation of cassava may be disadvantageous for women. It is necessary to make sure that the shift from manual harvesting to mechanical harvesting does not put women in a disadvantaged position in terms of employment and income. One of the most important factors for women to increase their commercial cassava activities is access to secure land (Forsythe et al., 2016). This is often a constraint because legal land tenure systems only look at the formal land owner, which are often only men, and do not look at the people who are actually working on the land. Labour availability and the amount of women's time also affects the ability to commercialize. Women who have children lack time to invest in commercial activities (Forsythe et al., 2016).

4.3 Cocoa

Cocoa is a tree crop which has an average life-cycle of twenty to thirty years (Vigneri et al., 2009). Only after ten years the tree has reached its full production capacity. The technologies needed to cultivate cocoa are working capital to hire labour and chemicals to spray the trees to control pests and diseases.

The cocoa production is a significant share of the total amount of agricultural production in Ghana. In 2007 cocoa production accounted for 10 % of the total crop and livestock production values and contributed to 28% of the agricultural growth in that year and provided a livelihood for over 700,000 households in Ghana (R. V. Hill et al., 2014).

The export of cocoa is related to the colonial agro ecology. Pre-colonial farming patterns did not have connections with cocoa farming (Plange, 1979). But when the colonisers found out that the climate and soil of the Gold coast is ideal for growing cocoa and that you can make a lot of money out of cultivating cocoa, the export boomed (Briggs, 2014). Within a very short period, indigenous people

had adapt cocoa farming, beside their own particular economic activities (Guyer, 1980). The intensification of the cultivation of cocoa lead to the disproportionate demand for labour, and thus lead to migrant labour, especially male labour. As we have noted before this migration of male labour changed the gender division of labour. Because woman were left at home to cultivate the farm, while men migrated to cocoa plantation s to earn money. The provoke cultivation of cocoa lead to a change of the wealth in West-African societies (Guyer, 1980).

Cocoa is a cash crop and is typically thought as a men’s crop (Doss, 2002) (Guyer et al., 1988). Cocoa is disproportionality grown by men. Female participation in the cocoa sector is extremely low (Vigneri et al., 2009). Woman represent only 20 percent of all the cocoa farmers (Vigneri et al., 2009), and those who cultivate cocoa often have limited access to credit and inputs and cultivate smaller plots. Cocoa farming can be good for female farmers because it can provide woman with more secure ways to gain land rights and it provides economic security (Vigneri et al., 2009).

Access to land is critical for the investment in cocoa production. Only when farmers assume that they will have long term access to land, they will invest in the land. Cocoa plants are trees, this has positive influence on the long term investments people make on cocoa plantations. Because having trees on your farm gives more security over land rights than having to fallow for a long time (Goldstein et al., 2004).

Access to labour and credit are critical for cocoa production. This might be the scarcest resource for female farmers (Vigneri et al., 2009). Female cocoa farmers have difficulties receiving male labour, because men and woman are in different labour groups. But men are needed for the physical intensive tasks (Croppenstedt et al., 2013). Because there is a gender division of labour within



Figure 3 Cocoa beans

cocoa farming. Men are obligated for clearing and tree felling. While woman are obligated for less physically demanding tasks, like harvesting the trees and weeding. Woman adoption rates of fertilizers are lower than men, which suggests that there are gender differences in accessing productive inputs (Vigneri et al., 2009).

Cocoa production can be a good opportunity for female farmers for two reasons. The first one is that it can provide woman a more secure way to gain rights to land. This is because cocoa is a tree and tree plantations give more secure land rights (Vigneri et al., 2009). And the second reason is that cocoa can provide for an economic security, because it represents over 75 percent of the income of farmers in Ghana.

4.3.1 Development of cocoa cultivation

Amanor (2009) sights four phases in the development and decline of export crop cocoa in the frontier agro-ecological zone in Ghana.

Phase one: the export crop production of palm oil began in the nineteenth century in the south-east of Ghana. In the late nineteenth century cocoa replaced palm oil as the main export crop of Ghana. Because cocoa needs a different and wetter soil than palm tree, the plantations moved to the forest region (Amanor, 2009). In the early days of cocoa farming, labour was a big constraint. Migrant farmers emerged to cultivate the cocoa plants. Up to 1911 most of the cocoa produced in Ghana was produced and cultivated on land bought by migrant farmers (P. Hill, 1961). These migrants had been familiar with the cocoa tree before the migration started. They migrated to the forest area of Ghana, because the soil was better to cultivate cocoa than in their home village (P. Hill, 1961). This introduction of migrant farmers changed the traditional system of that land of a man was passed on to a linear successor, and not to a brother or son (which used to be the common direction) (P. Hill, 1961). In this phase land is plenty while labour is scarce.

Phase two: in the 1920's Ghana was one of the largest cocoa producers in the world. This development of the cocoa industry lead to the emergence of capitalist relations of production in the cocoa area (Austin, 1987). Colonial policies influenced the cultivation of cocoa in that time. In an effort to control speculation in land and the development of land markets, the colonisers placed all the land in hand of chiefs who were recognized as the only persons who could trade in land. This lead to conflicts about the distribution of land within the villages. During this time colonisers also began to tax the citizens. This had an effect on the migration of men, to gain wages to be able to pay for these taxes (Amanor, 2009). This growing availability of migrant labour, changed the relations in the cocoa industry. These migrant labourers were the dominant social force for the evolution of the cocoa industry in the Gold Coast. In the phase land and labour became widely available.

Phase three: By the 1970's all the suitable land available was cultivated for cocoa plantations. As land became increasingly scarce, people began to compete for land. This eventually lead to a decline in the cocoa frontier in Ghana. Youth and woman became the biggest victims of this land scarcity, because they did no longer have to guarantee to access family land.

Phase four: This land scarcity eventually lead to a crisis in the cocoa sector. Migrants moved away from the frontier and the youth did not invest in the land. But still the cocoa sector is one of the biggest export sectors in Ghana.

Discussion

Received wisdom is an important part of this paper. With received wisdom we mean information and knowledge that people assume is right, without revisiting or examining if it is actually true (Leach et al., 2000). Our focal point now is the ambiguity of gender crops and land tenure systems.

This paper highlights the discussion about the distinction between male and female crops. In section two we started by making the distinction that men cultivate cash crops while women cultivate subsistence crops. This is mainly related to the cultural belief that woman have to take care of the children and have to make sure there is a meal on the table, while men bring cash income into the family. These classical theories have been used by developing agencies for a long time (Doss, 2002). Policy makers and developing agencies are aware that you need to take gender relationships into account in their programs and analysis. They have spent a lot of time and resources on research which will benefit woman. If crops could be categorized as either male or female, developing agencies would have an easy job. During the early work on woman's agriculture it was believed that if you would just take into account woman's roles and responsibilities, woman would eventually benefit from the project. But this distinction between a woman's and men's crop is not that easy. As we have noted before, the cultural distinction between men's and woman's crops may not match the current practices in African households. For example the scent of cash has brought men into cultivating woman's crops and new crop varieties have made distinction between cash and subsistence crops ambiguous. Also the assumption that woman do not have access to markets has changed as well. With the arrival of big urban spaces, local markets have developed. With this development woman are more and more involved with the cultivation of crops for the local market (Von Braun et al., 1989). Gender relations are thus dynamic and adapt to different circumstances.

This uncertainty of gender crops is important to take into account. Developing agencies and policy makers have to take into account that gender relations are not static and that the gender division of labour changes and is dynamic. Development agencies should not overlook the role of woman in African agriculture, they have to find ways so that information and training also flows into the direction of woman.

Central to the question of food production is access to land. As we have noted in section three, woman are more likely to be disadvantaged by modern legal land tenure systems than men. Woman

usually get access to land via their husband or family. But these systems only take into account the rights and obligation of the legal landholders, these are men. The rights of the woman who are working on the land are not taken into account.

Besides these legal tenure systems, customary tenure systems still play an important role in African societies. The introduction of formal land administration processes have added a new layer of interpretation and debate, which complicated rather than clarified the nodes of authority and exclusion.

Land is thus also an important part for the implementation of developing agencies. They have to take into account that legal land tenure systems do not take into account the rights of woman and that customary land tenure systems and legal land tenure systems can overlap and thus can complicate the situation even more.

To get an better view on how agrarian transformations have shaped and reshaped cassava, yam and cocoa, more literature should be written. It was hard for me to find enough information about cassava and yam, while these are one of the most important crops cultivated in Ghana. There is a lot of literature written about cocoa, but these often do not take gender relations into account.

Conclusion

In view of the above information, what can we conclude about the question posted at the beginning of the paper? This question was, in what way the agrarian transformation in Ghana has reshaped gender relations.

Aspects of this agrarian transformation are the change in market intensification, change in the object of labour, change in gender relations and class and new forms of land tenure. The agrarian transformation changes gender relations. Important parts of gender relations which have changed are access to inputs, land, technology and labour.

The colonial era was the starting point for looking at the agrarian transformation. Because colonisers implemented taxes, introduced production for export and changed the land tenure systems in Ghana. These implementations changed the way agriculture was held and eventually changed gender relations.

An important aspect of the agrarian transformation is the gender division of labour. Classical theories always have noted that woman cultivate subsistence crops, while men cultivate cash crops. This idea is based on the assumption that woman have to take care of the family, while men bring in cash to support the family. But this distinction between men's crops and woman's crops may not match

current practices in African households. With the commercialisation of crops and the introduction of new varieties and technologies, these gender differentiations undergo a process of change and renegotiation.

Another important aspect of the agrarian transformation is land tenure and land rights. Gender relations are a central factor in the transformation and organisation of landholding systems. Under colonial rule mechanisms of access to land changed. This formal legal land right registration had negative effects on access to land for woman. Woman get access to land via their family or husband. But men are usually the legal land right owners and thus woman are not taken into account in the formal land right registration process.

To answer the main question we have looked at the agrarian transformation of three different crops. The first one is yam. Yam has always been seen as a men's crop, because of the way it has been cultivated. But in recent years men have noted that you can make a lot of money with the cultivation of groundnut, a crop which has always been intercropped with yams. Groundnuts were seen as a woman's crop, but are now more and more cultivated by men.

The second crop is cassava. Cassava has always been characterized as a woman's crop. But now that cassava has changed more to a cash crop, men have started cultivating it as well.

The third crop is cocoa. Cocoa is an export crop, cultivated for the world market. The intensification of the cultivation of cocoa lead to an immense increase in the demand for male labour. This change in male migration, lead to a change in the gender division of labour. Cocoa is seen as a men's crop. Access to land is critical for the investment in cocoa production. Because woman have less access to land, they will invest less in cocoa. Woman also have less access to labour and credit, which is also required for the cultivation of cocoa.

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