Peasant maize cultivation as an assemblage

An analysis of socio-cultural dynamics of maize cultivation in western Kenya

Hellen Kimanthi

Propositions

1. The extended commercialization of peasant farmers' food practices threatens their food sovereignty in the Yala area.
   (this thesis)

2. While hybrid maize technology results in increased yields, it barely solves the hunger problem in the Yala area.
   (this thesis)

3. The impact of technical solutions to social problems will remain limited if these solutions focus solely on segments of livelihoods and not on end-users.

4. Reassembling technological interventions by the beneficiaries is a form of resistance.

5. Controlling social situations is synonymous to creating social problems.

6. The real meaning of a PhD process lies more in the process than in the content.

Propositions belonging to the thesis, entitled

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Peasant maize cultivation as an assemblage: An analysis of socio-cultural dynamics of maize cultivation in western Kenya

Hellen Kimanthi

Thesis

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For my family

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Figure 1 Maize growing in a farmer's field during chwiri in May 2017

General introduction

This thesis is about the Luo peasant farmers' practices in maize crop cultivation in situations of increased deterritorialisation[1] forces in Yala area, western Kenya. I derive the definition of peasant farmers from Van der Ploeg (2018) who argues that peasants organize and develop agriculture in a specific way and this involvement in peasant agriculture is what makes them peasants. Peasant agriculture is not static. It is a process that unfolds over time and it is intimately intertwined with both the ecosystem in which it is grounded and the society in which it is located (2018: 8). It is constantly being constructed, moulded and remoulded through practice and it reflects the specificity of the social and historical conditions that characterize the different practices (Van Der Ploeg, 2010: 14). In this thesis, I use 'peasant farmers' interchangeably with 'farmers' to refer to the Luo farmers.

I arrived in Yala for the first time on 5th December 2013 to collect data for my Master's thesis. I wanted to explore how the peasant farmers were positioning themselves in the face of 'modern' maize production technologies (hybrid seeds and inorganic fertilizers) and cooperative marketing channels that were introduced by the Millennium Villages Project (MVP). At that time, MVP was phasing out. As my host (a lady I connected with through a previous researcher) drove through Yala town, she pointed at a structure standing behind some kiosks at the open air market. "This is the Market Service Centre (MSC), she said, set up by MVP in collaboration with the local government. The centre was built to ensure access to market for farm produce and access to inputs. I struggled through the car window to see the structure. Apart from that MSC structure, there wasn't much in terms of 'development' that indicated the presence of a high profile project as I had expected. There are plenty of notice boards that are the silent witnesses of many interventions implemented in the area over the years including those of the more recent and current ones such as the MVP and One Acre Fund (OAF). Across the town centre and in the villages, elements of deterritorialisation forces can be spotted at various places in the form of prints of some of the organizations that have worked in the area. These include T-shirts or other fabric prints, printed farm tools such as wheelbarrows, and printed vehicles such as motorbikes and automobiles. My arrival in Yala marked an addition to the number of the many visitors including consultants, high profile politicians, ambassadors, experts

[1] I use 'deterritorialisation forces' interchangeably with 'interventionists' to refer to the organisations or agents that bring modern maize technologies to the farmers.

and also PhD researchers and Master's students who had visited the area from all over the world for various reasons and especially within the last decade.

The interventions have presented the farmers with a range of hybrid maize and information on where and how it can be acquired as well as how to use it. The farmers in this area are aware of the available technologies and their application and also how they can access them. The farmers are also linked to marketing options which the interventionists view as more organised, controllable and profitable for the farmers. To make the inputs more affordable to the farmers, credit options are offered for credit access. Despite the 'modern' maize technology, knowledge and the options presented to the farmers during the deterritorialisation attempts, many farmers still make use of the local resources which include 'local' maize seeds and the locally embedded channels for marketing that I conceptualise as territorialised forms of exchanges. The farmers in this area have continuously maintained the cultivation of 'local' maize varieties either as the only seeds or in combination with the hybrid seeds. They also use manure to enrich the soils. I use the term 'local' to refer to the maize that the farmers identify with as belonging to them as opposed to the improved varieties that have been (re)introduced in the area over time through various interventions. These local maize varieties come in different colours such as yellow, a mixture of black and white, white or mixed colours, and they have a longstanding history of use in Luoland. They constitute an important part of the diet of the Luo and part of their culture as well. The Luo refer to them as *nyaluo* maize[2].

The farmers in this area have practical knowledge of the hybrid maize technologies as well as the various ways in which they can make it work for themselves. However, their decisions are shaped by a series of complex relations and practices that I analyse through an assemblage lens. My main quest is to understand the relations and practices of male and female farmers whom I conceptualize as peasant farmers and who have been exposed to 'modern' knowledge in maize cultivation, introduced to inputs for increased yields, linked to 'better' marketing channels and provided with options for input access, but still continue engaging with and enriching the local resources (*nyaluo* maize and the use of manure) and the territorialised forms of

[2] In this thesis I interchangeably use 'local maize varieties' to refer to *nyaluo* maize. This is the maize that was introduced to Luoland during the (pre-)colonial period and has been maintained over the years by the farmers despite the many maize varieties that have been introduced in the area. These varieties are also referred to as 'land races'.

exchanges in Yala area. Assemblage thinking helps to explore the inner workings of the farmers' maize cultivation and marketing practices as assemblages of various human and non-human elements. This is contrary to the interventionists' approaches that focus on certain elements such as 'affordability of inputs', 'knowledge of maize technology', and 'input and market access' and attach these to phrases or labels such as 'lack of' for intervention. To understand the Luo peasant farmers' relations and practices as they navigate interventions requires disassembling various elements that make up the Luo assemblage and understanding how these elements interact with each other and with external elements to form a continuous process. I therefore employ assemblage thinking in this thesis as a primary theoretical resource.

Analysing the Luo peasant maize cultivation as an assemblage avoids binary categorization and looks into the real and practical issues surrounding peasant farming. The analytic value of assemblage lies largely in the ability to 'tease apart' the constitutive parts of the heterogeneous elements that make up the assemblages (Li, 2014: 590; Mclean, 2017: 2). This implies that peasant farming is conceptualized in terms of the elements that play a role in it and these include the external ideologies as well. Even when an intervention does not succeed, there are always some elements that are retained and these form part of the peasant farming assemblage. As new elements are added to the assemblage, some of the older elements or practices may be excluded from the assemblage. This becomes a continuous process, making binary fixed categories irrelevant at any point in time. I explore the peasant farmers' relations and practices in two ways; first, how the peasant farmers relate to the development agents that indicates how some external elements are integrated into the farmers' practices as others are filtered out and second, how the farmers relate amongst themselves through cultural and social practices. These elaborate on how the Luo assemblage is organised in maize cultivation, the changing dynamics and the influence from the deterritorialisation forces; all of which make the Luo assemblage exist in a flux.

Study area

I conducted this research in Yala sub-county of Siaya County in Nyanza Province in western region of Kenya. The County lies between latitude 0° 261 to 0° 281 north and longitude 33° 581 east and 34° 331 west with a total surface area of approximately 1540 square kilometres. Administratively, Siaya County has six sub-counties; Ugunja, Yala, Ugenya, Siaya, Bondo and Rarieda (Oloo *et al.*, 2013: 373). The study was specifically

done in Yala sub-county, in 6 villages in Sauri and Nyamninia sub-locations. Yala lies along Kisumu-Busia highway, about 40km from Kisumu town. Yala town is a cosmopolitan town and it is located at the convergent point of Sauri and Nyamninia sub-locations which means that a part of the town lies within the Sauri sub-location while the other part lies within Nyamninia sub-location. Yala sub-county is densely populated. It is also the home of one of the Moi University campuses, Odera Akang'o campus, that draws students from all over the country and beyond. The campus is named after a 19th century no-nonsense Chief Odera Akang'o, who used to force his people to attain formal education and cultivate the land as he strongly condemned laziness.

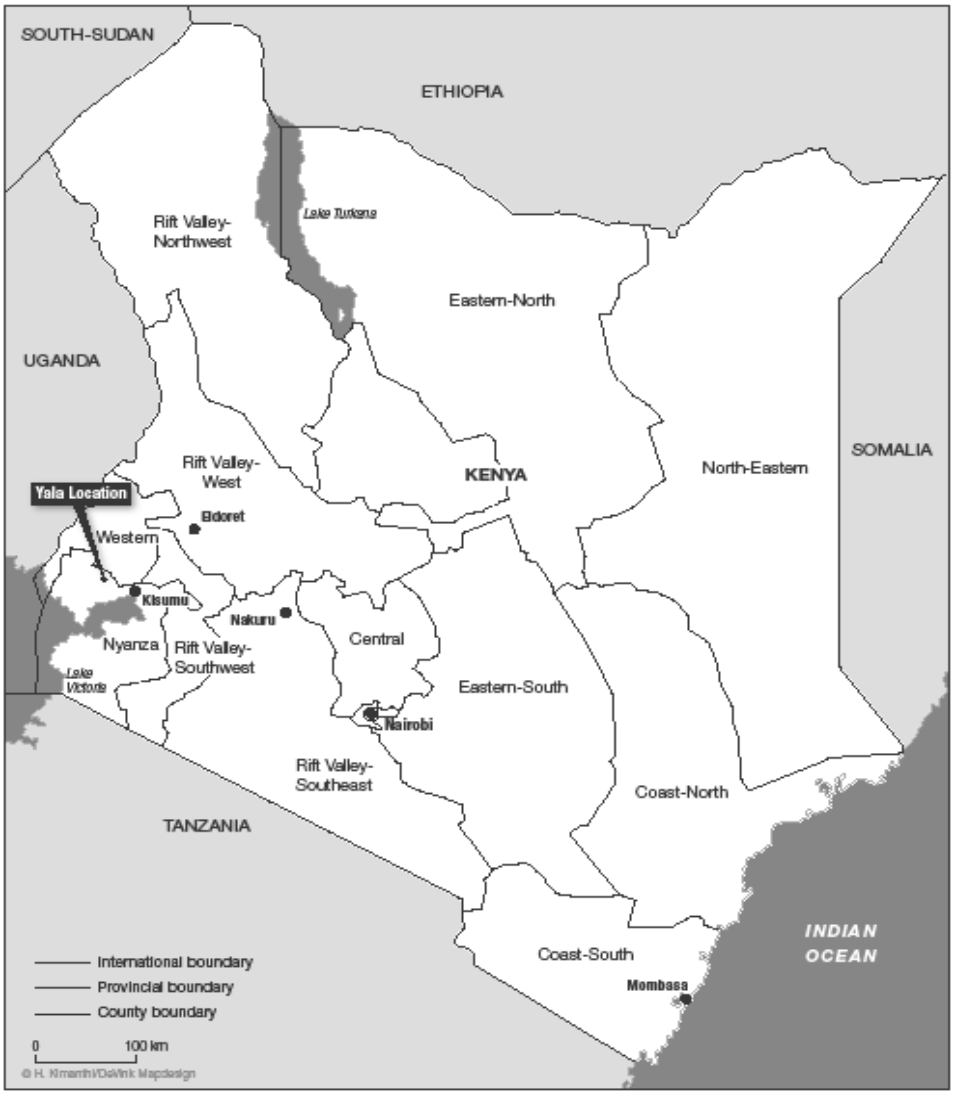

Figure 2 Map of Kenya showing the location of the study location, Yala

My research forms part of a series of longitudinal studies (Hebinck, 2001; Hebinck & Mango, 2001; Hebinck & Mango, 2008; Hebinck *et al.*, 2015; Kessel, 1998; Kimanthi & Hebinck, 2018; Mango, 1996; Mango, 1999, 2002; Mango & Hebinck, 2004, 2016) initiated in 1996 in Sauri and Nyamninia sub-locations of Yala sub-county. These studies analysed the dynamics generated by a range of socio-technical interventions

over a long period of time such as the Green Revolution, Agro-forestry and Zero-grazing. They focused on the impacts of these interventions on rural livelihoods and the social fabric in the villages and how these interventions were contested, re-assembled and negotiated at the house and farm level to resonate with the local conditions and shared preferences.

I purposively selected the villages that I included in the study taking into account the villages where the previous research within the longitudinal research had been conducted. From the two sub-locations Sauri and Nyamninia, I selected three villages from each sub-location as indicated by the shaded areas in the map (Fig. 2). The three villages that I selected from Sauri sub-location are Sauri village, Nyamninia village and Luero village. These villages were at the core of MVP activities and some of the farmers whom I visited in these villages had been interviewed before, during the previous studies in relation to the International Centre for Research in Agro-forestry (ICRAF)[3] and the MVP interventions and were thus follow-up cases. ICRAF interventions began in mid-1990s and later the area became the focal point of other interventions such as the MVP and currently the One Acre Fund. In Nyamninia sub-location, I did research with farmers from Rarieda, Arude and Muhanda villages. Muhanda village was also part of the previous studies. The incorporation of the villages that were previously explored within the current study gave the advantage of documenting the changes that have occurred over the period in relation to maize cultivation and marketing. Even though most of my fieldwork activities such as observations, focus group discussions (FGDs) and case studies revolved around these six villages, I also took note of everyday life activities and social interactions through observations and interviews within the areas adjacent to the villages including Yala market, which is located at the convergent zone of the two sub-locations in Yala town, and Muhanda market.

Most farmers in Yala are peasant farmers who cultivate less than 2 acres of land. Land has been subdivided between sons over the years in addition to the increasing population that puts pressure on the land. The agricultural officers and the officials from organisations working with the peasant farmers confirmed to me that the largest pieces of land for cultivation within the area are about 2 acres. Some farmers hire out

[3] Now called World Agroforestry Centre

land in other places per rainy season to cultivate and supplement the produce from their own land.

Yala has high potential for agriculture as it has a bimodal rainfall pattern that allows for a long and a short planting seasons each year. The long season, known as *chwiri*, receives an approximate rainfall of about 1120mm and occurs between March and June while the short season, known locally as *opon*, receives an approximate rainfall of about 710mm and occurs between September and December according to rainfall data collected between 1996-2004. However, it is important to note that the rains are becoming more and more erratic. The area is a rain-fed maize based farming system (Mutuo *et al.*, 2007: 10). Water is readily available as there are natural springs across the villages that provide clean water to the people throughout the year and the villagers do not have to travel long distances to get the water, especially in the two sub-locations where I did my research. Additionally the villagers make use of rain water and water from Yala river which is non-seasonal.

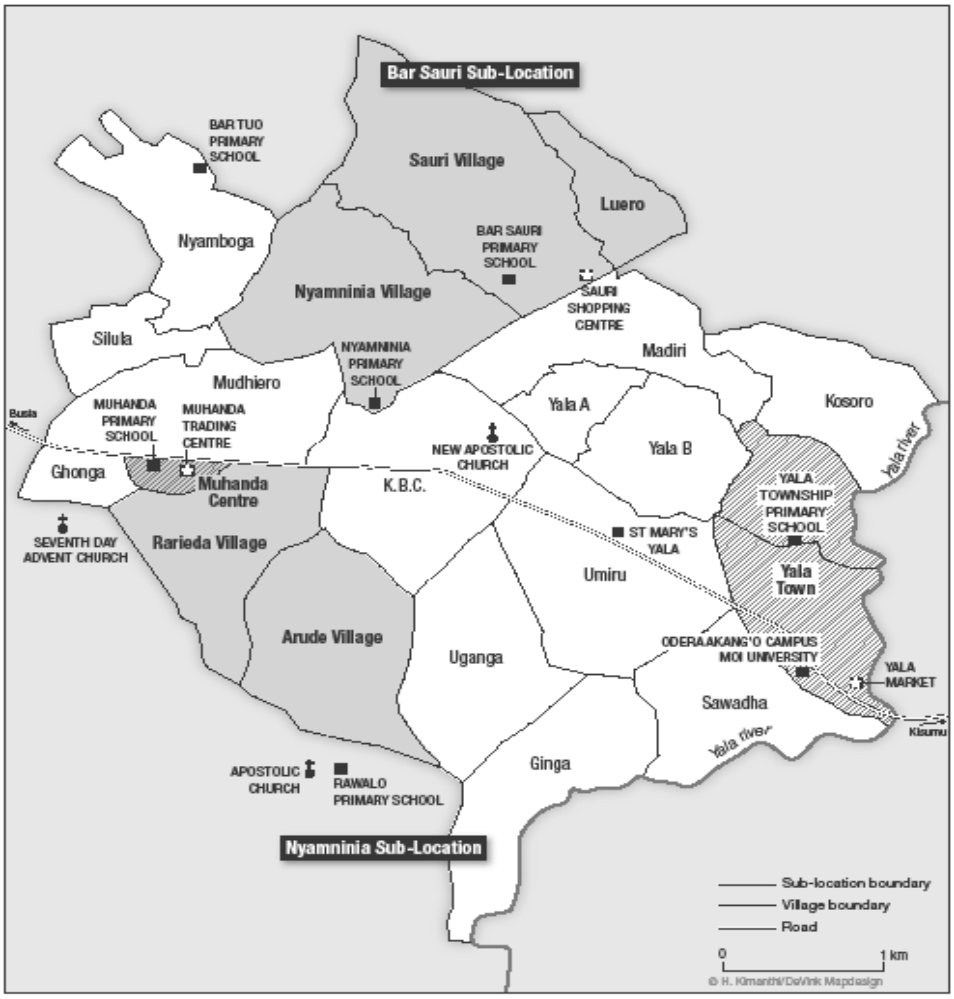

Figure 3 Map showing the two study sub-locations and the villages

Yala area is one of the areas in Siaya County that has been subjected to a range of interventions not only recently but also during the colonial times. The region's past interventions have been studied and documented (Carlsen, 1980; Cohen & Odhiambo, 1989; Crowley & Carter, 2000; Hay, 1972; Heyer, 1975; Kitching, 1980; Obudho & Waller, 1976; Ogutu, 1971). These studies inform the historical and contemporary accounts of the processes of agrarian transformation in western Kenya. In the recent past, the area has received much financial and technical assistance from international organisations. ICRAF (Sanchez, 1999, 2002) began research in the Sauri sub-location in

the early 1990s in partnership with the Kenya Agricultural Research Institute (KARI) and Kenya Forestry Institute (KEFRI). Africa Now, which is a UK based charity organisation, worked with the communities in the late 1990s to support the building of spring-protection cisterns. CARE-Kenya and Heifer International also worked here in the 1990s (Schlesinger, 2007). The MVP started operating in 2004 (Mutuo *et al.*, 2007; Mutuo *et al.*, 2006) and has attracted a range of researchers, some of whom came in independently as academic researchers (Haro, 2014; Wanjala, 2016; Yuksel, 2013 among others) as well as myself during my MSc thesis study and for my current research. Currently, One Acre Fund is working with the peasant farmers to provide them with access to maize technology.

The Luo ethnic group[4]

The majority of inhabitants of Yala area belong to the ethnic group Luo. The Luo belong to the Nilotic group and are believed to have migrated from Sudan sometime in the 16th Century (Cohen & Odhiambo, 1989; Ocholla-Ayayo, 1976; Ogot, 1967). When they arrived in Kenya they inhabited the territories bordering Lake Nyanza, which is now known as Lake Victoria in the western part of Kenya. They were involved in agriculture, fishing as well as pastoralism and their main diets were composed of fish, grain and milk. In particular, cereals such as sorghum, millet and legumes were some of the agricultural crops that were deemed important and that one must have had before migrating or setting up a new homestead (Ocholla-Ayayo, 1976: 13-18). The Luo also traded with the neighbouring communities such as the Abaluhya (Hay, 1972). They practised shifting agriculture mainly for subsistence purposes and and later on adopted new crops such as maize. They planted through broadcasting the seeds (Mango, 2002: 37). With a more settled life, they gradually adopted other ways of cultivation such as crop rotation and eventually the more recent cultivation technologies such as trench planting and line planting using both the hybrid and the 'local' maize varieties.

[4] The Luo ethnic group has been deterritorialised through intermarriages and interactions with other cultures. They are not an isolated group but are actively interacting with other ethnic groups in Kenya and other areas. What I describe here is the 'typical' Luo ethnic group but it is continuously in a flux.

The Luo homestead; the dala[5]

A (typical) Luo homestead (*dala*) consists of a site where the domestic groups build their houses, in the surroundings of which they have their fields. The smallest social unit in the homestead is the "household" usually consisting of at least two generations, that of the father and the mother(s), and their offspring. Several homesteads make up a *gweng* and resemble what we now recognize as villages or settlements. Residence in a village is based upon kinship – or more specifically people that descend from the same grandfather *(Jokakwaro)* – but also upon alliances developed out of strategic considerations (Cohen & Odhiambo, 1989: 14; Southall, 1952: 27). This settlement pattern remains significant and recognisable today.

The Luo households consist of polygamous as well as monogamous families. A Luo man is culturally and legally permitted to marry two or more wives. It had not occurred to me that polygamy ideology is very much alive for young people. I come from a community where the practice is not so common and my assumption was that women do not want to have a co-wife nowadays. This assumption changed when one day, during my fieldwork, I met a lady who actually asked me to be her co-wife. I had gone to one of the farmers, an elderly lady by the name Akinyi, whom I used to visit frequently. I found her son and his wife, who stay in Siaya town, at home. They had come to assist their mother with maize harvesting. I joined them in the harvesting activities, as I always did whenever I found Akinyi doing her farm work. The couple had been informed of my frequent visits to the home and of the farm activities I would do whenever I visited. They thought I was hardworking. The wife later on asked me if I would like to join her and 'build the *dala'* together, which basically meant to be her co-wife. I was surprised but then I realised that polygamy is a common practice in the area and not a thing of the past.

In the past, the men used to marry many wives, according to their capabilities, and each one of the wives had a position within the homestead. The setting of Luo homesteads is continuously changing but some basics still remain such as the cultural positions of wives within the homesteads and the way the structures/houses are arranged within a homestead following the order of seniority. The house of the first /eldest/senior wife, *mikayi,* who is the 'co-owner' of the home, is constructed in the

[5] *Dala* is a Luo word that refers to a homestead or home. It constitutes a man, his wife or wives, children (and grandchildren).

middle back of the homestead with the house facing the gate or the main entrance. The second wife is known as *nyachira* and her house is constructed on the left side from the gate, right of *mikayi's* house while the third wife's house, who is known as *reru,* is constructed on the left side of *mikayi's* house and the right side from the gate. The seniority order of marriage is reflected in the construction of the houses for the wives who get married later. The next three wives married to the man are referred to as *nyi udi* and they get attached to the first three wives as their daughters or helpmates. The last wife is referred to as *chir ruako lawu.* It's a complex setting (Mango, 2002: 71; Musandu, 2012: 548-552). The co-wives are referred to or rather refer to each other as *nyieka* which literally means jealousy or rivalry and 'my co-wife' can be translated as 'my partner in jealousy'. Luo marriages, however, are known to be stable (Hebinck & Mango, 2008: 43; Musandu, 2012; Potash, 1978: 384). Currently, *nyieka* also refers to the wife of the brother-in-law and there are not many women married to the same man. The homesteads that are polygamous nowadays comprise of an average of two wives.

Cultural rituals performed during planting and harvesting of maize

In the past according to Luo culture[6], cultural rituals for planting and harvesting (*golo kodhi* and *dwoko cham*) were performed at the village level. This is a highly territorialised cultural norm that is well understood and taken into account by everyone. Failure to observe the cultural rituals is believed to carry deadly repercussions. These rituals follow a seniority principle. During the planting time in the past, the most senior person (*Jagol Pur)* in the village would sow first and at this time, only seeds of food crops such as sorghum and millet were used for this ritual. Some of the seeds that were to be sown were put in the hut of *mikayi*. The man would spend the night with her before the sowing day which would be the following day. The seed had to be *koth dala,* a seed that had stayed in the family for long. *Mikayi* would then sow the seeds the following day and the husband would spend the four nights in her hut after seed sowing. If the husband was not alive, she would perform the ritual using a cock and chicken. She would throw the seeds to the chicken, make sure it ate the seeds and mated with the cock and after that she would plant. After the most senior person in the village had performed the ritual, then the ritual would be repeated at homestead and household levels following a certain order, the order of seniority. This order of seniority was followed within a lineage or *jokakwero* where the first wife of the

[6] I refer here to the definition of culture developed by Cohen and Odhiambo (1989); "culture is referred to as *timbewa* -our way of doing things" (1989: 9). It is also important to note that culture is not static, but constantly changing.

grandfather was the one to sow the seeds first. The seeds were not just taken to the farm but one had to go through the gate whose construction involved a complex cultural procedure (Mango, 2002: 79-80). Those days, there were plenty of rains and so issues with late planting were never experienced. The last person to plant had to wait for several days, if not weeks, to sow their seeds as the protocol was observed. This ritual was and is still believed to fertilize the seed and get blessings from the ancestors so as to guarantee a good harvest. It is called *golo kodhi.*

During harvesting time, *dwoko cham* (bringing the first harvest back home) ritual is also performed. In the past, the most senior wife in the village was to harvest first. She would brew a local beer, *busaa,* under instructions from her husband and invite the village elders and co-wives to a feast that was known as *fwachira.* This was offered to please the ancestors and God for the good harvest and was done by pouring some of the alcohol on the ground. The elders ate the first harvests during the ceremony before anyone else. The rest of the farmers would then harvest their crops in order of seniority and perform *fwachira* with their neighbours. These rituals also served to give respect to the elderly who are deemed knowledgeable. Failure to observe these rituals would result in *chira,* an illness that later came to be likened to HIV/AIDS symptoms due to the physical condition of the victim. Cure was/is only by a diviner who could provide *manyasi,* a herbal concoction. Nowadays, *golo kodhi* and *dwoko cham* rituals are largely performed to show respect to the elderly who are deemed knowledgeable (Mango, 2002: 79-81). The practices are changing as they are not performed with the same Intensity as in the past and not by everyone as they used to be. In some *dalas,* the rituals are performed while in other *dalas,* they are not performed. Generally, the culture of *golo kodhi* and *dwoko cham* has undergone changes in the performance arena but still remains at heart of the Luo. The cultural ritual is currently performed at the household level, with resemblance to the earlier practices that used to begin at the village level. For instance, *nyaluo* maize is used for the ritual and this does not need to be *koth dala* or rather *koth dala* has acquired a different meaning as it can be purchased from the market.

The ideology behind *golo kodhi* and *dwoko cham* practices is based on the ritual performances involved when a gate is being constructed as a man establishes his own homestead. Gate making is a complex practice that involves the presence of the man, his eldest wife *mikayi,* the eldest son, elders who are usually men and a diviner. Other women of the homestead are not allowed to participate in the ritual. A cock, an axe

and the fruit of Sodom apple (*Solanum incunam*) are presented during the ritual (Cohen & Odhiambo, 1989: 11). The son carries an axe and a cock which symbolises defence while the *mikayi* carries the fruit of Sodom apple (*Solanum incunam*) that symbolises fertility. At the entrance to the homestead, three posts are installed; one on the left side, another on the right side and the other one is crossed over the two posts. The cock is then slaughtered by the elders and hung over the overhead post in the middle of the gate with blood dripping at a point where a *manyasi* container (a herbal concoction) is later buried. The cock is then roasted at the gate and eaten with *ugali* (maize meal) prepared by *mikayi.* A covenant is made between the members of the homestead and the ancestors. The diviner administers the *manyasi* to the man, his eldest son and *mikayi,* all of whom at this moment represent all the members of the homestead, to unite them and so that they can observe the covenant they make with the ancestors. After this gate making ritual, the gate acquires a sacred meaning and thus it is unthinkable that, for instance, a young co-wife would pass through the gate to go to the farm and sow seeds before *mikayi* has done so. This ritual strengthens the practices of *golo kodhi* and *dwoko cham,* a practice that further territorialises the Luo culture (Mango, 2002: 81).

Overview of the chapters

The next chapter in this thesis (*chapter 2)* provides the theoretical framework and methodology that set the direction of the thesis and give the frame through which the data is analysed. I have structured the four empirical chapters of this thesis as follows. The first empirical chapter, (*Chapter 3*) is a historical analysis of the processes of maize entry and spread in Kenya with a focus on western Kenya. The history outlines the dynamics of assembling, disassembling and the reassembling of maize for it transforms from an 'outside' crop to be equivalent with food security. Chapter 3 examines the historical conditions that include colonial and state policies, strategies and systems used to expand and maintain the production of maize. The historical elements of assembling maize explored in this chapter do not only demonstrate how maize was adopted, expanded and transformed through hybridization and green revolution but also how the local maize has been maintained by the Luo farmers over the years despite the Green Revolution interventions. *Chapter 4* therefore explores recent interventions, that is, the Millennium Villages Project and One Acre Fund to detail how the farmers position themselves when faced with interventions or deterritorialising forces through various practices and how they relate to the interventions. It explains the elements and processes of deterritorialisation as well as

territorialisation and mainly how the deterritorialisation elements are disassembled by the peasant farmers through various practices. *Chapter 5* is about how the farmers engage in territorialised forms of market exchanges, largely withdrawing from the more controlled and regulated markets such as the cooperatives. I explain the dynamics of markets or forms of exchanges in the area that are largely embedded within the community and make use of social networks and social relations. These forms of exchanges seem sustainable and reliable to the farmers. I explain why some of the newly introduced marketing channels such as the cooperatives introduced by the Millennium Villages Project have not been successful in maintaining themselves within the Luo assemblage. *Chapter 6* explores the practices and relations of men and women in maize cultivation. It explores three aspects; 1) the relations of senior and junior women within the homesteads and how this affects food (maize) availability for the specific households 2) land ownership and access for men and women in maize cultivation 3) the actual practices of men and women in the fields. In this chapter, the meaning imbued in the practices is revealed that it is not attached to being either male or female. *Chapter 7* is a concluding chapter that ties together the theoretical and empirical data throughout all the chapters with concluding remarks.

Chapter 2
Engaging with theory and methodology

Figure 4 A road leading to Muhanda trading centre

Introduction

In this chapter I describe the methods I used to collect my data and the theoretical orientation of the data analysis. As I analysed my data in the field, I encountered endless connections that are diverse, non-linear, complex and continuously emerging and changing. In order to explain these dynamics, I needed a theoretical resource that would take into account the various relations and practices, their changing nature, the various elements (human and non-human) that form and 'un-form' these connections, the multiple meanings elicited in the process by various actors and actants and the precarity of the existing and new associations. This situation is what forms the core of various interactions around food crop cultivation and marketing in Yala area as opposed to the social categories often used as frameworks for interventions by the interventionists such as resource-poor/resource-rich, modern/primitive, lack of knowledge /knowledgeable, men/women, formal/informal, large-scale/small-scale and even peasants as a social category. I find these categorizations problematic because they do not reflect the peasant farmers' practices that I encountered in the field. The concept of assemblage is useful in this case in understanding the various dynamics involved in maize cultivation and marketing in the area. I employ assemblage thinking as my theoretical resource to enable me to explain the peasant farmers' situation as they are always reassembling and exploring new connections. Assemblage thinking promises to rule out reification and replace such abstractions with concrete histories of the processes by which entities are formed and made to endure (Acuto & Curtis, 2014: 7; Delanda, 2006). I collected data using ethnographic methods that enabled me to closely examine the farmers' relations and practices as well as their interactions with external agents and resources. I explain the steps I took in this process during my interaction with the farmers and external agents involved in the farming activities of the farmers. I will first discuss assemblage thinking as applied in this thesis.

Assemblage thinking

Assemblage forms the core of my methodology and analysis. Assemblage thinking, derives from the work of Deleuze and Guattari (1988) and has been refined by Delanda (2006). It has increasingly gained importance in the recent past among social scientists such as in international relations (Acuto & Curtis, 2014; Higgins & Larner, 2017), human geography and rural studies (Allen, 2011; Allen & Cochrane, 2007; Anderson & Mcfarlane, 2011; Haynes, 2010a, 2010b; Mcfarlane, 2009; Mclean, 2017; Müller, 2015; Umans & Arce, 2014; Woods, 2015), policy research (Gorur, 2011; Ureta, 2014) and

anthropology and development (Li, 2007a, 2014). Delanda (2006) defines an assemblage as a whole made up of heterogeneous, interacting elements which have varied properties and capacities. He clarifies that an assemblage is not a mere collection of elements, for instance , a collection of books, apples, cookies, fabrics and balls in one place as these form a collection of 'mere things' without properties. For collection of parts to qualify as assemblage, the parts have to interact with one another to form a precarious whole that has properties of its own. A precarious whole implies that the 'whole' or the assemblage is not a permanent entity but it is continuously being modified or changing.

Assemblages have various characteristics which include the 'emerging properties' that result from constant interactions of its parts to forge new connections (Delanda, 2006; Li, 2007a). These parts have capacities, which I conceptualize as *agency,* that are exercised during the interactions. DeLanda further explains that the assemblages are irreducible, meaning that they cannot be reduced to the individual parts that make them up. For instance, communities cannot be reduced to the sum of their individual members. Each individual is a separate element, actually a different assemblage, whose way of interaction with other individuals makes up a community. The interactions of the parts of an assemblage create an internal coherence and external boundary through relations of interiority and exteriority. The relations of interiority relate to the relationships of the parts within an assemblage while the relations of exteriority imply that the parts or elements of an assemblage can be detached from an assemblage and be deployed into another assemblage whose interactions are different and thus display a degree of autonomy and open endedness. The relations of exteriority override the relations of interiority because of the flexibility of the element components to be detached to another assemblage (Delanda, 2006: 10).

The concept of assemblage can also be defined according to the processes which increase or decrease the degree of internal homogeneity. These are *territorialisation* and *deterritorialisation* processes. In the former, an assemblage can have components pursuing the stability of its identity while the latter refers to components working to destabilise, that is, forcing the assemblage to transform into a different assemblage. Territorialisation refers to how well defined the identity of an assemblage is (Delanda, 2006: 12). External interventions which bring about new knowledge, materials and new ways of organising a community, for instance, can be seen as working towards decreasing the internal cohesion of a community. Communities are normally held by

specific norms, values and practices that bind their members together. To introduce a new rule or knowledge causes tension in the community and results in different forms of assemblages. The community, which is an heterogeneous entity, may break off depending on individual choices or sharpen its boundaries to resist in varied ways and thus become more territorialised. A high degree of territorialisation occurs, for example, when a community acts in solidarity to protest against certain changes imposed on them.

Deterritorialisation on the other hand means that borders are not sharpened and elements from outside are allowed into the assemblage, resulting in blurred distinctions and hence integration. It makes assemblages open to change. This relates to fluidity as there are no clear-cut distinctions between the new and the old. A simple example of deterritorialisation is intermarriages between different ethnic groups or religions. An external element (daughter-in-law) is introduced into the family assemblage through relations of exteriority. She travels along with an imprint of her home country/city/village and some of this imprint infiltrates into the new family, such as her way of cooking, modes of cultivation and generally her ways of doing things around the home. Due to her presence, the family assemblage is never the same again since some changes have to made within the family to accommodate her. This 'de-sharpens' the family assemblage borders. Deterritorialisation leads to hybridization or rather what Long (2001) refers to as 'hybridity'. "Hybridity refers to the mixed end products that arise from a combination of different cultural ingredients and repertoires" (Long, 2001: 51).

The work of interventionists, which involves introducing new elements in to a community (Li, 2007a, 2014), can result in either deterritorialisation and/or territorialisation depending on how strongly the intervention interferes with the ways of lives of the people. Some farmers are well connected with interventionists and reap much benefit from the intervention thus opening up for changes that take place. At the same time, some other farmers may not like the technologies or their accompanying prescriptions of use and they may resist the use of the same. This results in territorialisation as the assemblage is guarded from the elements that would otherwise destabilize it in relation to cultivation practices. Territorialisation and deterritorialisation are not permanent markers of social life but they change from time to time so that an assemblage that was previously territorialised becomes deterritorialised and vice versa.

Assemblage thinking "allows the replacement of vaguely defined general entities (like 'the market' or 'the state') with concrete assemblages. What would replace, for example, 'the market' in an assemblage approach? Markets should be viewed, first of all, as concrete organizations (that is, concrete market-places or bazaars) and this fact makes them assemblages made out of people and the material and expressive goods people exchange" (Delanda, 2006: 17). It also allows for an explanation of how heterogeneous elements are able to hold together in a whole (Allen, 2011; Anderson & Mcfarlane, 2011; Delanda, 2006; Mcfarlane, 2009). Assemblage thinking provides the tools to better understand heterogeneity in social situations; how elements are assembled and disassembled to form a precarious whole. As Delanda (2006) elaborates, assemblage theory explores the concept of human agency and beyond. It includes non-human agency (expressive roles and materiality), scales/hierarchies, relations (relations of interiority and exteriority), territorialisation and deterritorialisation (decrease or increase of internal homogeneity) and coding and decoding (2006). In this case, using the assemblage lens involves unpacking an array of assemblages (both social and non-social) that brings together different actors, materials (resources such land and maize seeds), knowledge, relations and practices, norms and values and control. It also explains the precarity of assemblages, that is, assemblages are never static or fully stable; they are continuously emerging and transforming (Ureta, 2014: 305).

The analytic value of assemblage lies largely in the ability to 'tease apart' the constitutive parts of the heterogeneous elements that built up the assemblages (Li, 2014: 590; Mclean, 2017: 2). Li (2014) explores land as a resource assemblage of materialities, relations, technologies and discourses. She looks at the elements that make up a land resource for different actors and how the land resource assemblage is pulled together (2014). In their book 'Assembling neoliberalism; expertise, practices and subjects', Higgins and Larner (2017) deploy assemblage thinking to explore how neoliberalism is assembled from multiple and diverse elements. Assemblage thinking helps them to conceptualize the messiness of neoliberalism and bring to the fore the myriad ways in which developments do not fit neatly into established conceptual repertories. However, they face the conceptual challenge of how to address the problems of complexities and contradictions as revealed through assemblage thinking as may be the case for many other authors who deploy assemblage thinking.

In this thesis, I will engage with assemblage through the following concepts that are part of the defining concepts of assemblages as elaborated by Delanda (2006) and as partly structured by Bueger (2014). Bueger (2014) notes that "assemblage thinking implies the rejection of wholeness and embracement of multiplicity, the study of the practices of maintaining relations between elements and attention to different forms of material and symbolic expressivity as well as territorialisation and de-territorialisation". The concepts that I engage with as part of the reconstruction apparatus of assemblage thinking include: agency, multiplicity and heterogeneity, assembling and disassembling, relations and practices, and territorialisation and deterritorialisation.

Agency

Scholars have engaged with the concept of agency to explain social situations. Long (2001) places the notion of human agency as central for analysis. He attributes knowledge and capacity to individual social actors to process social experiences and devise ways of coping with life, even under the most extreme forms of coercion (2001: 16). Structural changes may occur due to external influence but this does not mean that the changes enter the life worlds of the individuals and groups involved without being transformed by them. The social actors are thus not to be perceived as passive recipients but active participants in the development process (Giddens, 1984; Long, 2001; Long & Long, 1992; Long & Van Der Ploeg, 1994; Long & Van Der Ploeg, 1989). This conceptualization of agency has, however, been rather limited to human beings only, with a focus on the cognitive and practices of self-organisation and resistance. Latour (2005) advanced agency to include non-human actors and actants. He notes "anything that does modify the state of affairs by making the difference is an actor or an actant."(2005: 71). Social actors and actants (or non-human actors) can be attributed with agency (Latour, 2005). Similarly, assemblage thinking recognizes that both human and non-humans have agency (Bennet, 2005; Delanda, 2006; Fox & Alldred, 2015). This agency is demonstrated in various ways. I consider the agency of various social actors such as the peasant farmers, the interventionists including the agricultural agents and NGOs, the colonial state agents and seed companies and actants such as maize and maize technology (hybrid seeds and inorganic fertilizers) in their interactions. For instance, throughout the chapters in this thesis I show how the main actant (maize) has not only influenced the (cultural) lives of the Luo peasant farmers but it has also been enriched and transformed by them. This constitutes agency of both social actors and actants.

Assembling and disassembling

I use assembling in this thesis to refer to the process of bringing elements together to form a composite whole. These elements can be non-human or human, abstract (such as policies, cultural norms, interpersonal networks and knowledge) or concrete (such as activities in market places or at the farms) (Delanda, 2006; Li, 2007a, 2014). "Assemblage involves an orientation to assembling and disassembling, as relations form, take hold and endure, but they also may change or be disrupted" (Anderson & Mcfarlane, 2011: 125). Some of the relations and elements form the core of the Luo assemblage while other elements are continuously added to the assemblage and new connections forged, for instance, through interventions. The way the peasant farmers sort out the new elements entering the assemblages consciously or unconsciously is what I refer to as disassembling as some of the elements that do not fit well with the Luo assemblage are removed from their assemblage. For instance, the farmers may be advised by agriculturists or interventionists to plant in a certain way such as putting one seed per hole but they may end up putting two or three seeds per hole to match with what they believe as a productive practice.

Multiplicity and heterogeneity

The notion of multiplicity implies an understanding of reality as multiple, that is, a rejection of singular and atomised understanding of the world. It follows that anything presented as a coherent whole is suspicious and thus becomes a puzzle for research (Anderson & Mcfarlane, 2011; Bueger, 2014: 61; Delanda, 2006). Phillips (2016) explains the concept of multiplicity as a summary of Law and Mol (2008) that "*Sheep are enacted in multiple ways. In veterinary practice, for instance, sheep become a potential host for the disease that requires diagnosis, but in farming, sheep are (among other things) members of flocks threatened by the disease as well as by the protocols put in place to eradicate outbreak. This is not just an issue of perspective (i.e., I see sheep differently from you); rather, through differentiated practices sheep become otherwise. According to Law and Mol (2008), the sheep is not one, but instead four (and more undescribed) sheep. These sheep versions, like the multiple practices, reinforce and/or challenge each other, but all of them assemble as sheep-in-outbreak*" (Phillips, 2016: 20). This brings out the various meanings and multiple practices exhibited by various actors dealing with the sheep. The peasant farmers also approach the idea of maize technology differently. Some of them have embraced the technologies presented to them by the interventions and view these ideas differently from those who disassemble them in other ways such as partial incorporation of the

knowledge or a rejection of it altogether. This implies a multiplicity of farm practices that stem from similar knowledge that advocates for a single way of farm practices such as the way to apply maize technology.

In addition to understanding reality as multiple, I also explore the multiple ways of engaging with the same ideology such as the multiplicity of practices as regards maize cultivation and market engagements, especially against the unifying nature of modernisation, for example a particular way of planting maize or marketing (through cooperatives). For my purpose in this thesis, I keep the meaning of multiplicity as close to heterogeneity as possible. Heterogeneity captures the idea of co-existence of diverse elements that still hold together such as different social norms or cultivation practices within the local settings (Allen, 2011: 154; Anderson & Mcfarlane, 2011: 124; Long, 2001: 39). Multiplicity and heterogeneity in this case erode the reduction of relations and practices to single forms of behaviours such as usually deployed by interventions. For instance, the attempts to transform the peasant farmers into 'entrepreneurial farmers' who should follow similar channels of production (use of hybrid maize technology in a particular way) and marketing through cooperatives turn a blind eye to the embedded multiplicity of practices, relations, livelihoods and heterogeneity of the actors and actants involved and the way they interact with resources that does not necessarily fit with the interveners' ideologies.

Relations and practices

The relations between heterogeneous elements are basic to the way the assemblages are organised and entail a theory of practice. They are not fixed and stable and are continuously being made and unmade and this calls for the exploration of the practical work that generate relations between the elements of assemblages (Bueger, 2014: 62). This implies looking into the way elements are assembled and disassembled by teasing apart the elements that make up the assemblages to expose the real and practical work done (Delanda, 2006; Li, 2007a, 2014; Mclean, 2017). Throughout the thesis, I show how the various practices by various actors and their relations with each other mould the Luo assemblage and the way the peasant farmers' practices are partly informed by external actors in addition to their own knowledge and cultural believes. These practices are diverse and differ between individuals.

(Re-)territorialisation and deterritorialisation

As already stated, assemblages are in the processes of being made and remade and thus in flux (Bueger, 2014; Li, 2007a, 2014; Ureta, 2014; Woods, 2015). I explain these transformational processes using Delanda (2006) elaboration of the concepts of territorialisation and deterritorialisation. I show how new elements (maize technology) have been inserted in to Luo assemblage, how they have modified the assemblage and also the ways in which the farmers tighten their boundaries in resistance to some of the elements that do not fit in the assemblage. Reterritorialisation refers to the way the previously deterritorialised environment becomes territorialized through practices that do away with the newly inserted elements in the assemblage or the way the new elements become part of the assemblage. For instance, in chapter 5, I discuss how the farmers joined a cooperative mode of marketing but after evaluating it, most of them retracted to engage in forms of exchanges that are embedded within the community such as buying and selling through their social networks within the community. This is a form of (re)territorialisation as the farmers go back to the earlier practices. I explore these processes in relation to the way external projects, that attempt to change the way the local people organise themselves around food cultivation and marketing are implemented in the community. The peasant farmers take different paths as they position themselves within the introduced ways.

Framing the Luo assemblage

The literature that touches on Luo agriculture on various issues such as land (Hebinck & Mango, 2001; Hebinck & Mango, 2008; Shipton & Goheen, 1992), gender (Musandu, 2012; Nyasimi *et al.*, 2009; Okeyo, 1980; Potash, 1978, 1981), history (Cohen & Odhiambo, 1989; Cokumu, 2001; Hay, 1972; Heyer, 1975, 1976; Kitching, 1980; Ochieng', 1987; Ochieng, 1988; Ochieng, 2002; Ocholla-Ayayo, 1976; Ogot, 1963, 1967; Onduru, 2009) and on socio-cultural issues and agro-technological changes (Hebinck, 2001; Hebinck *et al.*, 2019; Hebinck *et al.*, 2015; Mango, 2002; Mango & Hebinck, 2004, 2016) centres its discussions on Luo culture. As a way of life, Luo culture is important in the way agriculture is organised in Luoland. It forms the backbone of 'Luo assemblage'[7]. As explained in *Chapter 1*, the Luo way of assembling maize cultivation

[7] The Luo assemblage constitutes various assemblages such as in relation to gender, culture, exchange of produce etc that warrant it to be referred to as the Luo assemblage. For the purpose of this thesis, I conceptualise these assemblages as Luo assemblage or rather under the umbrella of Luo assemblage. This Luo assemblage concerns maize cultivation which includes marketing as it is an aspect of production or a goal in maize cultivation.

is embedded and shaped by cultural rituals (*dwoko cham* and *golo kodhi*), embedded in a particular physical landscape and past settlement patterns (the fortified villages, the homestead with the gate) (Mango, 2002). The cultural rituals are important as a way for the Luo to organise maize cultivation. These cultural rituals are intertwined with and shaped by seniority. Seniority requires that the eldest wife (*mikayi)* of the most senior man in a homestead has to sow seeds first and also harvest first (perform the *golo kodhi* and *dwoko cham* rituals) before the other wives can do the same in order of seniority. These rituals culturally make use of the *nyaluo* maize seeds even though this is changing. The *nyaluo* maize varieties are thus ingrained in Luo culture. That is part of how the peasant farmers organise themselves within *dala* (Hebinck & Mango, 2001; Hebinck *et al*., 2015; Mango, 2002; Mango & Hebinck, 2004; Musandu, 2012; Potash, 1978). The culture and cultural rituals are being challenged and are changing not only through the deterritorialisation of the Luo assemblage by external elements but also from within (Hebinck *et al.*, 2019). For instance, in *Chapter 6*, I discuss the way the power of the *mikayi* as accorded by the culture is being challenged by the junior women in their struggle for autonomy so that they can be able to plant and harvest any time they wish to. On the other hand, Luo culture is defended or territorialised in various ways against deterritorialisation forces that induce structural changes that go against the cultural beliefs and values and this largely portrays (re-)territorialisation processes. Mango explains this as 'distancing' from the introduced maize technologies (Mango, 2002).

The Luo assemblage of maize cultivation is heterogeneous in that the farmers make independent decisions which form the bases of their practices, especially in their interactions with external interventions although they are also guided by the shared cultural norms. This implies a certain degree of autonomy that the farmers struggle to maintain when faced with elements of deterritorialising forces. It is through the Luo assemblage that the local resources such as the *nyaluo* maize are enriched and maintained. The Luo assemblage, in relation to maize cultivation, therefore constitutes various heterogeneous elements that are both human and non-human, social and cultural relations, resources such as local maize varieties and land. The assemblage is constituted and emerging and derives its form, shape and stability from its continuous connections between the human and non-human heterogeneous elements. This implies that the Luo assemblage is continuously in a flux. As Ureta notes, 'assemblages are never static or fully stable, they are continuously emerging and transforming' (Ureta, 2014: 305). The Luo farmers, men and women, cultivate maize for both

consumption and for (market) exchanges whenever needs arise. This aspect of maize cultivation is important in the Luo assemblage as well as the way men and women relate to each other in the process of maize cultivation and marketing.

Problem statement and research questions

As part of the efforts designed to curb hunger, Luo peasant farmers have been introduced to Green Revolution technologies such as hybrid seeds and inorganic fertilizers (Dawson *et al.*, 2016; De Groote *et al.*, 2005; Djurfeldt, 2005; Mutuo *et al.*, 2006; Nziguheba *et al.*, 2010; Sanchez *et al.*, 2009; Sisaye & Stommes, 1985; Yuksel, 2013) which can be said to be part of the deterritorialisation processes. The peasant farmers have been disassembling these technologies to selectively use the elements that fit within the Luo assemblage at certain points in time. The interaction of the elements of the Luo assemblage such as the cultural rituals, organisation within the *dala,* settlement patterns, use of local maize varieties, cultural values that include inheritance and polygamy, enable the farmers to enrich and maintain their local resources autonomously. Deterritorialisation practices in maize cultivation are not new but date back to (pre-)colonial times when maize was introduced to the Kenyan people who initially cultivated food crops such as sorghum and millet (Cohen & Odhiambo, 1989; Hebinck *et al.*, 2015; Mango, 2002; Mango & Hebinck, 2004). Agricultural transformation can be conceptualized as the processes of territorialisation and deterritorialisation. Some of the elements of the new technologies have been incorporated into the lives of the peasant farmers but at the same time the peasant farmers form defence lines against some other elements. The positions of the farmers differ and so do their relations and practices. The peasant farmers' practices in maize cultivation are influenced by both 'indigenous' and 'modern' knowledges in complex ways. The projects designed to 'alleviate hunger' in this area follow a rational way of execution such that the peasant farmers are provided with the necessary materials and knowledge (hybrid seeds and inorganic fertilizers) and expected to achieve high yields to curb hunger and provide income. There is so much that happens within the Luo assemblage that is either not known by the interventionists or is ignored probably due to the potential complexity it may present to their project designs. My objective is therefore to bring to the fore the peasant farmers' practices, especially in the face of deterritorialisation forces, to understand their varied positions and relations to the elements within the Luo assemblage and the external elements. This will provide

insight in to the way the Luo assemblage can be approached for development engagements.

In order to achieve my objective in this study, the following research questions guided me in my quest for information.

1. How has maize been assembled in Kenya and Luoland? Through this question, I aimed to understand how the element, maize, which is not an African indigenous crop, arrived in the country and the deterritorialisation processes through which it spread especially in Luoland to become the main crop that is now regarded as 'food security'. In answering this question I will provide information on how maize has been assembled and disassembled over the years starting from its introduction In Kenya and Luoland through to the hybridization and introduction of hybrid maize to the farmers. I explored the deterritorialisation of what initially constituted the foodscape (the cultivation of crops such as sorghum and millet as staples) in the country and particularly Luoland, through incorporation of the element of maize that eventually changed the lives of the farmers and in turn is being continuously transformed. This called for the examination of the colonial strategies that facilitated the expansion of maize such as particular systems, policies and institutions as well as the role of the peasant farmers themselves in the spread of maize cultivation.
2. How have the Luo peasant farmers been interacting with the recent deterritorialisation forces in Yala area? This question was meant to focus on how the peasant farmers disassemble the knowledge and resources presented to them through the recent deterritorialisation forces that advocate for the Green Revolution style of farming for improved yields. These include the Millennium Villages Project (MVP), One Acre Fund (OAF) and the governmental agencies. This question guided the exploring of the peasant farmers' practices in the presence of or when influenced by deterritorialisation forces and when they are presented with various options for input access, market access and knowledge on how to apply the maize technology. It broadly examined what the peasant farmers actually do with the elements of deterritorialisation as introduced to them.
3. How do the peasant farmers assemble and disassemble markets for their maize produce? The objective of this question was to find out how the peasant farmers market their produce even after the introduction of new marketing channels such as cooperatives that are part of deterritorialisation forces. Through this

question I explored the various territorialised forms of exchanges and markets that exist within the area, how they evolved as well the way the farmers engage with the newly introduced channels.

4. How do men and women relate around maize crop cultivation? Through this question I explored the power relations between senior women and junior women, how men and women relate to each other around maize cultivation resources such as land and the actual farm practices of men and women and how these are being deterritorialised and (re-)territorialised at the same time.

Due to the nature of the research that involved attention to details to open up the Luo assemblage and the associated (de)territorialisation processes, I explored the above questions through ethnographic methods to bring to the fore the actual and real practices of the peasant farmers. This will allow us to open up the assemblage to expose the elements, relations, practices and processes in peasant maize cultivation. As Bueger (2014) indicates, "assemblage thinking implies attention to detail and the mundane activities of doings and sayings by which realities are enacted, relations are built and ordering takes place. This implies an ethnographic gaze, yet there is no singular methodology in which the assemblages can be opened up" (2014: 65). I will therefore explain the ethnographic methods I used to collect the data for this thesis.

Data collection methods[8]

During the two years of my PhD fieldwork (Oct 2015- Feb 2018), I repeatedly made use of most of the data collection methods I have outlined below except for the focus group discussions that I held only once with each of the three separate groups. I developed data collection tools such as semi-structured questionnaires and FGD guide from the questions that arose in the process of data collection as well as follow-ups for detailed information. The same went for the participants that I selected for the interviews in addition to informal conversations I held with various individuals within the sub-locations. I would recruit participants as research progressed apart from some cases that were on a 'revisit' list selected from the previous studies.

[8] Some of the names of the farmers are pseudonyms. These are Akinyi, Atieno and Zedi. For Akinyi and Atieno, their life stories are a bit sensitive while for Zedi, I have used the pseudo name that was used in the previous study by Mango (2002) for ease of reference.

During this fieldwork period I took some short breaks, sometimes for reflection and sometimes to write up on some themes that were consistent when I had gathered some meaningful data. In that regard, I travelled to the Netherlands in the last quarter of 2016 to compile and write up the history of maize after conducting life histories and archival research even though I did not end up using these methods later on in my fieldwork. Throughout the fieldwork, I used ethnographic methods (Hammersley & Atkinson, 2007), which implies a range of data sources in attempts to understand the various dynamics at play in relation to maize cultivation and marketing.

Ethnographic conversations

I began my data collection with ethnographic conversations. I talked to various people within the locality at various places such as in markets, households, along the roads and other meeting places to get an overview of what was happening largely in relation to my topic of study. This is a technique that I used not only at the beginning of my fieldwork, but throughout my study. I would make inquiries around the topic of my study and let the respondents elaborate as much as they could without having to control the conversations too much.

Observations

Throughout my fieldwork, I made observations and noted aspects that were of interest to me. I would then follow these up with some ethnographic questions to get some understanding of the events observed. I observed activities at the market places, in farmers' households, on farms and in meetings. At times I would combine interviews with observations where possible so that I could use these observations as key inputs for interviews. In these kind of interviews I would seek to understand the meanings of the observed facts. For instance, in the open air market, I observed that the traders were selling the local maize varieties at different prices. I inquired into this and discovered that there were two types of maize on sale. One type was carefully selected for seeds while the other type was to be sold for the purposes of consumption. In many instances, I would follow-up the observations with some unstructured interviews for details.

Participant observations

Herbert (2000) points out the various degrees to which a researcher can get involved in group activities in which he/she studies. Some researchers may be fully immersed

in the social role they are studying such as Burawoy (2003) who worked in a factory, others may be detached from the role though with constant interactions while others may try to balance the two thus playing the insider and outsider roles (Herbert, 2000: 552). I was loosely attached to the social roles that ranged from performing farm activities with the farmers to participating in meetings and trainings of farmers. My role was mainly that of an observer, for instance, attending meetings where farmers would be trained on agronomic practices which enabled me to follow up on knowledge acquisition and later on, application. Additionally, I did some farm work with the farmers especially to find out what the farmers do in relation to what they report they do on the farms and what they have been trained to do by various organisations. My fieldwork involved positioning myself in different situations at different times, with different individuals and groups and so it was not easy to be fully immersed in one of these situational activities.

In order to understand the farmers' experiences during the cultivation of maize, I used participant observation technique to experience the simplest of the processes and understand what is meant by action words such as 'planting', 'top dressing' and 'harvesting' in actual practice. I joined the farmers in doing farm work at various stages in the seasons and experienced the various processes involved in planting, top dressing and harvesting activities. This gave me an opportunity to witness first-hand what the farmers actually do or undergo in the field and the kind of knowledge they use or not use as they go about their work. I also attended farmers' meetings organised by the One Acre Fund and also other group meetings such as the Sinane Widows group meetings, to understand how the farmers receive knowledge and then relate it to the way they use it on the farms. I would make descriptive notes after every activity. Emerson *et al.* (2001) point out that fieldnotes are intended to provide descriptive accounts of various things including personal experiences and reactions. This is not a mere recording of the 'happenings' but also a sense making and interpretation of the experiences (2001: 353).

Focus Group Discussions

I organised three Focus Group Discussions (FGDs) within the two sub-locations. This was done for the purpose of understanding the various practices within a group setting that would generate varied discussions and useful debates. The main aim was to understand general and prioritized issues concerning food crop cultivation and to

specifically discuss some of the key themes in this topic: the markets, interventions, gender and knowledge dynamics. As Morgan (1996) indicates, if the researcher gives the group members control over the direction of the interview, it can come in handy especially if the researcher is exploring the topic and does not have concrete questions to ask. The group discussions provided a diversity in perspectives because of the similarities and differences in opinions among the different group members who have varied experiences and knowledge. FGDs offer the opportunity to observe intense interactions with respect to a specific topic (Morgan, 1996). The participants can talk to each other, ask questions, air their opinions and comment on each other's experiences. FGDs can be used to examine how and why people think the way they do and they present the participants with an opportunity to explore and clarify views as they engage with others. The discussions may take new or unexpected direction that is informative to the researcher and guides further investigations. Group discussions also bring out varied communication forms such as the people's emotions, for instance through arguing, which unveils varied degrees of disagreements and conflicting views (Kitzinger, 1995).

The first FGD that I carried out was with women farmers. I wanted to generate some debate among the women in relation to gender dynamics but also generally about socio-cultural dynamics in crop cultivation and marketing. I particularly targeted women for the first FDG because I wanted to have a comparison with mixed groups and to see if the responses would generate any significant differences and if there would be some issues that the women would prefer to talk about in the absence of men. After conducting the second FGD that was composed of men and women, I realised that the mixed group interacted well and there was not much difference because the reactions of the participants were very similar. We could discuss even issues of women's power relations and the culture of *golo kodhi* and *dwoko cham* with both groups without any moments of silence. In the end, both men and women contributed to the discussions actively. I organised a third FGD that comprised of men and women to see if different debates or issues would come up. But the issues raised and discussed around the topic and in response to the same semi-structured FGD guide were similar. This last group elicited interesting debate, emotions as well as confrontations that I found useful in analysing some of the dynamics within the sphere of food crop cultivation, especially the farmers' encounter with interventionists' recommendations. I recorded and transcribed all the FGDs for analysis. The issues

raised from the focus groups discussions enabled me to map the top issues for further investigations.

Revisits

Burawoy (2003) defines an ethnographic revisit as the one that "occurs when an ethnographer undertakes participant observation, that is, studying others in their space and time, with a view to comparing his/her site with the same one studied at an earlier point in time whether by him or herself or by someone else" (Burawoy, 2003: 646). He further elaborates that the purpose of revisits is to 'understand and explain variation, in particular to comprehend difference over time'(ibid. 647). He further distinguishes four types of focused revisits that he categorised as reputational, reconstructive, empiricist, and structural. I focus on the third type, empiricist, in which the successor gives a description rather than an explanation of changes over time (Burawoy, 2003: 655). This is the type of focused revisit that I employed as part of my revisit method to engage with some of the previously visited cases. During the previous studies, which include my Master's thesis fieldwork, some cases were visited. I revisited these cases to compare the current dynamics with the ones observed previously. There have been a lot of activities happening in the region in terms of interventions, especially those geared towards Green Revolution technologies, and some of the farmers' cases have been at the forefront of these interventions. It is advantageous that the cases were studied way before the implementation of some of the green revolution interventions and throughout the interventions which include ICRAF and the Millennium Villages Project interventions.

Life histories

To get some historical perspectives, I collected some oral histories (Hoopes, 1979: 7) which involved the life histories of some of the oldest farmers in the study area. I gathered information via farmers' spoken memories of their lives or from people they had known, as well as in relation to information concerning past events such as famines, maize control and the entry of maize to the area. I did interviews with farmers (men and women) above 70 years of age because they have had more experiences and some of them have witnessed events first-hand especially during the colonial times, or they got first-hand information from other people older than them and close to them.

Key informant interviews

In order to get 'expert' perspectives of the developing issues during the fieldwork, I interviewed key informants. These included the agricultural officers, officials of One Acre Fund, the manager of Gem sub-county Cooperative Union, the manager and staff of the National Cereals and Produce Board (NCPB) in Yala, The Yala Municipal Council staff and an officer at the Land Registry of Siaya County, the Ministry of Lands and Physical Planning. The purpose of collecting information from the key informants was to supplement and also to verify the information that I collected from other sources.

Archival research

The historical perspective required archival research. Archival research, according to Ventresca and Mohr (2002), involves the study of historical documents, that is, the documents created at some point in the relatively distant past. It may also involve non-historical investigations of documents created by or about contemporary organisations and these are used as complementary tools to support other methods of data collection (Ventresca & Mohr, 2002 : 805). I needed to explore the archival records for information about the spread of maize in Kenya and particularly western Kenya. I analysed archival documents from the Nairobi National Archives. I analysed documents dating back to the early 1900s which included official letters, memorandums and reports, pamphlets, booklets, magazines and various correspondence from the colonial government officials. In addition to these historical documents, I reviewed non-historical documents produced by the government of Kenya, specifically the Lands registry as well as other documents from organisations working with farmers in Yala such as the Gem Cooperative Union. From the Ministry of Lands and Physical Planning, I got extracts of land data from the Land Registry in Siaya County which would be useful in determining the ratios of men and women who own land through inheritance or otherwise for the gender component of this study. I also explored some documents from the MVP initiated Cooperatives. This gave me an idea of the progress of the cooperatives in terms of membership and other activities.

Data analysis

I analysed data continuously throughout the study. In the field, I would make notes almost on daily basis. I would then analyse these for interesting and emerging sub-themes and make more inquiries that I would analyse as well.

Conclusion

Assemblage thinking is gaining popularity as a way of interpreting social situations as it offers the flexibility and the space to explain the constantly changing situations and dynamics of social life. Higgins and Larner (2017) point out that "...new social science framings are needed to capture the world beyond the neat categorizations that underpinned last century's social science, and assemblage thinking offers us a way to trace these framings as they are being made" (2017: 312). It means that through the lens of assemblage thinking, the processes through which the social contexts are framed can be ruptured. As my theoretical resource base, I use assemblage thinking to explain the dynamics involved in peasant maize cultivation and marketing. This links well to the ethnographic methods of data collection that enabled me to look into the world of the peasant farmers through their perspectives, especially through the participant observations that gave me the actual peasant farmer experiences with maize cultivation and at the same time how and why they reassemble the maize technologies introduced to them by interventionists. Assemblage thinking enables me to engage theoretically with various stakeholders to trace how the assemblages are formed and 'unformed' and how changes occur over time.

Chapter 3
Assembling maize in Kenya and Luoland: A historical perspective

Figure 5 Nyaluo maize varieties. Photo taken at a farmers' compound in Sauri

Introduction

In this chapter, I explore the historical processes of assembling maize in Kenya and in Luoland. Maize (*zea mays*) is one of the long lasting results of Western exploration and encroachment in Africa. It is not an indigenous crop in Africa, but was introduced in to the continent from the New World and America. Maize has been changed in various ways to adapt to the imprint of Kenya's modern agrarian landscape (Mccann, 2001: 247). It still continues to be influenced by various human and non-human elements such as policies, institutions, new maize genes and new ways of organising communities. In order to understand the current reassembling of maize, it is important to develop a picture of how maize was gradually incorporated into the agricultural systems of the many ethnic groups in Kenya. Kenya is a region where people initially cultivated crops such as millet and sorghum. Maize penetrated to the interior areas of the country such as Luoland to become an important cereal crop so much so that food security is seen as maize security (Mohajan, 2014; Thompson *et al.*, 2010).

The processes of deterritorialisation and territorialisation have yielded broadly two 'types' of maize not only in Luoland but also in most parts of the country. These are the 'local maize' varieties and the improved or hybrid maize varieties. Previous research has shown that the Luo prefer local maize (*nyaluo)* over the hybrid maize varieties (Hebinck *et al.*, 2015; Mango, 1996; Mango, 2002; Mango & Hebinck, 2004). I will show how maize entered the Luo assemblage, as Ogot (1963) points out, revolutionising Luo people's habits and becoming embedded in their culture (1963: 255); acquiring new meanings, local names and generally 'going indigenous' or becoming 'localised' hence the 'local maize' identity. This will also explain what 'local maize' means in the context where maize is not an indigenous food crop. The Luo people in varying ways have been territorialising or defending and maintaining these 'local' maize varieties that are now part of their culture. I explain the ways in which maize has been continuously assembled in the country since colonial times, highlighting the various elements of the deterritorialisation processes. These include the land and labour appropriations by the colonial government and the European settlers[9], the policies, systems of control and regulations and the formation of new

[9] In this chapter, I mainly use the language of most of the historical archival documents, books and articles that I reviewed which are in tune with colonial terms so as to differentiate between different groups of farmers or people. These include the term *European settlers:* European people, mostly from British descent, who settled in Kenya during the colonial period. I also refer to them simply as settler farmers, European farmers or settlers The term *the natives* refers to Kenyan people during the colonial period whom I also refer to as African farmers, local people or Kenyan farmers.

institutions to expand maize cultivation and marketing. I also explore the local people's responses to these processes.

The aim of this chapter is to provide insight into the processes through which maize entered the country and expanded, and more importantly in this context, how it became part of the Luo assemblage to the extent that it became 'indigenous' to them, and why the subsequent introduction of new maize varieties from the 1950s onwards only partially resonates with Luo assemblage. The origins of maize thus become an important starting point for this chapter. This sets the analysis in motion with regard to the territorialised farmers' practices in maize cultivation and how these need to be understood from an assemblage lens. I present the historical events in three parts. Firstly, I trace the origins of maize and how it spread in Kenya, highlighting colonial government practices such as the setting up of policies, systems, maize regulations and controls, land and labour appropriation, all of which facilitated the expansion and widespread cultivation of maize. Secondly, I explore maize in Luo land; its entry, its interactions with the Luo culture and the subsequent maize hybridization and responses from the Luo farmers. This implies a focus on the ways in which the Luo assemblage have been disassembled as maize found its way into their cultural space. Thirdly, I explore the post-independence attempts to bring about the Green Revolution[10] that would lead to high production of maize through the use of maize technology packages that include hybrid maize varieties and how the government facilitated the use of hybrids as well as how the farmers disassembled the hybrid maize technology package. This chapter forms the basis for discussion in other chapters about maize interventions, farmers' practices in maize exchanges and the way men and women relate within maize cultivation.

The origin and varietal spread of maize in Kenya

Maize is believed to have originated from a single ancestor domesticated in central Mexico around 7000 years ago that was named 'maize' by the Aztec and Mayan civilizations. The name literally means "that which sustains life" (Mccann, 2005: 1). Presently, this meaning of maize resonates with its dominant use as a food crop in many parts of the world, especially in Africa. Maize is widely planted as a major food crop in Africa even though it is not indigenous to Africa. It was introduced to Africa by traders, merchants and missionaries at different times and through different routes,

[10] Green Revolution began in 1960s. See (Griffin, 1979); (Patel, 2013)

probably from the sixteenth century onwards (Mccann, 2001). Before then, maize had not caught the attention of travellers within the east African region indicating that it was not a common staple. Around mid-sixteenth century, maize was reportedly grown at the coastal areas in eastern Africa but not as an important crop. In 1643, Portuguese settlers planted maize on Zanzibar and Pemba islands (of the now Republic of Tanzania) to supply the Portuguese garrison in Mombasa (the Kenyan coast) which had experienced difficulties in obtaining food from the populations in the hinterland (Miracle, 1965: 48).

Maize spread rapidly from the Kenyan coastal regions to the interior of the country mainly by church missionaries. Towards the end of the seventeenth century, maize was known throughout Kenya but it was a staple crop only in coastal regions and the south-eastern part of the country. Lewis Krapf, a German missionary and explorer of the nineteenth century, describes maize as "the principal starchy staple in the south eastern part of Kenya" during his travels in Eastern Africa in 1848 (Miracle, 1965: 51). Maize became a widely accepted staple in Kenya in the 20th century (Miracle, 1965). It appeared for the first time in exhibitions at the first Agricultural Show in Nairobi in 1902. By 1903, maize occupied 20 percent of the total food crop area in entire Kenya with different maize varieties being cultivated (Colonial-Report, 1908; Karanja, 1996). This was the beginning of deterritorialisation of the food and revenue sectors through maize.

Some maize varieties cultivated in Kenya in the early 20th century were brought by settlers immigrating from South Africa to East Africa. Successful maize varieties introduced to East Africa include Hickory King, White Horsetooth, Ladysmith White, Salisbury White, Champion White Pearl and Iowa Silvermine (Harrison, 1970: 23). Additionally, some other varieties were cultivated in the early 1900s which include long yellow maize, round yellow maize, snowflake maize, Egyptian white maize and Cuzco maize (Colonial-Report, 1907 : 70-71). Most of these maize varieties originated from North America (Karanja, 1996: 10). The varieties arrived in South Africa in 1895 with the arrival of railroad that opened up regional markets for cheap imports. That is how white dent maize was introduced in South Africa and later in East Africa, with Hickory King becoming one of most important commercial maize type in the southern and eastern African regions (Mccann, 2005: 105). Some white maize varieties were introduced in South Africa by the Dutch at the beginning of 20th century. Moreover, maize existed in South Africa from the mid-17th Century. This was shortly after the

first Dutch colonists arrived in South Africa when seeds of '*Turchsche tarwe*' (maize as it was known in Holland) were sent to Cape from Amsterdam on 25th October, 1655. 'Inferior' maize varieties in South Africa later gave way to improved varieties that were obtained from America (Saunders, 1930: 14-15). By the 1920s, a multiplicity of maize varieties existed in South Africa of which the white dents and yellow flints constituted the bulk of the maize crop. Hickory King was the leading variety of white dents (Kloppenburg Jr, 1988; Saunders, 1930: 150).

The white varieties that originated from North America are believed to be the origin of the a white variety in Kenya that came to be referred to as the Kenya Flat White maize variety (Eberhart & Harrison, 1973). It was genetic mixing of the white maize varieties that resulted in the Kenya Flat White Complex (Acland, 1971: 127). The Kenya Flat White Complex emerged through crib selection by European farmers who cultivated this variety extensively from the beginning of the 20th century. It spread to native farms through the labourers who worked at the European farms and would occasionally take with them some maize seeds to their homes. This practice was also one of the ways that deterritorialisation of the local culture took place as elements (white maize) entered, for instance, the Luo assemblage. At that time, the natives mostly grew the coloured varieties of maize along with crops such as sorghum and millet which were the staple foods of the people. It is believed that yellow and purple maize varieties resulted from a mixture of a local Caribbean Flint and Kenya Flat White varieties. The local yellow maize variety was probably introduced in to Kenya from the earlier introductions of the Caribbean Flints and yellow dents from South African Cuzco maize, a high altitude maize with origins in Peru. Cuzco maize was brought by missionaries before the First World War (Harrison, 1970).

By 1908 the demand for maize had increased to some extent and steady local markets, such as the Yala market, were established during this year. At this point, maize was mainly being grown by the natives who planted the yellow and mixed maize varieties (Republic-of-Kenya, 1966: 7). These maize varieties had acquired different names from different communities in Kenya upon their introduction to the communities. The Luo people named the yellow maize, *nyamula* and the black and white varieties, *radier* and the multi-coloured maize varieties were called *oduma ma rachich.* These coloured varieties have been in use since then in the Luo community and they have been sustained despite the introduction of many hybrid varieties as discussed in this thesis. The Republic-of-Kenya (1966) report points out that it was after the European settlers

got interested in producing maize that the white maize varieties followed on account of greater suitability for export (1966: 7).

It is claimed that the cultivation of white maize varieties in Kenya was taken a notch higher by the settlers, mainly European. The area cultivated with maize on settler farms greatly expanded before the First World War. Selected farm seeds were imported to enhance returns and agricultural activities increased (Colonial-Report, 1908: 42). However, it is also documented that the settlers struggled to establish large scale capitalist farming. It was a time when local people were pressured to provide labour for settler farms and the hut taxes they paid provided the infrastructure for the European farms (Van Zwanenberg, 1975: 278). With increased agricultural activities, the Agricultural Department in Kenya was established in 1906 and mainly focused on the interests of European settlers. Various crops were gradually introduced around this time, which included improved varieties of maize, coffee, sisal and wheat as primary production crops. The settlers demanded and received various support services for the established crops. These services included research stations and a system of certified grading of maize (Thurston, 1987: 4). The main actors and actants involved at this stage, that includes settlers, African labourers, improved maize varieties and institutional establishment were essential for maize expansion.

The settlers took to maize growing mainly because they found it an easy crop to grow as it only required cheap machinery and the climate and soils were ideal for growing it. Maize also provided quick returns and farmers felt that the prices they obtained from it were worth the efforts. Attempts were made to replace indigenous yellow and mixed maize varieties with 'better' white maize varieties (Republic-of-Kenya, 1966) that would contribute to deliberate complete deterritorialisation, but did not succeed. By 1909, Europeans began to export maize overseas beyond German East Africa (now Tanzania) where they used to export maize in small quantities (Republic-of-Kenya, 1966: 1). At the same time, African farmers had dominated the domestic cereals markets obliging the settlers to markets overseas because of the competitiveness of peasant agriculture (Lonsdale & Berman, 1979: 501). White maize exports from Kenya to Europe increased as white maize was in demand in the British starch market and also a local legislation required that only white maize would be accepted for exports. Planting of white maize and yellow maize in close proximity was discouraged because it was believed to result in coloured maize due to cross-pollination and this coloured maize was considered low grade and unfit for exports. Additionally, the settler

farmers were informed by the Secretary of the London Corn Exchange that white maize required grading (Jayne & Smale, 2003: 10). To ensure only maize of good quality was exported, grading rules were later introduced (Colonial-Report, 1923: 17-18). Maize was graded from K1 to K8 with K1 and K2 being of the best quality for export. K8 represented the lowest grade reasonably fit for human consumption[11].

Improved maize seeds were distributed during the First World War as maize was gradually becoming the staple food of the African people. By the end of the First World War, growers were thinking of exporting 500,000 bags of maize. However, in autumn of 1918 a severe drought occurred due to a rainfall shortage during the short rains of 1917, exacerbating the situation that had been made worse by wartime demand for food. Maize was imported from South Africa at high prices (Republic-of-Kenya, 1966: 2). This imported maize reached Luoland as response to the famine and the Luo people named it *ababari* (I will come back to this later). Luoland had been as badly hit by the famine as the rest of the country. The famine was given different names by the Luo people at different stages. At the beginning of the famine, it was referred to as *keya* which was coined from the abbreviation KAR (King's African Rifle). They later referred to it as *chwe kode* (Mango, 2002: 40).

The drought also resulted in extreme revenue shortages that led to the appointment of the Bowring Committee (an economic and finance committee) in March 1921 by the colonial government to provide recommendations for how to reduce colonial government expenditure. It explored ways of cutting down expenditure and recommended increasing revenue by increasing exports and reducing imports. The Committee recommended that Kenya should focus more on production of maize in order to increase the Colony's exports and to provide bulk freights for the Railway. The maize was supposed to be of 'superior quality' for export which meant that only the white maize could be exported (Republic-of-Kenya, 1966: 2). It was during 1922 that the expansion and transformation of maize cultivation was greatly realized, not only in Kenya but also in the whole of East Africa. At the same time, Kenya Flat White maize cultivation became common in the Kenyan native reserves. As the Bowring Committee had recommended, the Railway introduced a low rate for maize exported overseas and a conditioning plant was established at the Coast (Yoshida, 1966: 1). At this time, agricultural development was largely oriented towards European settler

[11] Kenya National Archives, record number DC/KSM/1/28/146

agriculture with very little attention being paid to African agriculture (Karanja, 1996: 10).

Land and labour for maize cultivation

To ensure continued cultivation of crops in bulk, the settler farmers settled in the most fertile areas in Kenya. Policies, institutions and support systems were set up to ensure increased production mainly by the settler farmers. Acquisition of land as a resource for production and labour therefore became essential elements in assembling maize. Land laws that were crucial for acquiring land for production were enacted in favour of the settlers to the detriment of African farmers. As Atieno-Odhiambo and Wanyande (1989) elaborate, the British used 'the law' to acquire African land. The 1894 Indian Land Acquisition Act was extended to the British Protectorate in 1896. This Act allowed the administration to acquire arable land compulsorily for public use in order to construct railway and government buildings. Expectantly, the administration announced Land Regulations in 1897 in order to offer land for the European settlers. Certificates for land occupancy were issued with a validity of 99 years. Subsequent policies allowed the settlers to own land in fertile areas for longer periods, prohibiting the same to Africans and Asians in such areas (Atieno-Odhiambo, 1981: 5; Atieno-Odhiambo & Wanyande, 1989: 35). These policies were as a result of the settlers' demand for greater security of land tenure which was accepted in 1915 and the settlers' leases of land were extended from 99-999 years (Ogot, 1963: 260).

The regulations had some effects on the land. In 1901, the East African (Lands) Order in Council authorised the commissioner of lands to make grants or leases on Crown Land (land subject to the control of her majesty) on such grounds as he might see fit. The Crown Land Ordinance was enacted in 1902 and a considerable area was alienated to Europeans designating it as the 'White Highlands' as Africans and Asians were not allowed to own land within it. Despite the fact that the natives lost their land even in African reserves, colonial government policies brought an end to widespread migrations, confining Africans within their districts which were known as *reserves*. Adversely, the policies led to overuse of land hence serious soil erosion especially in Central Nyanza occurred (Atieno-Odhiambo & Wanyande, 1989: 35).

During war time, the settlers pressed for restrictive labour laws, as settler agriculture depended mainly on African labour to sustain itself, and compulsory registration of

all African males over the age of sixteen. These demands were all granted by the end of the First World War. At this time, the Colonial Government formally took control and this saw African wages being reduced by a third, the *kipande* (certificate of identification) system was introduced, direct taxation was increased to sixteen shilling a head and women and girls were to be compelled to work on European farms (Lonsdale & Berman, 1979: 501; Ogot, 1963 : 260). This was the heyday of progressive chiefs, as Lonsdale and Berman (1979) put it, who used their people's labour on their farms for their own fields, backed by the British power (1979: 497). These oppressive policies not only led to resistance through political groups like the Young Kavirondo Association in Nyanza, but the high taxation also encouraged domestic production and wage labour (Berman & Lonsdale, 1980; Lonsdale & Berman, 1979; Ogot, 1963).

The resistance group, the Young Kavirondo Association, that was formed in 1921 was opposed to a number of things that they raised through a memorandum to a Senior Commissioner. These included abolition of the Native Registration system and the system of central labour camps and the reduction of taxes. Additionally, the association demanded individual title deeds for the African reserves. The response to this was that the Luo would not be disturbed and that the boundary would be gazetted, which would be sufficient title and thus there was no need for individual titles. Between 1921 and 1939, it was actually the Luo leaders who were pushing for individual land tenure to be introduced in to African reserves while the government at that time defended the traditional African concept of communal ownership. However, after 1945, things turned the other way round as the government began trying different ways to get the Luo accept the individual land holdings system (Ogot, 1963: 262). This succeeded after the Swynnerton Plan was published in 1954.

The Swynnerton Plan was drawn up as a response to the land crisis particularly the increasing problems of land tenure. It provided the final statement of the colonial government on land tenure policy, a policy to expand cash cropping in African areas and improve land utilization. It focused on creating African family smallholdings that would produce sufficient food for consumption and surplus to supplement income. It included the use of inputs such as manure, soil conservation and land consolidation. The Swynnerton Plan became the basis for Kenyan agricultural policy. The land tenure in African communities was initially controlled by lineage groupings: elders allocated to families areas of land corresponding to variations in rainfall, altitude and soil types as well as proximity. This helped to ensure that in case one plot did not succeed due

to poor rainfall, another plot elsewhere would succeed, so families would be assured of food availability. Family heads would then allocate the plots to their wives accordingly. The Luo people resisted land consolidation because it did not consider these aspects and threatened to erode the authority of the elders. The colonial government came up with a strategy to solve the problems encountered in land consolidation and registration and so in 1958 they devised a self-help policy where private individuals would mobilise willing members of the community to consolidate land unanimously. Upon reaching sufficient numbers of willing individuals, the government would provide services to them. The Swynnerton Plan led to an agrarian revolution that destroyed many elements of colonial agricultural policies (Hebinck, 2001: 129; Heyer, 1975: 156-161; Mango, 2002: 49-50; Thurston, 1987). However, the Luo people preferred to cultivate food crops such as maize as opposed to cash crops like cotton since cash crops were not edible and their production would interfere with food cultivation (Hay, 1972; Onduru, 2009).

Traditional crops and maize began to be replaced by improved maize varieties in many parts of the country (Thurston, 1987: 5). In western Kenya, the cultivation of traditional crops as well as the 'local maize' also expanded. A total of 4000 tons of maize were exported at this time from Central Nyanza. Luoland experienced a boom of prices for maize, beans and sesame as a result of drought in other areas of Kenya such as Central, Coast, Rift Valley and Eastern Provinces in 1928 and 1929 (Kitching, 1980: 41). African grown maize generally increased although there were no records available for the statistics, while the production of European grown maize reached its peak with over 1.75 million bags from an acreage of 233,973 as per the records. The local prices of maize were determined by the prices obtained from the export markets (Yoshida, 1966: 1-2).

The early assembling of maize genes

Maize has been transformed, since its adoption in Africa from the New World, from the diverse varieties with different colours to uniformity of colour. Mccann (2005) states that; "the historical colour bursts in the older types of African maize doubtless reveals the genetic diversity and the several points of New World origin…Loss of colour also reflects loss of biodiversity that travelled from the New World to the Old in the years after 1500. The diversity in its germplasm is an asset under threat from popular and economically attractive modern hybrid maize varieties that have been

manipulated for yield and colour uniformity "(2005: 114). The white maize became increasingly prioritized as 'superior maize' and suitable for exports over the coloured maize that was seen as inferior.

Initially, the improvement of maize took place through crib selection. The European farmers needed to increase its production and so they pushed for setting up of support systems to improve crop production and this led to the setting up of research institutions for production of improved crop varieties such as maize and wheat. The Scott Agricultural Laboratories were established in Nairobi in 1922. The original buildings that formed the nucleus of the laboratories were opened on 7th June, 1913 by Mr. C.C. Bowring (Sir Charles Bowring) as a sanatorium but was later handed over to the government after having been used as a hospital during the Great War. In 1922, it was set aside to be used by the agricultural department and the buildings were converted to laboratories. In 1927, the headquarters of plant breeding were moved to Njoro, with an important sub-section being maintained at the laboratories in Nairobi (J.M, 1936).

The Scott Agricultural Laboratories had three main functions: to elucidate agricultural problems through research and experiment, to provide technical advice and field demonstrations, and to train natives in agriculture. It had different sections such as an entomological section, a coffee section, a plant breeding section, a botanical section, a chemical section and a native agricultural school. The plant breeding section was involved in hybridization and selection work of mainly wheat for production of varieties suited to the growing areas. Work on maize in this sub-section was confined to improvement by selection of principally white dent maize-*Muratha*. Selection was done for early maturity and resistance to white blight (*Helminthosporium turcicum*) and Fusarium diseases of the maize (J.M, 1936: 300). *Muratha* maize, that may have resulted from the selection of Kenya Flat white , was mainly grown in Central Kenya (Harrison, 1970: 24).

The Njoro National Plant Breeding Station was established in Njoro in 1927 mainly for wheat breeding at that time (Makanda & Oehmke, 1993). In the early 1930s, conventional inbreeding and hybridization of maize began after news of success in the USA with hybrid breeding became known (Harrison, 1970: 26). The plant breeders focused on seed selection to improve on the local Flat-White and Muratha maize varieties where seeds, free from diseases for planting, were selected from the medium

and large sized cobs. Maize selection required large acreage since only about 3% of the cobs were fit for seed in the earlier stages. The maize research work in Njoro was eventually abandoned during the Second World War (Colonial-Report, 1929: 31; Karanja, 1996: 12). I will come back to maize hybridization in the last section of this chapter since its expansion is recent (post-independence).

Maize controls and regulations

It is impossible to talk about maize in Kenya without talking about the systems of controls and regulations that have been a background to Kenya's agricultural development (Karanja, 1996). Some events triggered the necessity for maize controls and regulations. In 1942-1943, there were food shortages due to a number of droughts and locust invasions and the maize industry (by then maize had become a staple) had deteriorated following nine years of low prices. This shortage prompted the government to appoint a commission of inquiry (Were & Odak, 1987). The Commission was appointed under the following two terms of references: 1) "to inquire into the present food shortage with a view to ascertaining and reporting on the causes thereof and to make recommendations to avoid recurrence" and 2) "to inquire into the system of control of maize that has been in operation since the 1st of July 1942, and to report whether it has been administered efficiently and to the best interests of the country" (Colonial-Report, 1943: 1). The commission came up with several recommendations which included three most important recommendations for increased production. Firstly, the government needed to enter into contract with farmers to purchase their produce at a fixed price. Secondly, the government needed to minimize maize exports. And thirdly, the prices were to be fixed before planting during normal times which would be done in consultation with the producing and consuming interests (Were & Odak, 1987).

The Food Shortage Commission of Inquiry appointed in 1943 to investigate the food security situation did also make another suggestion. It recommended a return to the earliest moments of reduced production of cereals and more focus on leguminous and other crops. This was part of the move to reterritorialize the existing ways of food cultivation and reduce maize production. However, the colonial government was reluctant and argued that there was still need to encourage production of maize due to the prevailing situation in the Middle East and also for feeding the Armed forces. The efforts towards reterritorialization failed at this point. The Commission was of the

opinion that the system of monoculture involving exportation of maize meant 'exporting the fertility of soil'; thus keeping the exportable surplus as low as possible was recommended (Republic-of-Kenya, 1966: 3).

In 1942, an Increased Production of Crops Ordinance and Maize Control was enacted at such a time during the initial stages of the Second World War mainly, a time when there was not enough food for the people. This apparently became a good opportunity for the African farmers to increase maize production and participate in the market. Initially, maize was mainly produced for subsistence purposes by African farmers. This ordinance was aimed at increasing production of all food crops for both European and African farmers in order to feed the troops and personnel during the Second World War (Karanja, 1996: 11). The Increased Production of Crops Ordinance and the Maize Control regulations were made to benefit farmers through credit acquisition and access to markets. Farmers were required to enter into a contract with the government. They would submit a production plan that would indicate the acreages under production, specific crops to be produced and an outline of the intended production practices. This plan was then approved by an oversight committee after which it would become a contract and also a basis for farm credit. The government guaranteed to purchase the pledged quantity of the production and in case of natural disasters, the government would guarantee farmers a rate of return commensurate with his/her production program (Bates, 1987: 12-13). This arrangement has been reflected in the recent governmental and non-governmental interventions on maize production and marketing. For example, the recent Millennium Villages Project (I will discuss this project in detail in chapter 4), introduced farmers to credits where they would payback with harvests or after harvesting. Another micro-finance organisation, One Acre Fund, is doing the same. The strategy in the present time is a reflection of the earlier strategies used by the colonists to increase maize production and thus represents a re-emergence of the earlier deterritorialisation strategies of the colonial government that were aimed at modernizing agricultural production.

The credit acquisition and market access arrangement faced some drawbacks. The farmers' practices, especially those of the European farmers, presented a potential threat to the arrangement both at the production and at the marketing levels. Farmers would take credit for maize production with a promise to provide specified quantities of maize to the government but at the time of marketing the maize, some farmers would market through independent agents where they could get higher prices than

what the state was willing to pay. This led to the banning of independent agents and the Kenya Farmers Association (KFA) was registered as a single buying organisation of the state. The KFA was a cooperative association that used to collect and market maize produce of a large proportion of European farmers (Bates, 1987: 13). K.F.A assisted in maize purchases, shipments and payments to farmers (Karanja, 1996: 11). The African producers largely produced for the black market during the war times. They overlooked the official channel of marketing and acquired better prices for their produce. It was hard to account for the produce sold through such markets since records are not available for black markets according to the formal market controls. Anderson and Throup (1985) argue that the black markets should have been recognised as an alternative to the Maize Control (1985: 337). Llewellyn (1968) points out that there may have been times when the farmers may have had the capacity to produce surplus for the market but this might have gone unnoticed because the laws discouraged them from selling their produce in ways that were most convenient and profitable to them (1968: 10). Black markets were a form of reassembling the formal channels of marketing as presented by the government for control. In the present, the farmers largely operate through embedded or territorialised forms of exchanges as I discuss in chapter 5.

Maize Control in African areas also encountered some other problems within the structure and service delivery. Farmers were given production orders. They were required to keep maize as the property of the Government till they were ordered by the Maize Control to sell it. Many thousands of African small producers could not store their grains until ordered to deliver. The Maize Control Unit therefore sought to resolve this problem by establishing a system of buying agents to maintain the pre-existing channels of trade. The farmers received a fixed price for their produce upon delivery to the agents. This guaranteed fixed price was below the fixed price paid to European maize producers. The difference was considered as the price for handling, storage and transportation costs (Yoshida, 1966: 2). The price for European maize was Sh. 9 while that of the African grown maize was Sh. 4.90 (Colonial-Report, 1943; Yoshida, 1966: 4). In Nyanza and in Central provinces, the prices at which maize was being exchanged in small quantities among the native farmers themselves was considerable (Colonial-Report, 1943: 62). In addition to the price issue, the system of Maize Control was seen as too complicated for a native trader to understand. It was hoped that the administrative and agricultural officers would explain the system to the native traders even though there was no evidence that the natives had been

receiving any explanations. The regulations were sent to individual illiterate native traders, typed in English, via post (Colonial-Report, 1943: 74).

During the Second World War and some years after, legislation stabilized the maize industry especially within settler production. Production increased because of the assurance of ready markets and the assistance derived from the Increased Production of Crops Ordinance with credits for inputs in to European farms. In Nyanza Province, a system of pooling transport costs was developed. This was to enable maize to be cultivated for sale in areas remote from the railway so as to make maize growing in such areas economic. A cess was also collected on maize and paid into the local betterment fund that was controlled by African district councils and used for agricultural purposes (Were & Odak, 1987: 3). The Increased Food Production of Maize (and wheat) Policy was an important war-time emergency measure. However, one of the consequences of the policy was the unbalanced farming that resulted from the monoculture of maize and wheat even during the times of peace and that posed the danger of land degradation (Were & Odak, 1987: 5). In Nyanza province, maize production had escalated by the end of the decade to a point of concern for the local government as according to a letter, *"only cash incentive will make the African grow less maize. The Central Government is considering a subsidized price for legumes"*[12]. The agricultural officers at this time advocated for sound agricultural practices, especially mixed farming as much of the maize was produced in monoculture. This also led to more serious concerns about the exhaustion of soil resources. By the end of the Second World War, Nyanza province had emerged as a major maize producing area (Mango, 2002: 47). The 1943 Food Shortage Commission of Inquiry recommendations did not only serve to solve food shortage problems during the war time but also formed the basis of Kenyan policy almost until the present day (Llewellyn, 1968; Yoshida, 1966). Besides the seeming success in the increase of production of improved maize, most farmers in Luoland still produced 'local' maize varieties. It is therefore important to note that in most parts of Nyanza province or Luoland, people produced improved maize varieties for sale and mostly consumed the 'local' maize varieties and exchanged them locally through their social networks (Were & Odak, 1987).

[12] Kenya National Archives, file number Agri.1/2o/523. A letter dated 12 May, 1950 from the Department of Agriculture, Nyanza Province written by the Provincial Agricultural Officer to The Provincial Commissioner in Kisumu

By the mid-forties, there was still no policy that was devised for the development of smallholdings, and limited funding was available for the development of agriculture in African areas. The agricultural officers worked closely with the few progressive farmers. African elders and politicians bitterly fought any systematic policy towards developing the potential of African areas (Ruthenberg, 1966: 6). With regard to maize, a report from a maize inquiry commission mentions that politicians spoke discouragingly about maize saying that;

> *"it was not a necessary innovation and that people needed to be encouraged to continue to grow indigenous foodstuffs such as yams, sweet potatoes, bananas, cow-pea, beans, sorghum and millet. It was felt that it would not be good for maize to be developed as the only food with which large sections of the community could be held hostage. It was a terrible mistake. Communities should be able to carry on with a variety of foodstuffs for variety's sake and also for the improved nutritive value of the diet" (Republic-of-Kenya, 1966: 17-18).*

At this time, maize became a contested crop resisted by the local people through local leaders. Even though the colonial government recognized the limitations of maize mono-cropping, it was under pressure and the colonial administration resorted to developing a system of dependency on maize since it seemed the only option (Collier, 2010).

Nonetheless, maize marketing policies expanded, with the National Cereals and Produce Board coming into the picture in 1979 as an umbrella Marketing Board. The government increased the number of NCPB depots to improve access to markets (Karanja, 1996). The NCPB has enjoyed a monopoly in maize marketing for decades although its role has been changing as I discuss in *chapter 5.*

Maize in Luoland

Maize crop cultivation expanded in Luoland in the beginning of 20th Century. This increase is attributed to certain factors which include famines, favourable climate and contacts with neighbouring communities. There were a series of famines and human and livestock calamities which occurred between 1885 and 1907 not only in Luoland but also in most parts of East Africa. Locusts invaded and damaged crops between 1885-1890 and a terrible famine known as *ong'ong'a,* occurred in 1889. This famine was as a result of a tribal war in which other ethnic groups seized cattle from the then predominantly pastoral Luo community (Ochieng, 2002: 47). In 1890, a rinderpest

outbreak killed many of the community's livestock and resulted in a famine that was called *apamo*. As a result of the famine, the Luo people began to seriously cultivate crops both to consume and to trade for animals with the neighbouring communities. As crop cultivation expanded so did local trade (Hay, 1972). In this sub-section I explore the entry of maize into the Yala area and its cultivation practices by the peasant Luo farmers during the (pre-)colonial period.

Maize entry to Luoland, Yala area

Maize found its way in to western Kenya through various channels as an element of deterritorialisation. One of them was through trade between the Luo people and Ugandans. Travellers noticed maize in central Uganda in 1860s, a time when it was not observed in western Kenya. It may have spread in to western Kenya in the 1870s and 1880s and existed in small quantities that were not noticed by travellers. Luo people in western Kenya planted sorghum and millet as staples and the yellow and mixed colour maize varieties at the beginning of the 20th Century. Before this time, people used to plant crops only during the long rains, *chwiri,* but by the beginning of the 20th Century, they experimented with different crops during the short season, *opon,* a season which was not part of the agricultural cycle (Hay, 1972: 96-97). During *opon,* they planted small ears of maize that were referred to as *oduma ma rachich* which had multi-coloured grains, *nyamula* (yellow)and *radier* (black and white). The people used these maize varieties as 'a bridge' through the hunger periods before the harvests of sorghum and millet. The Luo people had not yet recognised maize as a main food. People would boil the maize and eat it off the cob and did not use it to prepare any other meals (Hay, 1972: 96). In this way maize found itself a new season for reproduction within the Luo planting seasons. The *nyamula* (yellow), *radier* (black and white) and *oduma ma rachich* (mixed colours) became the indigenous maize or rather what the people now refer to as 'local maize varieties'. White maize is said to have been introduced in western Kenya in 1917. It was called *orobi* by Luo women after the Kenyan capital city, Nairobi, that had been founded in 1901. This may have implied a new beginning of their lives (Mccann, 2001: 255). The white maize was renamed *ababari* by the Luo community, meaning 'a great thing'. It was a large white dent variety (Mango, 2002: 117). Ogot (1963) notes that before then, the Provincial Commissioner at that time, John Ainsworth, had introduced major agricultural and economic schemes in Nyanza and these included new crops such as a new variety of maize, cotton, groundnuts and simsim. "This new variety of maize was universally accepted and soon it

revolutionised not only the people's habits, but to a large extent their way of life as well"(1963: 255).

Maize penetrated deeper into the region through various routes[13]. I explore some of the routes through which maize found its way to Yala area. These include the migrant returnee 'gifts' from European settler employers, sharing and exchange of maize between communities, the local leadership and coercive ways of implementing the colonial policies and through the famine relief programmes at the beginning of the 20th century. The labour migrants, mostly men, who were employed on the settler farms would return to their homes with white maize. Larius Obeto, an elderly farmer who is now 83 years old explained that in the late 1940s, he used to work for a white settler in Tororo, Uganda. He was employed to do farm work in a farm where his employer planted various crops such as sweet potatoes, peanut and maize. The maize varieties were mostly what the Luo people refer to as *rachar,* a larger white dent grain. He would carry some of the seeds when going home to Yala for visits. Larius was one of the many labour migrants who brought white maize seeds to Yala from settler farms as they returned home. This route of entry of maize to the area constituted the actions of an outsider from within. This means that an element that had been removed from Luo assemblage and attached to another assemblage (European settler assemblage), returned to the former assemblage bringing back new elements (maize and maize knowledge). These new elements were acquired from an association with a different assemblage, in this case the European settlers.

Sharing and exchange of maize seeds, which is part of the Luo people's culture, is also another way maize entered Yala. Some people obtained maize seeds from their family members outside the province. Married daughters would go to their parents' homes to get seeds. Some respondents talked of *rachar* and commonly referred to it as *nya Uyoma (*from Uyoma) where the seeds were obtained from. Samson Oneya, who was born in 1945, recalled that his mother would go to her parents' home in Western Province and come back with maize seeds. His mother was a Luhya woman, born and raised in Western Province but married to a Luo man. They planted most of seeds the mother brought home from her visits, which were mainly yellow maize seeds. Some

[13] Some of the routes have been pointed out in the previous studies. See (Mango, 2002: 112-120). I will discuss channels through which maize entered Yala especially during the earlier years of its introduction in the country.

people would go *kisuma*[14] and come back with maize which they both consumed and planted. People would travel long distances to get food from their relatives in times of hunger. Some of the maize varieties they obtained from other areas were different from their own. Kisumo, which is now the third largest city in Kenya located in Luoland, originated from the word *kisuma.* According to Ochieng (2002), Kisumo was a rich agricultural ranch where many refugees settled. 'Kisumo' is a Luo word for a place where the hungry come to beg for food" (Ochieng, 2002: 43). By sharing maize and *kisuma,* maize varieties entered the area and this constitutes assembling of maize through the sharing practices which are embedded within the people's social relations as part of their culture. Therefore the culture itself became an important element for assembling maize.

The local leadership style also played a role in maize entry to Yala. An important figure in Yala leadership was one chief Odera Akang'o of Gem location. He was born towards the end of 19th century in Nyamninia village. The local people describe him as a ruthless, no-nonsense and unforgiving ruler who hated laziness. According to Mzee William, one of the oldest men in Nyamininia village, Odera Akang'o rose to power through unfair means. Being the senior *askari* (administrative soldiers recognised by their *kanga* dressing) of the previous chief, Chief Odera Ulalo, he tricked his boss at a time when the British administrator was coming to crown the chief. He advised him to go and get the British administrators some eggs[15], shortly before they arrived. Upon the chief's departure, the British administrators arrived, he told them that he was the chief and was thus crowned.

Throughout his period in chiefdom, he was both loyal and disloyal to the colonial government. He forced the people under his jurisdiction to adopt the ideologies of the colonial rulers as well as his own. He began his official visits to other countries and learned many things that he forcibly inserted in to the community. In 1915, the colonial government sent him to Uganda where he learned maize cultivation and formal education system. He brought back maize seeds from Uganda and forced people to

[14] The word *kisuma*, according to the respondents, refers to going to a place, mostly a relative's home to ask for food during hunger times. The relative is obliged to give out food (if they had plenty) to the person who comes to seek for it because selfishness was not tolerated. It broadly means 'going to look for food'.

[15] See Ogot (1963). He notes that "the colonial district officers, during their tours in the district, demanded and received from the largely poor Africans free food, free cattle, sheep, hens and eggs" (1963: 261).

cultivate them. Even though maize had been introduced to Yala during the ruling of the former chief, it was chief Odera Akang'o who enforced its cultivation. He did not condone laziness, idleness or borrowing and always had his *askaris* on the watch for idlers whom he would thoroughly punish mostly through caning and making them work in his farm for days without pay. Chief Odera Akang'o facilitated the implementation of policies formulated by the colonial government, especially in regards to agricultural development, overseeing the expansion of maize cultivation within the area.

Some famine relief programmes brought in maize to the Yala area. Mango (2002) pointed out that *oking,* a white maize variety was introduced during the great famines of 1906-1907. The maize variety is smaller than *rachar* and the name means 'hard' in Luo language. The maize has a hard dent that cannot be attacked easily by weevils. Ochieng (1988) noted that the famine of 1907 was a big embarrassment to the colonial government but they took advantage of it and issued the local chiefs with improved seeds and among them were the maize seeds to be planted as cash crops. That was around the time when the colonial government established the Yala market centre in 1908 (1988: 26). *Ababari,* a large white dent variety was introduced in 1917 as earlier stated, during the famine that occurred between 1917-1919. These varieties were imported from South Africa and found their way to Yala through the government channels as famine relief food. They were incorporated into the cultural lives of the people, along with the yellow and multi-coloured maize varieties to an extent that they have become 'local'. Akinyi, a farmer who was born in 1936 explained that during *otonglo* famine in early 1960s, yellow maize was brought from America as relief food. Some people may have planted the seeds of the yellow maize but she categorically stated that the yellow maize was not the same as the one they plant today. She insisted that:

> *"The yellow maize that we plant today is not the one that was brought as part of the otonglo famine relief food in 1960s. The one we plant today has been in existence for a long time, long before I was born. That's our nyamula".*

There was an agreement among the farmers that the yellow maize brought as food relief during famines was not the same as the yellow maize that people in the region had been planting for a long time. That yellow maize (*nyamula)* that was planted by their great grandparents is believed to be still the same one they plant today and not the ones from relief food programmes. The relief programmes mostly brought yellow

maize to Luoland directly from America, which people may have planted along with *nyamula* and other white varieties.

Maize cultivation practices in Luoland during the (pre-)colonial period

Despite the seemingly straightforward and strategic introduction of maize into the country, maize was not well received in Luoland. Maize had not been well established by 1930s in Luoland unlike in other parts of the country (Rundquist, 1984). Cohen and Odhiambo (1989) termed the introduction of maize in Luoland as 'an ambiguous process'. They elaborate that there was pressure involved during the introduction of white maize by the colonial authorities and their agents. Maize was introduced at the same time as formal education was being introduced. 'Those who went to school would plant maize as if it were part of their given school curriculum'. At first, *ugali,* or maize meal was referred to as *kuon ongere* or 'white man's' food. White maize was viewed as an outside crop- a white man's crop and thus people did not initially identify themselves with it. Besides, people discovered that it was less nutritious than the sorghum and millet as mothers in the region noticed high incidences of kwashiorkor among children who were fed with *uji* (porridge from maize flour). At the same time, the actual yields of maize per hectare were not much higher than those of sorghum and millet in relation to their consumption rates. Maize would be depleted faster in the granaries than the sorghum and millet (Cohen & Odhiambo, 1989: 64-65).

Since colonial times, the Luo community has mistakenly been viewed as 'a resisting community' especially against agricultural change and this is attributed to low and/or slow adoption of new technologies and new crops. Ruthenberg (1966) points out that 'there are a few places in East Africa where the British agricultural development efforts started early, were pursued so consistently, and yielded such disappointing results as has been the case of the Luo in Central Nyanza' (Ruthenberg, 1966: 25). In an agricultural news bulletin dated January 1957, T. Hughes Rice, an assistant director of Agriculture in Nyanza province within the colonial government wrote that he had been working in different regions of the country for many years. These regions were doing very well in terms of agricultural development but he was disappointed to see how backward Nyanza Agriculture was. The people were very poor, soil fertility had gone down and crop yields were getting smaller and smaller. Few people were using manure and better cultivation methods. Even though coffee and cotton prices were good, most people in this region did not want too much trouble with making bench

terraces and removing couch from the land. He concluded that most of the problems emanated from laziness and leaving work to women. The bulletin also noted that little progress was made in Central Nyanza. The Central Nyanza Luo people were quoted as "the most backward ethnic group as concerns agriculture and not much can be done until there is a change of attitude"[16].These claims stem from the perception of change as a linear process instead of ongoing multiple processes of forming and 'unforming' of the Luo assemblage. The labelling of the community as lazy, backward etc was triggered by the fact that results were not being achieved as per the intentions of the colonial government, thus blaming the people. There were no efforts made to find out the real and practical issues that people were facing at that time. Hay (1972) studied the practices of the Luo community of Seme location in Kisumu District during the major economic changes of the period between 1890s and 1945. She goes beyond the 'perceived resistance' to reassemble the dynamics and bring out the reality as it was among the members of the Luo community. She points out that the Luo community was not opposed to economic changes but people were busy adapting and incorporating external changes that were taking place (Hay, 1972).

During the (pre-)colonial and the colonial time, food security was organised within a homestead or *dala* in line with the Luo culture. The Luo community was and still is largely polygamous. The basic unit for the political, productive, reproductive and socialization was the *dala.* It comprised of the man, his wife or wives and children. The husband was the head of all the households or *wuon dala* in his *dala* and thus he was the principal decision maker. He would make major decisions such as the distribution of land, settlement of disputes among his wives or the relations of his *dala* with other *dalas*. The hut or *abila* of the *wuon dala* was built at the centre of the *dala* and acted as the administrative headquarters (Cokumu, 2001: 36) while that of the first wife or *mikayi* was built in the middle back of the homestead with the house facing the gate or the main entrance to signify her authority as the co-owner of the *dala.* Each hut represented a separate household which was headed by the respective wives where decision making concerning the household took place. Each wife would cultivate her own plots of land with her children, mainly for consumption purposes (Mango, 2002; Musandu, 2012). The main crops cultivated at that time were sorghum, millet and simsim before maize came to the scene. Maize gradually entered the cultural lives of

[16] Kenya National Archives, record number DC/KSM/1/3/10

the people[17]. The Luo people began to cultivate local maize varieties. Land cultivation was mainly work for women while men would supervise the work and make major decisions concerning field cultivation. The role of the first wife, *mikayi*, was very important as the man could hardly do any activities on the farm without consulting her. I will discuss this in depth in Chapter 6.

The man had his own piece of land for cultivation that was referred to as *mondo.* It was normally cultivated by the wives and their children. The produce was stored in a granary known as *deero* which belonged to the *wuon dala* and remained untouched till there was need to open the *deero* such as in times of hunger or if a relative came to *kisuma*. The man would be served with food in the evening in his hut by all the wives. The *mikayi* was responsible for passing information about the 'hunger situation' to the husband. The man would open up his *deero* and distribute food to his wives. Laziness among the wives was not condoned and none of the wives was allowed to open *wuon dala's deero*. Each wife would select seeds for the next season. These seeds (either from sorghum or millet or the 'local' maize varieties) were normally selected during harvesting and the best cobs or grains were kept aside for planting. No one in the household was allowed to consume the seeds even in times of hunger and every household had to keep their own seeds for planting. The wives were encouraged to plant plenty of food for their children so that they would not drain the reservoir/food bank (*deero)* which the husband controlled. Hunger prevention was a responsibility of the *dala* members as a whole and not just the members of the households alone. In case a household continuously lagged behind in terms of food provision, it would be the responsibility of the other households to ensure that the problem was solved, otherwise they would all bear the consequences. The head of that household (the woman) would, however, be warned against laziness.

At times a household head (wife) would go *kisuma* if her household ran out of food. This meant that she would approach her maternal relatives to ask for food. Selfishness was a taboo; one was supposed to share enough food that would satisfy the borrowers if approached. Generosity and sharing was emphasised within the Luo community.

[17] A farmers explained to me that the adoption of maize was gradual; when people encountered it at first, they would taste it, wonder about it and slowly began to use it until it became part of their daily consumption.

Maria Ambajo, an elderly farmer in Sauri narrated to me a symbolic story that portrays the intensity and importance attached to sharing among the Luo community:

> "...a man had several wives and one of the wives had a sister who had just given birth. The sister did not have food to feed her household and so she went to seek for help at her sister's home. When she asked her in-law (her sister's husband) for food and he instructed his wife (her sister) to go to his *deero* and get enough food for her sister's household. The wife was not happy that her sister chose to come *kisuma* at her home and so she decided to give her little food. The sister was not satisfied with the little food that was shared to her and so she decided to sneak into the *deero* at night to get some more food for her household. As she tried to get more food, the in-law heard some movements in his *deero* and, armed with a sword, went right away to check. He shouted to ask who was inside his *deero* but the woman kept quiet and attempted to escape. Without knowing who it was, he attacked the perceived enemy with a sword. The sword cut through the woman's the body and it was only then when the woman lay down dying that he realised he had killed his sister-in-law. He called his wife and demanded to know why she had given her sister such little food and brought such a calamity to his home. He told her that he was not going to suffer wrath of the people for mistakenly killing the woman. He blamed her for the death of her sister. As a punishment for being selfish, he instructed his wife to get into the *deero* and get her sister's body. Immediately she got in, he locked the door and set the *deero* on fire. She too died, and all the food got burned as well!".

Such were some of the repercussions for selfishness. Sharing was the norm and still remains deeply ingrained within the Luo culture.

Cohen and Odhiambo (1989) point out that during the 1918-1919 famine called *Kanga,* the head of the *dala* would move from the households' granary to granary to examine food stocks. He would replenish exhausted granaries using food from those granaries that had plenty explaining that kindness to those who don't have was mandatory. Women who had many children had greater need and he arranged re-distribution by himself at night in order to avoid arguments over food shares (Cohen & Odhiambo, 1989: 62). Such was the form of food organisation within the *dala* that was independent of the colonial influences.

Colonial policies right from the beginning impacted on the way the Luo people organised themselves around food cultivation. The push for increased maize production that would provide surplus for the markets did not leave room for the *deero* to serve its purpose for the households since the surplus would be taken to the markets and not stored to be used during times of hunger. The people were increasingly compelled to produce maize for sale so that they would get income and pay taxes demanded by the colonial government. Thus the level of production went higher than the pre-colonial production but with increased need to produce for the market (Ogot, 1963). At the same time, out-migration reduced manpower in farm activities in the Luo households and the people began to experience food shortages as the men got involved in wage employment and the women took up male roles such as taking care of livestock resulting in reduced time for cultivation. The colonial policies that were implemented such as The Master and the Servants' Ordinance of 1906 and the Native Registration Ordinance of 1915 forced males of the ages between 16 and 30 to turn out to work for the European settlers. This affected the way the Luo people organised themselves as the men could no longer maintain the grain surpluses in the *deero* to be used during times of hunger (Ochieng, 1988: 24-25). The frequent removal of some elements (men) from the Luo assemblage meant reassembling within the *dala* to adjust to the changes. Additionally, the insertion of new ideas about maize cultivation for the market triggered changes in the way the food cultivation was organised to consciously produce surplus for the market as opposed to keeping surplus in *deero* to use during times of hunger.

Assembling maize genes; maize hybridization from 1960s

Maize cultivation expanded greatly through maize hybridization, around the time Kenya got independence, through agrarian sciences that combined plant breeding, agronomy and soil sciences resulting in a maize hybrid package. The production of hybrids began in 1955 when the government initiated a program that was aimed at improving maize germplasm in Kenya. A plant breeder, Harrison N.M was hired to develop late maturity high-altitude regions. The program was later expanded to develop early and medium maturing maize. The first Kenya hybrid, H611, is a cross between a previously released synthetic variety, Kitale Synthetic (KS) II and an Ecuadorian line, Ec 573. H611 was released in 1964, with a 40% yield advantage over KS II, marking the beginning of Green Revolution attempts in Kenya. Maize varieties were also released for marginal regions and the first ones were Katumani Composite

A and Katumani Composite B in 1966 and 1968 respectively (Harrison, 1970; Hebinck, 2001; Karanja, 1996; Rundquist, 1984).

From 1960s onwards, various varieties of hybrid maize such as H511, H512, H622 and H614 were among the earliest hybrids to be introduced which resulted from the maize research and breeding programs. These varieties were bred by the Kenya Seed Company (KSC) that held a monopoly position in the Kenya seed market until the Structural Adjustment Programme in the 1980s that led to market liberalisation which saw other seed companies entering the market to sell their seeds to the farmers hence the KSC losing its monopoly. The produce and marketing boards lost their monopoly in marketing. Private traders were given priority with the marketing boards as the last resort. Controls and regulations at the district levels were removed as well. Companies such as Pannar and Pioneer, which respectively are from maize seed companies in South Africa and the United States, entered the seed market with PAN5195 and PH1 maize varieties. The varieties were issued to farmers in Siaya for almost free but neither of them performed well. (Hebinck, 2001; Mango, 2002: 119; Mango & Hebinck, 2004: 293). More companies with various maize varieties have been involved with farmers[18] to date, prompting farmers to make choices from the various varieties.

In the 1960s following hybridization of maize, the Kenya government initiated a national development programme through which the maize technology package would be disseminated to farmers via extension programmes, credit facilities and to facilitate the purchase of inputs from the marketing board and private traders. In Luoland, the farmers received information about hybrid technology through government campaigns that were facilitated by KARI (Kenya Agricultural Research Institute), MOALD (Ministry of Agriculture and Livestock Development), Kenya Seed Company (KSC) and Kenya Farmers Association (KFA). The mandate of these institutions during the campaigns was to recruit and convince as many farmers as possible to grow hybrid maize. The research stations were tasked with developing high yielding varieties and the KSC was responsible for multiplying the hybrid seeds. The KFA, which was a wholesaler, was responsible for distribution of hybrid seeds, fertilizers and pesticides. The extension officers from MOALD disseminated hybrid technology along with scientific knowledge on its cultivation to farmers. They would hold demonstrations and help the newly recruited farmers with planting and practical

[18] See table 1

information on the acquisition of hybrid seeds, fertilizers and pesticides. The extension officers encouraged the farmers to spread the 'hybrid word' to other farmers and also made use of opinion leaders such as church leaders, chiefs and sub-chiefs to promote hybrid maize during their gatherings. Additionally, MOALD organised agricultural shows to display exhibits from farms. The farmers were also assisted with tractors, fertilizer subsidies and loans from Agricultural Finance Cooperation (Mango, 2002: 131-132). The agricultural extension officers paid less attention to the local maize as well as other food crops such sorghum, millet, cassava and sweet potatoes. Adoption of hybrid maize was associated with modernity and being progressive and this meant growing sorghum and millet and especially the local maize varieties was associated with backwardness and ignorance. The heavy campaigns for hybrid maize along with its new status in the community led to emergence of a 'pro-hybrid maize attitude' and meals such as *ugali* began to be prepared with white maize (ibid. 132-134).

Maize production increased substantially in Luoland in western Kenya although the adoption of hybrid maize technology was lower in Siaya region. Reassembling of the introduced maize technology began to take place. The farmers began to increasingly plant the local maize varieties and to use manure to enrich the soils, hence reterritorialization. They realised that the hybrid technology made them increasingly rely on markets for inputs and at the same time they did not have money to buy the inputs. The inputs issue was worsened during market liberalization in the 1980s. The government also withdrew from the regulation of farm inputs due to market liberalization and traders were free to fix their own prices according to demand. Apart from financial constraints, the inputs were not always availed in good time for the farmers to have timely planting and use. The credit facilities established to enable farmers to acquire loans for commercial farming were not functioning well. A few farmers managed to get loans, and most of them were harassed during loan recovery hence discouraging farmers from acquiring more loans and also farmers developed fears of losing their property during loan recovery. Additionally, farmers complained that the quality of farm inputs had deteriorated due to adulteration of seeds, distribution of fake seeds and experienced negative impacts of fertilizers on soils (Mango, 2002: 161-168). These were some of the institutional and financial issues that were associated with the reassembling of hybrid maize by the farmers and some of these issues are still discussed up to date as I will discuss in *chapter 5.* Operating through their local maize assemblages was seemingly a stable option since it allowed

the farmers to select seeds from the previous harvests, to use locally available manure for soil replenishment and to acquire seeds from their social relations.

The farmers' practices within their local maize assemblages were also associated with various agronomic advantages. They realised that the local maize varieties out-yielded the hybrids if fertilizers were not used on the hybrid maize. At same time, using fertilizers continuously would 'spoil the soil' and stimulate the growth of *striga* weeds and this was recently confirmed[19]. The farmers also found that the hybrid maize cobs open, rot and are prone to bird damage while still in the fields. The hybrid maize lodges more in strong weeds since the stem is not so strong and once lodged, it does not easily rise again making it susceptible to attack by soil borne pests and diseases. Hybrid maize is less resistant to weeds, pests and diseases and takes too long to mature. Their storage is problematic since they are easily attacked by weevils (Mango, 2002: 168). The local maize varieties, according to the farmers are tastier and heavy which means one can get satisfied by eating a smaller maize meal as compared to the hybrid maize (ibid. 174). This has been the position of the farmers since colonial times up to date as confirmed during the interviews and conversations with the farmers as I discuss in *chapter 4*.

Yala has been on the receiving end of hybrid maize packages from governmental and non-governmental interventions as well as from private enterprises. The various interventions implemented in this area following the maize hybrid technology package include ICRAF in the late 1990s that advocated for agroforestry to replenish soil fertility and the recent international project, the Millennium Villages Project (MVP) that re-introduced the farmers to the maize technologies after territorialisation and provided intensive knowledge on how to cultivate maize. Currently One Acre Fund, a private micro-finance organisation, is distributing hybrid maize varieties and fertilizers to farmers in form of loans. I will discuss this in-depth in the *next chapter*.

[19] During my recent fieldwork, 2016, a farmer in Yala showed me a practical comparison. When he began using fertilizers, the farm was heavily infested with striga weed. He then resolved to use only organic manure from his cattle. There are no more striga weeds on his farm now.

Table 1 A summary of maize varieties introduced in Luoland since 1890s.

Networks	*Mediating agents*	*Varieties*	*Colour*	*Year*	*Sources*
Pre-colonial and colonial Trade Networks	Traders	Radier	Multi coloured	1890s	Coastal areas of East Africa via Uganda
		Rachich	"	"	"
		Rachar	White	"	"
		Rateng	Black	"	"
		Rapir	White, and red stripes	"	"
		Uganda White	White	1982/84	Uganda
		Kawanda	White	"	Uganda
Food and Famine relief programmes	Colonial and post-colonial state officers	Oking	White	1916	Unknown
		Ababari	White	1917	Unknown
		Nyamula*	Yellow	1890s/1928/36 /82	United States
		Hickory King	White	Early 1900s	South Africa
Labour Migration networks	Migrants and former soldiers	Radier	Multi coloured	After World War II to 1970	Uganda
		Rachich	"	"	Uganda
		Rachar	White	"	White Highlands/ South Africa
		Kazigo	White	1922	"
Networks associated with research and extension, projects and programmes					
Early research	Colonial state and European settlers	Kenya Flat White	White	1920s	Kenyan White Highlands
Kenya Seed Company	Stockists, Govt extension programmes	Kitale Synthetics	White	1961	Kitale, Kenya
		Hybrid 511, 512,	White	1964	Embu, Kenya
		Hybrids; 614, 622, 625, 626	White	1970-90s	Kitale, Kenya
	MVP and stockists	DH04, H513 and H632	white	2004	
PANNAR	Stockists	PAN 5195	White	1990s	South Africa
Pioneer Hybrid	Stockists	PH1	White	1990s	United States
Lagrotech	Stockists	Maseno Double cobber	White	1996	Kisumu, Kenya
Western Seed Co.	MVP, stockists	WH 502, WH505, WH404, WH403, WH507, WH202	white	2004	Kitale, Kenya
Monsanto	MVP, stockists	DK 8031	white	2004	Nairobi
Seed Co.	MVP, stockists	SC Duma 43, SC Simba	white	2004	Zimbabwe
Seed Co.	OAF	SC Punda Milia	white	2015	Zimbabwe
Olerai Ltd.	MVP	Olerai	white	2004	
Freshco Seed Co.	OAF, stockists	KDV-6	white	2015	Nairobi

Source: Table updated from Mango (2002: 116)

* *Nyamula* maize was first introduced in the 1890s during the pre-colonial period. The subsequent yellow maize that was introduced during the famines of 1928, 1936 and 1982 do not bear the full characteristics of *nyamula* maize as the farmers know it but they are nonetheless still referred to as *nyamula* because of the yellow colour. The farmers confirm that these later varieties are not their '*nyamula'*.

Conclusion

In this chapter, I have examined the historical processes through which maize entered, spread and was engaged with by various actors in Kenya as well as in Luoland, highlighting the key elements of maize expansion to achieve its current status as food security in the country. Maize is not an indigenous crop in Africa but it was introduced in the continent from the New World and America hence deterritorialising food security that mainly constituted the foods such as sorghum and millet. Maize has been assembled through the processes of territorialisation and deterritorialisation that yielded the hybrid and 'local' maize varieties. Deterritorialisation was facilitated by various elements: *actors* such as traders, the peasant farmers, colonial state agents, European settlers, missionaries and researchers; *events* such as famines that led to the introduction of various maize varieties in the country; *maize policies and systems* of controls that ensured regulated and monitored production and expansion; *resources* such as land, labour and maize genes through the agrarian sciences and *knowledge* and *ideas* such as the early breeding of maize, new ways of maize cultivation and cultivation of maize in bulk for export. Even though the Luo peasant farmers took part in deterritorialisation process by bringing maize from the settler farms where they worked or trying out new maize varieties as advised by the government agents, they have been also involved in (re-)territorialisation. The Luo assemblage has been transforming as the farmers enrich the local maize varieties through selection and continuous reproduction despite the introduction of the high yielding hybrid maize.

Maize production in Kenya has been characterised by heavy government interventions dating back to the colonial period. The policies at that time reflected the interests of the European settlers and after independence, most of the European large farms were taken over by Kenyan elite who had links with the politicians and policy makers (De Groote *et al.*, 2005: 33). It is clear that what happened at the national level affected what took place at the local levels. For instance, the colonial government policies that were implemented through the local chiefs appointed by the colonial administration were coercively imposed on the people, influencing their cultural lives around maize cultivation. The linkages between the colonial practices at the national level and local people's practices in maize cultivation demonstrate both the processes of territorialisation through resistance and deterritorialisation as new maize elements were incorporated into the local people's cultural lives by the colonial government either coercively, consciously or unconsciously through the need to pay hut taxes with cash from maize income.

Assembling maize in Kenya presents varying ontologies. The colonial government and the European settlers initially viewed maize as a cash crop. The state agents and the NGOs see maize as a commodity for exchange which should be produced in bulk to maximize profits, a perspective that stems from the views of the colonial masters. The governmental and non-governmental organisations have always advocated for the high yielding maize varieties aimed at the markets, to be produced and marketed through organised channels. The systems of control and the strategies that the colonial government used to expand the cultivation of maize is still in use today. These include the use of progressive farmers, the designed channels of marketing especially through the cooperatives and controls in production, continued hybridization of maize in an effort to assemble various genes that are deemed suitable for various areas and lastly, the advocacy for increased use of modern maize technologies. These do not consider the 'local' maize varieties, for instance, there have never been active institutions or policies for the local maize varieties. Since the colonial era, the 'local' maize has been viewed as inferior even as the Luo farmers continue to embrace it. The farmers attach value to the local maize varieties that is embedded in their culture, social relations and practices and the autonomy it accords them from production through to marketing. Maize has largely taken the place of food crops such as millet and sorghum, and peasant farmers see it not only as a source of food, but also as a way of life. It thus basically went from being an 'outside crop' to becoming an indigenous crop and part of the cultural lives of the people.

The brief chronology of maize indicates the general situation in which the maize industry currently finds itself as embedded in past events through (re)assemblages of policies, institutions and support systems. Maize innovations have been developed since the era of hybridization and brought to the people in business model forms as it was done during the colonial era where the main focus of increased production lay on the exports that were expected. At the moment, the adoption of maize technology comes with associated business rewards that the farmers are expected to stick to in order to acquire the required inputs from organisations that offer the technologies. Even as Luo farmers continue to prefer and cultivate the 'local' maize varieties over the hybrid maize, agricultural officers as well as other interventionists such as MVP and One Acre Fund emphasize hybrid maize cultivation for increased yields especially for the markets. This aligns with the way maize gained roots as a commodity for trade to sustain the colonists' survival in Kenya.

Just as Müller (2014) points out the agency of seeds, maize has formed "a meaningful part of the daily practice of many people involved in agriculture and the mediators of power and control, acting as a carrier of national and international food and agriculture policies and as an instrument for imposing corporate control in the field of the farmer"(2014: 4). Maize is entwined in the Luo people's history, life and culture. It has not only influenced the cultural environment of the local people, but it has also impacted on the national and international polices regard to food security and income generation.

Chapter 4
Of 'modernizing' maize cultivation: peasant farmers' interactions with the recent maize technology interventions

Figure 6 Groups of farmers receiving hybrid maize and fertilizers from OAF in Nyamninia Sub-location, February 2017

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Introduction

As noted in Chapter 1, Yala area has been home to interventionists or rather deterritorialisation forces especially in food crop cultivation which emphasise green revolutionary style of farming. Many arguments have been put forward to necessitate maize interventions in this area. These include: that the peasant farmers do not produce enough food for their families and this is attributed to low use or non-use of especially 'modern' maize technologies (Nziguheba *et al.*, 2010: 76; Sachs, 2005). The low and/or non-usage of maize technologies has been associated with unaffordability and lack of access to credit (Dawson *et al.*, 2016; Frelat *et al.*, 2016; Onyutha, 2018; Ouma *et al.*, 2006: 10; Sachs, 2005; Sanchez *et al.*, 2009). It is also argued that peasant farmers do not have (enough) knowledge of the available maize technologies that they can use for increased production and/or do not know how to effectively use the maize technologies (De Groote *et al.*, 2005: 36; Japhether *et al.*, 2006; Sachs, 2005; Shiferaw *et al.*, 2015). These claims have stimulated initiatives to deterritorialise the existing Luo assemblage to remove the barriers that hinder or prevent the adoption of new maize technologies that are seen as more productive. The recent attempts to deterritorialise have been driven by non-profit and profit making organisations such as the Millennium Villages Project (MVP) and One Acre Fund (OAF). These organisations attempt to transform the existing Luo assemblage to a more productive one according to their definition of productivity that solely hinges on quantity which consequently strengthens the livelihoods of the peasant farmers. The peasant farmers have been provided with many options for credit and input access and trained in different ways of using the maize technology, that is, hybrid seeds and fertilizers for improved production.

It interests me to find out how the peasant farmers disassemble the deterritorialisation elements especially the new knowledge and resources (hybrid maize and fertilizers) and how they self-organise around these changes. Arce and Long (2000a, 2000b) refer to the self-organising practices as 'mutant modernity'; practices that are creative and self-made (2000a, 2000b; Hebinck *et al.*, 2019). The ways of disassembling help to understand how the peasant farmers interpret their own modernity and how they position themselves in situations of deterritorialisation. I therefore explore the farmers' practices in interaction with recent deterritorialisation forces, that is, the MVP and the OAF interventions as well as the way the organisations measure and report their impact. I will begin by exploring the MVP (which phased out in 2015) and explain how it was assembled, the deterritorialisation objectives and the subsequent

(re)territorialisation and deterritorialisation processes as the peasant farmers interacted with the project through various relations and practices as well as its survival tactics such as selective reporting. I will then explore OAF strategy of '*small is good*' in delivering services (knowledge and inputs) to the peasant farmers in a way that OAF deem affordable and the peasant farmers' responses to all these arrangements. After discussing the two deterritorialisation forces, I will expand on the practical experiences of the farmers and how they actually apply hybrid maize technology that brings out the way the technologies are disassembled by the farmers as they sort out what works for them. I will explain the cultivation of *nyaluo* maize, which is the main element of (re)territorialisation as most peasant farmers revert to cultivating *nyaluo* maize if the maize technologies presented to them do not fit and also some cultivate the *nyaluo* maize along with the hybrid maize, mainly for consumption and to preserve the seeds.

The Millennium Villages Project

At the beginning of the New Millennium, the Millennium Development Goals (MDGs) were launched at the Millennium Summit as the next global development strategy that would make a difference. Initially, eight goals were formulated which would lead to the transformation of societies, reduce poverty and improve standards of living across the globe by 2015 (Sachs, 2005; Sanchez *et al.*, 2007). The MDGs were designated as '*the world's biggest promise*' and deemed too important to fail (Hulme, 2010: 15; Wilson, 2013: 2). However, it was realised after some time that most countries in the Global South were not likely to achieve these goals by the year 2015. The then UN Secretary-General Kofi Annan commissioned the Millennium Project to formulate a strategy for the achievement of MDGs which were then implemented as Millennium Villages. MVP was born out of the perceived need to catalyse the achievement of the MDGs. Headed by Jeffrey Sachs[20] and assisted by former director of ICRAF, Pedro Sanchez, and associates from Earth University, MVP formed a 'task force' that included representatives of the World Bank, the IMF, UN and donor agencies, civil society organisations, the private sector and celebrities like Bono and Bill Gates (Binagwaho & Sachs, 2005; Carr, 2008b; Sanchez *et al.*, 2007; Wilson, 2013, 2016).

[20]Wilson (2014) devoted an entire book to Jeffrey Sachs clearly illuminating how Sachs' career has evolved and why neoliberalism entices him.

The MVP approach stipulated that poverty and hunger could only be reduced by *accelerating* transformation and the reorganisation of the resource base of societies and their economies in the Global South from reliance on the 'traditional' to adoption of the 'modern'. This would accomplish what all other previous approaches to development failed to achieve (Cabral *et al.*, 2006; Kanter *et al.*, 2009; Sachs, 2005; Sanchez *et al.*, 2007). The MVP was launched, legitimised and positioned as an assemblage for empowering communities to invest in a package of integrated interventions that aimed to increase food production, improve access to safe water, health care, education, and develop infrastructure. The MVPs were first implemented in sub-Saharan Africa from 2005 onwards, gradually expanding and up-scaling from 2 villages - Sauri in Kenya and Koraro in Ethiopia - to ten additional villages in Ghana, Kenya, Malawi, Mali, Nigeria, Rwanda, Senegal, Tanzania, and Uganda (Cabral *et al.*, 2006). At a later stage, MVPs were carried out in 80 sub-Saharan villages (Kanter *et al.*, 2009).

The idea of the MVP builds clearly on the Green Revolution strategy that set out to transform the agricultural sector through the introduction of maize production technology packages consisting of field tested high–yielding[21] hybrid varieties of maize and inorganic fertilizers applications combined with field-based extension (Hebinck, 2001; Nziguheba *et al.*, 2010: 111). In Kenya, MVP was first implemented in Sauri sub-location which became the first Millennium Village in Africa and later up-scaled to Nyamninia sub-location as well as 9 other sub-locations in Yala location. In addition to the classical Green Revolution approach of introducing maize production technologies, the MVP introduced a cooperative mode of marketing (Mutuo *et al.*, 2007: 7; Mutuo *et al.*, 2006; Sanchez *et al.*, 2007; Wanjala & Muradian, 2013). The cooperatives were thought of as a good exit strategy through which the peasant farmer could acquire inputs and sell their produce (I will elaborate on this in chapter 5). It was thought that if organized into producers' groups, farmers could negotiate higher prices and linkages to buyers (Nziguheba *et al.*, 2010: 111). The MVP became in this way part of the many interventions in the area that aimed at deterritorialising the Luo assemblage to 'a more productive' arrangement or rather transforming it to curb hunger in the area.

[21] The state had a monopoly in seed marketing through the Kenya Seed Company that was relinquished after the Structural Adjustment Programme in the 1980s as explained in chapter 3.

Deterritorialisation tactics and the farmers' agency

At first when I talked to the farmers about the degree to which they have adopted the deterritorialising elements from the MVP, I almost believed that some farmers had adopted the MVP elements fully. It was only after doing some actual work with the peasant farmers on the farms that I realised that their actual practices differed from MVP's 'agronomic guidelines'. When I asked what they do, the farmers would repeat the MVP's articulations or instructions on what they should do but that was not (or rarely) what they actually did. At the same time MVP employed tactics to convince the farmers to adopt maize technologies. From my observations of the peasant farmer practices, I deduce that the peasant farmers have been disassembling MVP in various ways despite the extra efforts it employed.

The free 'gifts'; hybrid maize, inorganic fertilizers and knowledge

In order to facilitate the implementation of the project, MVP organised the community in groups/sectors according to the 8 MDGs, such that each MDG was implemented within a specific sector. The agricultural sector was one of the main sectors. The farmers were indiscriminately given free inputs (hybrid seeds and inorganic fertilizers) during the first year of implementation. In the second year of the project, the farmers were given half of the inputs that they needed on their farms for free and introduced to a loan system to get the rest of the inputs. This was to familiarize the farmers with loans. During the third year, the farmers were not given any free inputs but instead the inputs were loaned to them and they were expected to pay back the input loans with maize harvests. The majority of the farmers tried out the introduced inputs even though most of them later began to use their own knowledge to apply the inputs while others abandoned them to use local resources such as the local maize varieties and manure. However, I was informed about some farmers who took the free inputs and sold them to neighbouring villages as one of the farmer pointed out:

> *"some of these fertilizers the community members were receiving from SMV did not go into good use. I know of some people here who would get the fertilizers and sell them to the neighbouring villages, to serious farmers there".*

This kind of practice indicates heterogeneity within the villages and that not all 'the village people' are farmers as MVP assumed, indicating that farmers cannot be grouped and treated as a homogenous group. The farmers' maize cultivation practices is partly guided by cultural values. Maize is not only cultivated for (high) yields but it also fulfils an important symbolic role (Cohen & Odhiambo, 1989; Hebinck *et al.*, 2015; Ramisch, 2014: 22). The farmers are culturally expected to cultivate maize at least to

feed themselves and their families so that they do not become a burden to the community by borrowing food. Some farmers only plant maize to fulfil these cultural expectations and may not be willing to cultivate for increased production, hence their seemingly deviating practice that also brings them some extra money.

In the spirit of getting the farmers to enrich and maintain soil fertility, MVP reintroduced fallow seeds that were initially and previously introduced in the area by ICRAF (Kiptot *et al.*, 2006; Kiptot *et al.*, 2007; Mango & Hebinck, 2016; Place *et al.*, 2007; Place *et al.*, 2004; Sanchez, 1999, 2002) in addition to issuing inorganic fertilizers. The farmers were given improved fallow seeds with the false promise that MVP would always buy the seeds from them. It was MVP's strategy to get the farmers to plant/adopt the fallow system for soil fertility. At first the MVP bought the seeds from the farmers and farmers made a lot of money. However, during the subsequent seasons, MVP did not buy the fallow seeds from the farmers anymore. This is a similar tactic that ICRAF employed when it introduced the farmers to agroforestry based soil replenishment in the 1990s but was not successful. Planting the fallow seeds for the peasant farmers had become synonymous to planting a cash crop rather than for soil fertility. One of the key informants, a former member of MVP staff, criticised the strategy they used to get farmers to adopt to fallow technology. She said:

> *'the approach given to the 'ICRAF fallow seeds' that we gave to the farmers was wrong. They were told that the seeds would be bought once they were ready and during the time that the seeds were being bought from the farmers, the farmers planted lots of fallow trees but once the seeds were no longer being bought, the farmers stopped planting them. I had a big problem in the villages because of the fallows. Some farmers still plant them, especially the 'lead' farmers, but most of them have stopped planting'.*

The farmers were enticed by financial gains from the fallow trees and particularly the market for fallow seeds that ICRAF created and MVP picked it up as a continuation of the same failed tactics. The farmers did not adopt this strategy for the purposes that MVP intended. The peasant farmers tailor their practices in a way that is beneficial to them.

After MVP withdrew the 'free inputs', the peasant farmers were involved in various practices. Some of the farmers continued using the inputs as prescribed by MVP, accessing them through the channels introduced while others mixed the existing methods with the new technologies in a way that they deemed fit but at the same time, some farmers formed a defence line against the use of maize technologies and returned

to using the local seeds and manure to produce maize. The majority of those who accommodated most MVP deterritorialisation elements are 'lead' farmers trained to train other farmers on the best hybrid practices. They also include the farmers who have been very actively involved in MVP. Some of them were also actively involved with ICRAF activities and were referred to as ICRAF agents (which had a negative connotation for the farmers) and interviewed during the previous studies (Mango, 2002: 244; Place *et al.*, 2007).

Zedi is one such a farmer. Being a key reference during the implementation of MVP (and ICRAF), he benefited a lot from not only the knowledge and resources that MVP brought, but also from preferential treatment such as agricultural trips and allowances. He thus stayed as close as possible to the project to gain as much as he could. During the implementation of ICRAF that introduced the fallow trees to the farmers, he gave out a part of his land for ICRAF demonstrations and thus he was a key contact in that project. Mango (2002) describes him as one of the 'ICRAF agents' who reaped benefits from ICRAF by aligning himself with the project and thus got favours, along with other ICRAF agents, that made other villagers jealous of them (2002: 244-274). Zedi and other farmers like him interacted with both ICRAF and MVP in a way that allowed them to benefit from the projects.

This positioning with ICRAF (and later MVP) has had some implications. They had to adopt most of the project's elements so that they could maintain the trust of the project personnel for continued benefits. At the same time, the agency of the material elements (fallow seeds, hybrid maize and inorganic fertilizers) directed the actions of these farmers even when it meant being envied by other villagers or broken relationships. However, they were also under pressure to adhere to the Luo assemblage which includes the cultivation of the local maize varieties that is used for food due to various reasons which include taste and fullness of the stomach as I will discuss later.

During my many visits to Zedi and his homestead, he always denied that he plants the local maize varieties and insisted that he is for 'progress' and so he plants only the hybrid seeds. One time I went to his home unannounced and found some local maize varieties put outside for processing. When I asked him about the maize, he responded:

> *"this maize you see is our food. We cannot do away with the nyaluo because it is our food. I plant both the hybrid and nyaluo seeds during most opon and chwiri seasons".*

I realised that even those entrusted by the project to ensure the adoption of hybrid maize technology cannot fully disassociate themselves from the Luo assemblage in the name of 'progress'. These are some of the practices of the farmers who are seemingly change agents who want to portray a different image to outsiders; that they always use maize technologies for production. They also represent a performance in farming (Flachs & Richards, 2018; Glover, 2018; Richards, 1993) as "the farmers manage the complex socio-ecological demands of farm work while participating in social life and in the larger political economy"(Flachs & Richards, 2018: 638). Farmers have to respond to their community but at the same time they need to represent the organisations in which they benefit from such as the MVP.

On the other hand, some other farmers 'tasted' the introduced technologies but later on abandoned most of the elements from the MVP assemblage. Samsom Oneya[22] is one of them. During one of the times that I visited him, at the end of January 2016, we sat outside his house in its shade. His chickens began to make noise, wanting to be fed. He excused himself and went inside the house. He came back with a handful of *radier* maize[23] and threw it to the chickens. I began to talk to him about maize while pointing at the coloured local maize varieties. He told me that he only plants the local maize varieties on his farm that he selects and saves every season. On one part of the farm, he plants the *nyamula* and on the other he plants *radier* during both *opon* and *chwiri* seasons to compare their yields and notes that *nyamula* yields more than *radier*. He added;

> *"when MVP people came, they gave us hybrid seeds. But I realised that these seeds are not really for consumption. They are good for business. This is because their flour is not the best for making kuon (a maize meal cake) since it does not mix well with water and its taste is not as good as the one from our nyaluo maize. If you have a family and you plant only the MVP seeds, you will be greatly disadvantaged.*

Samson Oneya is one of those farmers who tried out the MVP introduced maize technologies and assessed them before abandoning most of their elements.

[22] Samsom Oneya died in June 2016 following complications from a long term illness. He was a believer in local maize varieties and always harvested relatively high yields from them that enabled him to hire labour to work for him as he was not in good health.

[23] See the table with various varieties of maize in chapter 3

Dubious reporting

Apart from the deterritorialisation tactics that the MVP employed in the field to get the farmers to adopt the maize technology, it also tried to maintain a positive image to the outside world through a certain way of reporting that would imply successful project implementation even when it was clearly not so on the ground. The project evaluation reports have been questionable and their data has been kept secret. The MVP reports on impact evaluations were done in a closed and confidential manner. Researchers like me who were not associated with the project were not allowed to access or make use of project data. This greatly inhibited any critique of data production, and the processing and validation of any analysis of impact. Clemens and Demombynes (2013) argue that project data requires an interactive process of external critique. By denying visiting scholars project related data, independent analyses of the impact of the MVP remain undermined. The tendency in the reporting that has been published endorses a view of the impact of the project that serves the interest of the project bureaucracy so that it can continue to receive funding for development work (2013: 12). Thus most projects are compelled to publish impressive reports even though the reality is different.

The MVP published a few reports on its impact in Yala. These include the baseline survey report (Mutuo *et al.*, 2007) and the first annual report (Mutuo *et al.*, 2006) that reported and celebrated bumper harvests. These bumper harvests were realised in the 2005/2006 and 2006/2007 agricultural season, with yields of respectively 4.9 and 6.2 tons per hectare (Haro, 2014: 255; Mutuo *et al.*, 2006: 11). The first bumper harvest was celebrated in Sauri on July 21, 2005, as a major success of the MVP. Those who attended included dignitaries from the international community, including the Executive Director of UNICEF (Ms. Ann Veneman), special advisor to UN Secretary General on MDGs, and the Director of the Earth Institute at Columbia University (Prof. Jeffrey Sachs), MVP Director (Prof. Pedro Sanchez), UNDP Country Representative (Paul Andre de la Porte), Canadian Minister of Human Resources (Ms. Belinda Stronach), UN Millennium Project officials and donor community representatives (Mutuo *et al.*, 2006: 10). The reports do not mention that these yields that were celebrated in style were, however, only realised during the first two years of the MVP, the period when farmers received free inputs (hybrid maize seeds and inorganic fertilizers) in full during the first year, and half in the second year of implementation. After that yields dropped substantially and the much-heralded yield increases did not continue. Many of the farmers attested to this during interviews. Interestingly, MVP in Yala did not

publish any more yield data. MVP's practices of concealing data and publishing only positive results are part of the tactics to maintain a good image that would justify the achievability of MDGs.

The deterritorialisation tactics or strategies that I have pointed out facilitated the operation of MVP to get the farmers to adopt maize technologies and also to maintain an image of success so that the project could stay relevant. At the same time, the quality of the farmers' interactions with the project is an indicator that the farmers are not passive recipients but active participants in the process (Long, 2001). Some of them found other ways of using the inputs, others stayed close to the project so they could reap many benefits while the majority of farmers have been disassembling the knowledge on agronomic practices to adapt to practices that concur with the practices from within Luo assemblage. This is a way of the peasant farmers filtering deterritorialisation elements to allow some of them into the assemblage and to use them in a way that they deem fit. Most of the farmers have retained a few of the MVP deterritorialisation elements and previous maize improvement programmes and incorporated these in to their local ways of farming. As I talked to the farmers, it became clear that the planting of maize has evolved from seed broadcasting through trench planting and now line planting. They mostly attribute the practice of line planting to the MVP but it has also been part of previous research and extension efforts to transform peasant agriculture.

One Acre Fund: Deterritorialisation practices and the farmers' responses

OAF is a micro-finance organisation that began operating in the country in 2006 with headquarters in Bungoma County, western Kenya. They have been working with peasant farmers in Yala area since 2015, a time when the MVP was phasing out. They target peasant farmers who cultivate two or less acres of land. When I enquired about OAF from the senior fields director of the BUGA region (Butere, Busia, Gem and Alego), he said that OAF was motivated by the fact that small-scale farmers cannot acquire inputs by themselves or rather they cannot afford the inputs. OAF therefore provides the peasant farmers with access to inputs through micro-loans. These are loans that are paid back slowly over a year with small amounts of money. The farmers are allowed to send as little as Kshs. 50 through M-pesa (a mobile money transfer service) to the OAF account. This means that the farmers should be registered M-pesa account holders and one cannot use another person's account to pay. Each individual member should have paid at least Kshs. 500 or 20% of the inputs to be received before

they can receive the inputs. Payments for inputs for the next planting long season (usually from March) and enrolments begin in October; the inputs are distributed mostly in February and the farmers are expected to complete paying up their loans by September of the following year after they have harvested their maize crops. He added that their approach is unique as they allow the farmers to pay little by little until they finish paying, a system that is not used by other creditors. To be a member of OAF, an individual is supposed to be part of a group but to pay inputs on individual basis. If at least one member defaults, the entire group is disqualified from participating for one year.

OAF organises the farmers in small groups of about 4-16 members who live close to each other for easy management by their field staff. This overlooks the fact that living close to each other does not imply good working relations. Some farmers may work well with other farmers located at a distance but the OAF system does not allow for that. In 2017, OAF had 141 members in 18 groups in Sauri sub-location and 114 members in 14 groups in Nyamninia sub-location. In 2016, there were 18 groups and 20 groups in the respective sub-locations. Before the planting season, OAF distributes hybrid seeds and fertilizers to the farmers mostly in the month of February. In March OAF delivers inputs for topdressing; mostly CAN as well as other non-agricultural materials. The groups have to adhere to certain procedures. Each group member is required to be present during the issuance of the inputs. The amount of inputs received per individual depends on the size of their farms or individual needs. During planting, the farmers need to plant together as a group so that they can remind each other of the best planting practices. This means members plant each other's farms as a group which implies time difference between the first farm to be planted and the last. This has led to conflicts between the groups members as each has their own schedule for how they go about their cultivation activities. Some of the members do not like working with others and one reason is that some members may have small pieces of land while others may have large pieces of land and they are all expected to work together, rotating on each farmer's land.

Some farmers deviate from OAF protocol. Florence informed me that once she receives her inputs, she tells OAF field officers to leave her alone claiming that as long as she is paying her loan, they should not dictate how she should plant since she already learned that from MVP. She also does not participate in OAF groups for planting. She sees it as a waste of time and unfair to have to plant for someone who has a big farm

while her farm is so small. She plants with her own kids. She only maintains group membership so she can get inputs since she can't get them as an individual.

OAF trains farmers on planting techniques (different from the way the farmers were trained by MVP), crop management, harvesting and storage. The farmers receive a package which means that a farmer cannot apply for fertilizers only or hybrid seeds only but they get them together. They are also not allowed to use the fertilizers on local maize varieties and they should follow the planting techniques as they are trained. OAF has had strict prescriptions. One of the field officers informed me that there is close monitoring during planting. The farmers have to follow the specifications given, that is, to plant one seed per hole to avoid more crops competing for nutrients from the fertilizers made for a single crop. If the farmers plant two or more seeds per hole, the harvest will be low. So if farmers are found to be planting more seeds in one hole, they are told to remove the seeds from the soil and replant in the recommended way. The OAF officer added that some farmers think it is risky to plant one seed per hole in case the seed does not germinate and thus they go against the training and put two seeds or more in a hole and that others are just too lazy to plant as instructed.

Despite the rigid OAF rules on 'good agronomic practices', the farmers find ways to disassemble these practices so that they can engage with practices that work for them. When I visited Zedi in one occasion, I found him weeding on his farm that is close to his home. He is also member of OAF. We chatted as he continued with his work and he was telling me that he wanted to top dress the maize crops but he had to buy the CAN by himself. He had used the CAN he got from OAF in a far off farm that he hired and this is the way he strategizes his activities to avoid questions from OAF as he does not strictly follow their rigid rules on planting. As we talked, he was also thinning his maize crops, which implied that he planted more than one seed per hole against OAF recommendations. He said he cannot plant the way OAF requires them to do, that is, one seed per hole, as it is risky and again tedious because the holes have to be close to each other. He told me that OAF has agents on the ground who go checking if the farmers are following their prescriptions. He plays it safe by using OAF inputs on the hired farm and plants the way he wants since they cannot go to check there as the farm is far away. If they come to the farm near his home and complain about his planting style, he tells them that he has used their inputs on another farm.

Florence is another farmer who is a member of OAF. She explained to me that she does not plant one maize seed per hole as trained by OAF. She believes planting one seed per hole is risky; if something goes wrong and the maize does not germinate she is the one to lose and not OAF. She plants her maize in the way MVP trained her to do: sowing two and three seeds per alternate holes and supplements this with her own knowledge. She argued that if all the seeds do germinate, then she can do thinning. Similarly, another OAF farmer, Akinyi, told me she knows many farmers who have abandoned the OAF style of planting as it is too tedious. Some plant their own way while others plant the MVP way.

Each OAF registered group has a group leader who represents the group and relays information to the group. The group leaders also have a responsibility to recruit new members. They are not paid by OAF but they are given incentives to motivate them. The senior field director explained that the incentives do not come easily. There are terms and conditions. If one's group attains 30% repayments by a certain date, then the leader is given a T-shirt. If they have a four member group, they get a t-shirt and for having 8 members, they get a T-shirt and a *jembe*. If they attain 12-16 in membership, they are awarded gumboots. During the qualifiers, that is, if every group member pays kshs. 500 which implies that they qualify to get inputs, then the leaders are given a *jembe*. If all the members gain repay 55% of their loans by a certain date, the group leaders get a *sufuria* (a cooking pot). This implies that the leaders have to put in some extra effort to recruit, ensure loan repayment and also adherence to OAF terms and conditions for their groups as the awards are all that they get for being group leaders. The group leaders therefore become harsh as they pursue their group members to repay and this comes through to those specific members as harassment. This has led to conflicts as well as membership withdrawals.

During one of my FGDs in Muhanda where one OAF group leader, Gabrael, was in attendance, I asked how many farmers were members of OAF. Gabrael immediately responded that all of them were members. The rest of the farmers laughed aloud and later confirmed that only two of them were current members of OAF. Those who were once OAF members gave detailed accounts of how and why they withdrew their membership; accounts that all mirror their discontent with the way OAF operates and disciplines them. One of them, Hilda, mentioned that she had almost completed paying her loan (she had paid Kshs. 7000 with a balance of Kshs. 165) but OAF agents came and took her maize harvest to pay up the remaining amount at the worst moment

of her financial situation. She felt it was unfair and that they should have understood her. She therefore withdrew her membership.

The farmers are also expected to attend one meeting per week where they get training and receive updates. OAF assumes that the farmers have time to attend the compulsory weekly meetings. Eudia, a farmer from Arude village, told me that she withdrew her OAF membership because of the many compulsory meetings that the organisation requires the farmers to attend and she hardly had time for these meetings. She also complained that the style of planting (one seed per hole) advocated by OAF is tedious and that she is fine with the training she once received from MVP as well as her own knowledge. She cultivates only the local maize varieties and she has been doing well with it.

At the beginning, OAF did not allow its members to do any intercropping. Akinyi informed me that OAF does not train them to plant maize and beans in the same plot of land but she does it her way, that is, she intercrops maize and beans. OAF is strict and monitors the farmers to see if they mix maize crops with other crops. She added *"even if they come here now, I have already planted so they cannot do anything to me. I like it this way*". She plants in the same hole with beans and then plants beans in a separate line. Due to farmers' practices against the OAF guidelines, OAF has now slightly adapted to these practices and, according to the senior field director, they now allow the farmers to intercrop so that they can plant, for instance, beans between the maize rows.

One other aspect of the local accounts that I collected about the farmers' opinions of OAF is the loan or credit aspect. The farmers are careful about getting loans and they are carefully disassembling the 'loan concept' in farming which is relatively new to them. Some of the farmers are not ready to face the repercussions in case they default and so they keep off from creditors such as OAF. For example, Mzee Awilo and his family grow only the local maize varieties without fertilizers at most times. They don't like loans. When they want to use fertilizers, they get them from the open air market or agrovet in small quantities that they can afford. They do not like issues with loans and so they do not want to join OAF for fear that failure to pay back loans can result in loss of their little property. This also stems from the rigidity of such a system where mutual social understanding does not exist and actions are taken as per the written

rules without regard to individual situations which is not a characteristic of the Luo assemblage.

Disassembling and reassembling the maize technology

The deterritorialisation elements that have been recently inserted in Luo assemblage mainly appear in the form of capital (e.g. loans), knowledge (e.g. scientific) and transfer of technology (e.g. introduction of Green Revolution-styled packages). These insertions have definitely had an impact on the Luo assemblage. Apart from the various ways in which the introduced elements have disturbed the existing and rooted relational organisations, some of the elements have come to be part of the Luo assemblage. Due to heterogeneity among the farmers, their farm practices differ in the way they incorporate deterritorialisation elements by individual farmers. Many of the farmers who make use of the maize technology use it in a 'disassembled way' such that they do not apply the maize technology prescriptions to the latter. Since the main element of deterritorialisation is maize, I will look at the hybrid maize against the local maize varieties and how the farmers weigh these varieties against each other to influence the (re-)territorialisation process.

How the farmers apply hybrid maize technology

Both the MVP and OAF advocate for the adoption of hybrid maize varieties and the use of inorganic fertilizers. Table 1 contains the names and types of hybrid maize varieties distributed by MVP and OAF in Yala area from 2004 onwards. However, the table must be interpreted with care since some of the varieties are no longer used while new ones continue to be introduced to the farmers.

The insertion of these hybrid maize varieties in to the Luo assemblage by MVP and OAF has been accompanied by various other deterritorialising elements that include new ways of organising farmers, new relations in credit access and market exchanges and new practices in maize cultivation. MVP and OAF both overlap and conflict especially in 'good agronomic practices' leaving the farmers to make decisions that suit them. For instance, the MVP trained the farmers to sow two and three seeds in a hole alternatingly while on the other hand, OAF trains the farmers to sow one seed per hole. The farmers have a choice to make. Most of the farmers I talked to explain that in most cases they sow seeds according to the way they were trained by MVP. The MVP training in regard to the number of seeds to be sown falls close to the Luo way of planting. The farmers have been planting more than one seed in one hole to reduce

risks in case the seeds do not germinate. The OAF style of sowing does not seem to fit well with the farmers' practices. Nonetheless, the farmers apply the same technology in different ways in their actual farm practices in planting. I will explore four cases of some of the farmers I worked with on their farms during planting time to show how differently hybrid maize technology is applied despite the farmers receiving the same kind of training.

Table 2 Some hybrid maize varieties introduced to the farmers by MVP and OAF in Yala

COMPANY	VARIETIES
WESTERN SEED CO.	WH 502 , WH505 , WH404, WH403, WH507, WH202 WH303, WH509
KENYA SEED CO.	DH 04, H513 AND H632
OLERAI LTD.	OLERAI
MONSANTO SEED CO.	DK 8031
SEED CO.	SC DUMA 43, SC SIMBA 61, SC AND PUNDA MILIA 53,
PIONEER SEED CO.	PH1
PANNAR SEED CO.	PAN5195
FRESHCO SEEDS KENYA	KDV-6

Planting activities with Zedi and family

At around 10.00am one sunny morning at the beginning of March, 2017, I go to visit Zedi and find him and part of his family (wife and son) sowing maize and bean seeds. I join them. They have already dug holes, put in fertilizers and now they are putting in farmyard manure in those holes. I begin the work and finally we are done filling the holes with manure. The wife excuses herself to go to prepare lunch and we continue putting maize and beans in the holes. The first layer of the holes has inorganic fertilizers, followed by farmyard manure and then the seeds. We are now dropping seeds in to the holes. Zedi and his son drop the maize seeds in to the holes and I drop the beans after them. They are pretty fast but I am also gaining momentum. I follow them steadily. We talk as we work and Zedi explains to me that his planting style is partly his own improvisation. He elaborates that, according to the MVP and OAF training, maize seeds are not supposed to be mixed with beans in the same holes. But for him, he plants the maize and beans in the same hole. He puts two seeds of maize, then three seeds of maize in the next hole. One of the three seeds serve as security in case one seed or more is lost or does not germinate. He also plants two bean seeds in

the same hole as maize. He explains that they were taught to plant beans in their own lines and holes but he plants them together with maize for certain reasons. First, he wants to save on fertilizers and manure. Since the seeds are planted together, he does not need to dig other holes for beans and put fertilizers in to them. The same holes and same fertilizers serve the beans and when beans are grown and harvested, they leave the maize to continue using the nutrients in the soil. This is his an innovative way of saving on fertilizers. Secondly, it is a lot of work having to dig holes for beans and putting in fertilizers. He explains that style works well and produces the maximum as it would do if he had separate lines for maize and beans and again it saves time, labour and money, according to him.

Planting activities with Florence

I go to Florence's home at about 9 o'clock on 6th of March, 2017. I find the house locked and I begin looking for her in the garden. I see her in-law working on his farm and I go close to him. He is talking to a lady whom I find out later is Florence's *nyieka* (the wife to brother-in-law as she refers to her). They inform me that Florence is working on the other side of her farm and they direct me how to get there. I go and find her clearing the farm for planting. Over the weekend, she had planted maize with her children on a portion of the land and I inform her that I want to plant too. So she takes me to the upper part that is already prepared and ready for planting. She shows me how to make holes and I begin immediately. Then she goes home to bring fertilizers. As I dig the holes she puts manure in the holes. This is different from what I had observed at Zedi's, so I ask her why she is putting farm yard manure first before putting in fertilizers and she informs me that it is ok to do that since there is a lot of rain at the moment. She says if the rains were less, she could put the fertilizers first and then manure and then the seeds. This way the fertilizers will not burn the seeds. But now that the rains are plenty, and we are putting the seeds directly onto the fertilizers, the rains will dissolve the fertilizers and they won't burn the seeds. This is of course against the technological application training farmers receive but she seems experienced and knows when things can go wrong and when they cannot. We proceed with the work until we reach a certain point where she says we have to stop.

Planting activities with Maria; hybrid technology and failed rains

Hybrid maize requires sufficient rains to germinate and grow well. If it does not rain continuously, the seeds fail to germinate and this means extra costs for the farmers to buy more seeds, fertilizers and extra labour to replant. The case of Maria shows this

aspect of hybrid maize and insufficient rains as well as the actual application of the hybrid maize.

One day I visit Maria Ambanjo as previously agreed. It is the first week of March, 2017. I am going to sow seeds with her. I arrive at her farm at around 9am and find her, her son and grandson already working on the farm. She has mobilized relatively enough labour for the planting. She does not always work on her farm with them since they are grown-ups with their own farms. As I experience at Maria's farm and also experienced while working with the other farmers on their farms, planting or rather applying the maize technology is tedious and requires sufficient labour especially if one has a large farm. For this reason I can see many farmers planting in groups as I walk by the farms. Some are hired labour, others in groups of their own and others are working in groups as per the OAF requirements and as members of OAF.

As I join Maria and her family for work, I observe that the seeds we are planting are wet. Maria informs me that she first soaks the seeds to be planted the night before planting to facilitate easy germination. She adds that it is a practice she has been doing even before the MVP or OAF began to train them in maize technology. The planting arrangement is such that one of us makes the holes, another one puts drops the fertilisers in each hole and manure on top of it and another one drops in the maize seeds and covers them with soil. Her son is making holes, following a straight string so that the holes can be in straight line. He is otherwise not measuring the distance between each hole but the holes he is making are relatively spaced and the distance between them is almost equal. One of the tips that Zedi had earlier given me was that one digs the holes moving backwards so that where the soil from the first hole lands, this is where the next hole is dug. I also observed this in other farms and it was done at Florence's farm. Contrary to the way Florence was planting, Maria's planting involves digging holes first in straight lines, then putting a bottle top of DAP fertilizer in to each hole, then covering the fertilizer with farmyard manure and putting in the maize seeds, two seeds per hole. She also adds two seeds of beans in the same holes and then covers the hole with soil.

She informs me that she also wants to plant *nyamula* seeds as soon as possible because they can be ready for harvesting earlier so that she can have some maize for consumption before the rest of the maize is ready since the hybrid maize takes more time. Maria leaves to go to prepare lunch and soon she comes back with food (boiled

bananas and roasted groundnuts in an *amimeru* (a traditional basket). We sit down to have lunch on the farm and we soon resume our work. It is midday and the sun is very hot and we are almost done planting. She joins in the work again but when we are almost done, we run out of farmyard manure. She and her grandson go home to look for more manure but the son insists that we can plant with just the fertilizer without the manure. I sit under the shade and Maria's son stands beside me. He complains that the mother insists on using more manure which takes time to collect. He also says that his wife turned down a request to join us for planting since she had to go and do wage labour. He expresses his disappointment about that but adds that he does not want her to think that he is not agreeing with her decisions as she needed to get cash and buy beans for planting. We have already dug holes and dropped fertilisers in the holes, waiting for manure. Maria's grandson soon comes back without manure and he resumes planting without it. As trained, he is first covering up the fertilizer with soil so that the maize does not get into contact with the fertilizer. Soon Maria comes back with the wheelbarrow full of farmyard manure. This is one of the wheelbarrows that were given to most of the lead farmers in the community by MVP and still bears the labels of MVP. We finish up the remaining part and head home at 1pm. Maria expresses her gratitude to me for helping her. The work could have taken her several days if she was doing it alone. I realise that applying hybrid technology is not easy; it involves a lot of work in reality and that family labour may also not always be available since some members may be involved in wage labour to earn some income for other expenses. Maria is not a member of OAF or any other farmer groups and relies on remittances from her children working in the towns so that she can purchase her inputs. She had intended to plant the previous week since it was raining a lot but she could not because she had not received remittances to buy inputs.

Long after planting with Maria, the rains failed at least for two weeks. Maria's maize did not germinate (well) despite the hard work we did and also the costs she incurred in buying inputs. She had to buy more inputs and replant. She was not happy about the outcome. On the other hand, the farmers who planted a week before had good harvests. Maria did not harvest as much as she could have harvested with the first planting. She had no more manure for the second planting and also used less fertilisers. In total, she harvested about 3 and 1/2 bags of maize as opposed to 6 bags she normally gets when there are no issues. She could, however gain a better harvest from the other piece of land where she later planted *nyaluo* maize. She also informed me that during *opon*, she plants *nyaluo* maize only and she harvests about 2-3 bags from her farm.

Planting activities with Akinyi

I decide to go pay Akinyi a visit in Nyamninia sub-location around mid-March 2017 and I find her planting one of her fields that lies close to the stream with the help of her son who is visiting from the city. Akinyi is happy to see me and I tell her that I have come to plant with her. Without wasting time, she shows me how to plant. She gives me a tool for measuring fertilizers and shows me how to insert them in to the holes and I start immediately. She goes home and when she comes back, she tells me that I can now start planting maize. She explains that OAF trains them to plant one seed per hole but she cannot do that. There are some pests known as *ufuonyo* that eat the seeds in the soil and if only one seed is planted, then one loses. She also tells me to leave the holes open because she will also plant beans in the same holes. I ask her why and she says she has to plant as much beans as possible because she likes beans. Beside the holes, there is a trench like line that the son is making where she only plants beans. She tells me to drop two seeds on top of the fertilisers. I ask her if it is ok to do that because the fertilizer might burn the seed. She changes the narrative and says I can first cover the fertilizers with a little soil before dropping the seeds. I realise that this slows down the planting and again it's not an easy job to do. She leaves it entirely to me. I thought to myself if I had not come, she would have dropped the seeds onto the fertilizers as a shortcut to the tedious work. Unlike the farmers in Sauri sub-location (Zedi, Florence and Maria), she does not put any farmyard manure in the holes. Her son is making holes and I drop the fertilisers and maize seeds in the holes. Akinyi goes to cut some Napier grass for the cow before joining us later to sow beans in the holes that already have maize and fertilizers. It has not been raining for the past two weeks and our planting activities can count as dry planting.

I am planting Duma 43 seeds and as I open the new pack, I notice a card inside. It is an information card for seed insurance. I read it to her and explain that she can register so that if the rains don't come, she can get refund of Kshs. 450 per packet. I promise her to register for her when we are done with work. As we plant, Akinyi explains to me about MVP. She says that they taught them how to keep records. They wanted farmers to farm for commercial purposes and so they taught them that they should be recording every activity they do on the farm, the amount of inputs they use and the time spend doing such activities. If one gets some help, they should put down the number of hours they were helped and if they paid people to work for them also they were supposed to write how much money and inputs and every other expense they

incurred. This was to be calculated at the end of the harvests to know the exact profits one got, how to improve on the activities done and minimise costs. I ask her if she still keeps the records, she says '*oh, that was many years ago when MVP was monitoring the books. I have since lost my books that I had*'. This to me implied that MVP system could not fit within the Luo assemblage where the farmers share and help each other on certain agreements, use family and friends labour and do not make use of book keeping to monitor their expenditure and calculate profits. Thus the training in book keeping stopped after monitoring stopped.

Akinyi says it is her first time planting Duma 43 and she has been planting WH 505. She also plants *nyaluo* maize in a plot close to the house. She says Duma 43 has done well in other people's farms and she feels motivated to try it. She is a member of OAF and she usually pays for inputs for half an acre farm though she does not know the exact acreage of her farm. She also got a solar panel and solar lights from OAF for which she is now repaying a loan of Kshs. 17,000. She feels lucky she has a pension since she is a retired teacher and can repay the loan without much problem given that OAF repayments can be done over a year period.

The nyaluo maize as the main (re-)territorialisation element

The farmers' practices are largely shaped by the Luo assemblage from where many farmers mostly draw their practices when dealing with maize technologies. The 'local' maize varieties have been a key reference element for the farmers around which (re-)territorialisation take place. The Luo assemblage that was initially organised, to a large extent, around the use of local resources and social relations have now been deterritorialised (to some extent) as new elements such as the hybrid maize varieties (see *table 3)* have been introduced into the assemblage. However, the local resources remain an important part of the Luo assemblage. These include the 'local' maize varieties that the farmers have continuously cultivated for over a century despite the many attempts to replace them with hybrid varieties as I have discussed in *chapter 3*. The Luo farmers generally refer to the local maize varieties as *nyaluo*. *Nyaluo* maize adapted to the local ecology, became part of the culture of the Luo people and became stable and sustainable. The interventionists see it as economically inferior and thus needing to be replaced by high yielding 'superior' varieties. However, in terms of productivity, it has been agreed, even by the agricultural officers, that the local maize varieties can produce as much as the hybrids if well selected and produced in fertile soils and managed well. This has proved true as some farmers produce 'large scale'

local varieties to consume and sell. The *Nyaluo* maize is shared and exchanged locally through social networks and local markets (I will explore this in detail in the *next chapter).*

The *nyaluo* maize varieties are well embedded within the community. The seeds can be obtained through mass selection and sharing/exchange within the community. With *nyaluo* maize, the farmers are not under pressure to plant immediately it rains or shortly before the rains as is the case with hybrid maize. In fact, the farmers plant over an extended period of time so that they can harvest for a longer period. For instance, during the long season (*chwiri*) in 2017, some farmers planted some portion of their land with *nyaluo* maize at the beginning of April and then planted again some other portion in May. Through observation, I noticed that although some maize crops were already dry, others were still green in the fields. The *nyaluo* maize is planted multiple times in one season, especially the long season, to give harvests at different times which include early harvest to mitigate hunger and in case the rains are not sufficient, the farmers can still get some harvest from the earlier planted crops. This is not possible with hybrid seeds as they need to be planted immediately when it rains or shortly before the rains so as to utilize enough rainfall that they need throughout the season.

Table 3 Nyaluo maize currently cultivated by the farmers in Yala

LOCAL VARIETIES (*NYALUO MAIZE*)	**DETAILS**
NYAMULA	YELLOW GRAINS
RADIER	MULTI-COLOURED (YELLOW, WHITE AND PURPLE BLACK)
RACHAR	WHITE WITH RED HEAD. ALSO KNOWN AS NYA-UGANDA
OKING	SMALL WHITE
ABABARI	LARGE WHITE
RACHICH	MULTI-COLOURED (RED AND WHITE)

The farmers thus ensure they plant the *nyaluo* maize at a certain point in the rainy season. *Nyaluo* maize varieties have various distinguishing features that make them

desirable and they are reproduced by most households in the locality[24]. These include the characteristics that will be discussed below.

Early maturity; The *nyaluo* maize can take between 70-120 days to mature. This early maturity, as compared to many hybrid seeds that can take up 200 days to mature, relieves farmers from hunger much earlier (Mango, 2002: 142). At the beginning of 2017 when I was in the field, there was drought. It scarcely rained in January and February and some farmers planted that early. The planting time is usually in mid-March. With the knowledge that local maize varieties can withstand drought, as I will shortly discuss, they took the opportunity. By May, the maize was ready for consumption, at a time when the hybrid maize was still young on the farms. Some farmers marketed the green maize, boiled or fresh. This helped in alleviating hunger during that time as the rest of the maize was yet to mature in about two months. One of the farmers, Okoth, noted that the local maize varieties have to be maintained as they mature early and prevent hunger before the rest of the maize is ready.

Taste: The local people stand by the fact that *nyaluo* maize is appealing to the tongue. Some associate the sweetness with high nutrition. Ambajo indicated that local maize is sweeter than hybrid maize and that's how he knows it is of high nutritional value. 'If it tastes good, it is nutritious, if it does not taste good, it is not'.

Heaviness (keeps off hunger for longer): The *nyaluo* maize is heavier and more nutritious than the hybrid maize. The farmers explain that if you mill hybrid maize, you use more flour to make *kuon* (a common food made from maize flour and generally known as *ugali*) than when you use flour from *nyaluo* maize. Still, *kuon* from hybrid maize flour is light and one gets hungry quickly after consuming it. The implication is that, for instance, if you have 10 kilos of hybrid maize and someone else has 10 kilos of *nyaluo* maize, the local maize will take longer to get finished when consumed than the hybrid maize. It will also feed more people than hybrid maize. According to the agricultural officers, meals made from *nyaluo* maize take long to be digested in the stomach and thus one feels full most of the time. This is desirable for the farmers who do casual and manual work because they are energized for a longer time while working and do not need to eat frequently. This quality of *nyaluo* maize is also provided by the locally produced foods such as sorghum and millet. Sometimes when women are making *kuon* with hybrid maize, they mix the maize flour with sorghum flour to make it heavier. Ayuko likes to mix *nyaluo* maize flour and sorghum flour when making *kuon* to make it heavier. Her son suffers from diarrhoea if he eats

[24] Also see Mango (2002).

kuon from hybrid maize and she believes that it's because of the 'acid' in hybrid maize that does not go well with his stomach. Most people associate the heaviness of *nyaluo* maize and the sorghum and millet with better nutrition. They provide the feeling of being satiated. They can fill the stomach faster and one stays for a long time before getting hungry again. Satiety is related to the weight of the food eaten, the heavier the food, the faster it fills stomach and the more it stays in the stomach thus keeping off hunger for longer. Although this is regardless of the number of calories they contain, those foods with high amounts of protein and dietary fibre appear to improve satiety[25]. As the food can last longer in their stomachs, so it can they last in their stores/granaries.

Drought tolerance and resistance to pests and diseases: *Nyaluo* maize can withstand harsh weather conditions such as periods of drought. Over the years, the maize has adapted to ecological conditions in the area and can still perform even during drought periods unlike the hybrid maize. The farmers note that *nyaluo* maize is more resistant to pests and diseases than hybrid maize. It is less affected by weevils, or *thuthi*, and can be treated using locally available materials such as *mburu* (ashes). Maria Ambajo explained that she normally stores her *nyaluo* maize seeds in a gourd where she mixes them with ash to prevent weevil infestations. The hybrid seeds on the other hand are easily destroyed by pests and one has to use chemicals to control them before storage.

Does not lodge easily: N*yaluo* maize can withstand strong winds[26]. The fact that it does not lodge easily in times when subjected to strong winds, as many hybrid maize varieties do, makes them attractive to the farmers.

Grain size (attractiveness) and convenience in use; the farmer find the hybrid less attractive especially when making *nyoyo* as the grains are too big and do not match with the beans that they cook together as *nyaluo* does. The supply of *nyaluo* maize does not depend on external actors and factors. The supply of hybrid seeds can be affected by various factors such as delays from suppliers. At times the rains may fail after the farmers have already used up all the inputs and they are made to spend money to buy more for replanting. *Nyaluo* maize is selected and saved by farmers themselves and thus generated from within. The agricultural officer in Yala pointed out that:

> "*The farmers stick to the local maize because they are good in terms of continuity. It is not limited like the hybrid seeds such that if you can't buy you can't plant. Farmers*

[25] This is according to Holt et al in the study 'The Satiety Index of Common Foods' retrieved from http://nutritiondata.self.com/topics/fullness-factor#ixzz43pEO40zT

[26] During a conversation with a staff member of CIMMYT (who comes from Siaya county) in Yala, he said that he noticed that his local maize did not lodge during a storm that affected most of the hybrid maize. He brought that to the attention of CIMMYT but they could not do anything since the organisation gets its material culture from Mexico.

share nyaluo maize seeds. I remember there was a time when Kenya Seed co. could not supply seeds to the farmers. The farmers in Kitale (who plant only hybrid seeds in largescale) really suffered. If the hybrid seeds fail, the local maize varieties are always available and the farmers will always have something to rely on".

Price dimensions: Cultivating *nyaluo* maize is cheaper than hybrid maize, right from obtaining seeds to the market prices of maize produce. The seeds can be obtained for free through mass selection from the previous harvest. Even though fertilizers are essential for crop growth, *nyaluo* maize can make use of manure only and still grow to maturity. The farmers use the local resources to enrich the soils and this includes the composited household garbage, animal manure and decomposed plant materials. These make the production costs of *nyaluo* maize much lower than that of the hybrid.

Conclusion

In this chapter, I have examined two recent interventions, the MVP and OAF, to deterritorialise the Luo assemblage in relation to maize cultivation and the peasant farmers' practices in maize cultivation. These attempts that advocate for green revolutionary practices have been informed by studies that cite hybrid maize technologies as the solution to hunger from low production (Binagwaho & Sachs, 2005; De Groote *et al.*, 2005; Japhether *et al.*, 2006; Mccord *et al.*, 2005; Mutuo *et al.*, 2007; Nziguheba *et al.*, 2010; Onyutha, 2018; Ouma *et al.*, 2006; Sachs, 2005; Sanchez *et al.*, 2007; Sanchez *et al.*, 2009). This has seen the recent implementation of the MVP and the micro-finance organisation, OAF in Yala area that aim at deterritorialisation in a way that infuses the use of external elements such as hybrid seeds, inorganic fertilizers, credits for input access and scientific knowledge in the cultivation of maize. This is opposed to the use of elements that exist within the Luo assemblage such as local maize varieties, organic manure, local knowledge and sharing through social relations and networks. I have explored maize as the main element of deterritorialisation, highlighting how the *nyaluo* maize is perceived by the farmers in relation to the hybrid maize. The farmers disassemble the hybrid maize along with the other elements of deterritorialisation such as agronomic practices and engage with the practices that they deem important to them like the line planting but at the same time they continue to reproduce the local maize varieties through practices that enhance their social relations and enable them to use local resources. The Luo farmers maintain the cultivation of *nyaluo* maize opposing deterritorialisation forces such as MVP and OAF that advocate for hybrid varieties. *Nyaluo* maize forms an important part of their Luo culture in relation to their diet and social relations. Most of the farmers who plant

hybrid maize also plant *nyaluo* maize especially during the short season mainly for consumption and to maintain its reproduction. This include those farmers who refer to themselves as 'revolutionists' and have worked closely with interventionists over the years.

The MVP and OAF assume that replacing the widely grown *nyaluo* maize varieties with modern maize technologies is the best way to ensure increased productivity. Empirical evidence shows that these assumptions are misplaced as the peasant farmers, who have been exposed to modern maize technologies and scientific knowledge as well as affordable ways of credit access as presented by OAF, persistently cultivate the local maize varieties mainly for consumption hence try to reterritorialize. However, some elements from the deterritorialising forces are retained within the Luo assemblage to become part of maize cultivation practices such as line planting and this implies that the attempts to deterritorialise the Luo assemblage bear some influence. At the same time, the interventionists learn from the practices of the farmers that do not follow rigid rules or prescriptions as desired by the interventionists and thus adjust their deterritorialisation style to fit with the farmers' practices. For instance, the OAF did not initially encourage mixed cropping but they learned that they could not influence the farmers to practice maize mono cropping and so they incorporated the mixed cropping ideas within their training, implying that the processes of deterritorialisation and (re)territorialisation co-exist and actively interact.

In these processes, agency is central. The social actors involved in the deterritorialisation processes have been employing different strategies in their interactions as the interventionists try to insert and sustain as many external elements as possible into the Luo maize assemblages while the farmers filter them to incorporate only those elements that fit within their assemblages. This does not mean that the farmers act in uniformity. There is heterogeneity in their practices that stems from the nature of the Luo assemblage. In contrast, this heterogeneity is ignored in the way the farmers are grouped together to enable easy deterritorialisation, for instance the grouping by OAF based on proximity, that is, grouping farmers who live close to each other without regard to the diversity of these farmers who may not be able to work together even though they are neighbours. The MVP and OAF tend to ignore the peasant farmers' agency, the way they organise themselves to acquire resources. On the other hand, they make use of 'gifts' to get the farmers to adopt maize technologies. The MVP supplied the farmers with free inputs at the beginning of the project, a

strategy that could not be sustained and the failure of which became part of the reterritorialization process. Additionally, they appointed some farmers to be the 'lead farmers' who became the centre of envy for other farmers as they received preferential treatment from the project, a similar approach that ICRAF used to work with 'ICRAF agents'. Similarly, the OAF is encouraging the lead farmers with gifts so that they try to recruit more farmers and ensure payments are completed in time. Gifting the 'lead farmers', group leaders or ICRAF agents and even gifting the peasant farmers themselves in efforts to deterritorialise resulted in negative repercussions.

There exists a multiplicity of ideas on how to apply the modern maize technology as well as the options for input access and the maize varieties at the peasant farmers' disposal. The farmers have been continuously trained on many aspects of maize technology through the interventions as a response to claims of low adoption of maize technology due to lack of knowledge on maize technology, lack of credit access and unaffordability of inputs (Dawson *et al.*, 2016; De Groote *et al.*, 2005: 36; Frelat *et al.*, 2016; Nziguheba *et al.*, 2010: 76; Onyutha, 2018; Ouma *et al.*, 2006: 10; Sachs, 2005; Sanchez *et al.*, 2009). The MVP and OAF have attempted to seal the perceived 'gaps' and get the farmers to use the technologies. However, the farmers' practices indicate some struggle for autonomy and their need to act independently. The heterogeneity of the peasant farmers has given room for some of the elements to be inserted in the Luo assemblage although in a disassembled way so that the farmers do not use them exactly as advised by the interventionists and at the same time some farmers embrace them while others do not.

The peasant farmers' practices in their interactions with interventions depict not only the agency of the farmers, but also the agency of maize, especially the *nyaluo* maize. As the reference base for the farmers, *nyaluo* maize has enabled the farmers to form defence lines against the interventionists' practices that they do not value. For instance, those who do not like to be in debt through loans for fear of their property being taken away in case of default organise their decisions around *nyaluo* maize and they pursue relations and practices associated with it. Thus the *nyaluo* maize influences farmers' decisions and becomes an element of (re-)territorialisation.

The peasant farmers' disassembling practices are part of the responses and resistance to the deterritorialisation forces that reveal their dislikes. Unfortunately, the peasant farmers' ways of disassembling is not positively engaged with by the interventionists

who do not listen to those 'silent voices' of the peasant farmers. Their actions are translated as ignorance, negative attitude or laziness. The MVP and OAF aim at deterritorialisation of the local assemblages so that the peasant farmers absorb all the elements of MVP package in order to realise their benefits and to improve their livelihoods. The peasant farmers, according to their different views of their own worlds, form different opinions of the interventions. Thus Hira and Parfitt (2004) explained that the contradiction inherent at the centre of project approach to development is the need to control but at the same time the radical uncertainty of the development context.

Chapter 5
"We sell our maize within the village to whoever likes to buy": Territorialised exchange arrangements

Figure 7 Pictures showing some territorialised forms of exchanges in Yala. From the top, clockwise: open air market, road side trading, a kiosk and home trading. Pictures taken by the author at various times between 2016-2018

Introduction

In this chapter, I focus on the territorialised forms of exchanges[27] of the peasant farmers in Yala area that constitute part of the Luo assemblage. Market exchanges and engaging with various forms of markets are part of the peasant farmers' maize cultivation. Most of the peasant farmers do not cultivate maize mainly for the market but market exchanges are something they have in mind as they cultivate maize which they may exchange for cash or for products and services. It is also through the market organisations that some of them acquire inputs for cultivation. Markets are essential components of the Luo assemblage and thus it is imperative to explore the (market) exchanges of maize cultivation of the peasant farmers. Various authors have explored forms of exchange and markets through various concepts that are related to what I refer to as 'the territorialised forms of exchanges'. These include *embeddedness*[28] (Gibson-Graham *et al.*, 2013; Goodwin, 2018; Hinrichs, 2000), *nested markets* (Hebinck *et al.*, 2014; Polman *et al.*, 2010; Schneider *et al.*, 2016; Schneider *et al.*, 2014; Van Der Ploeg, 2014; Van Der Ploeg *et al.*, 2012), *moral economy* (Hyden, 1980b, 1983; Scott, 1976) and *informal markets* (Hart, 1992; Vermaak, 2017). These forms of (market) exchanges have a significant role to play in maintaining the viability of mechanisms for food security (Eakin *et al.*, 2014: 151). I explore territorialised forms of exchanges against the deterritorialisation forces from the governmental and non-governmental organisations such as the MVP, traders and corporate entities (retailers, supermarkets, seed companies).

There are increased recommendations and trends towards commercialization of peasant agriculture to increase their income and welfare (Sachs, 2005; Shiferaw *et al.*, 2015; Zhou *et al.*, 2013). This is followed by efforts towards deterritorialisation of the embedded local exchanges in favour of more controlled and differently organised markets that reflect global marketing systems. This is part of the deterritorialisation drive that MVP aspired to realise in Yala. With the support of the government agents, the MVP attempted to transform the peasant farmers from 'sub-subsistence' farmers to small scale entrepreneurial farmers with claims of making the peasant farmers

[27] I use this phrase to refer to those forms of exchanges (or rather markets) that are locally embedded within the community and mostly stem from the peasant farmers' practices as informed by their cultural values, historical repertoires and social networks and relations. They do not follow the rigid rules of the more controlled and regulated markets that are commonly referred to as 'formal markets'.

[28] The concept of *embeddedness* is associated with economic sociologists and originated from Karl Polanyi's *The Great Transformation* first published in 1944. It describes the interplay between economic and social. See also (Granovetter, 1985, 1992).

economically sustainable (Mutuo *et al.*, 2006; Nziguheba *et al.*, 2010; Sanchez *et al.*, 2009: 40). Van Der Ploeg (2018) points out that the genesis of entrepreneurial agriculture has been created by and through the modernisation project of the state that aligns agriculture with global interests of capital as well as the food and agricultural industries. The shift to entrepreneurial status in peasant maize cultivation implies new challenges which include labour and financial investments, new technologies for increased production and the need for credit (Van Der Ploeg, 2018: 7). MVP created 'organised' avenues for farmers to market their maize produce. They linked farmers to a cooperative mode of marketing that connects the farmers to global markets. However, what followed was reterritorialization as many farmers withdrew from the cooperatives[29] and continued to engage with the locally embedded forms of exchanges or markets that have historically served them.

In this chapter, I explore the peasant farmers' practices within the territorialised forms of exchanges, not only focusing on the processes of (re-)territorialisation but also explaining why the interventionist elements of deterritorialisation could only partially fit within the Luo assemblage. At first, I found it easy to find and explore some of the locally embedded forms of exchanges that I observed in Yala including open air markets, the roadside stands, buying and selling in small shops and *posho* mills. But as I talked to the farmers, I realised there are many more forms of exchange that are not easily observed since they operate through social networks such as home-trade. Sometimes simple technologies such as mobile phones are used to pass information about marketing among the farmers, and the traders/assemblers use them to mobilize maize for trading in the open air markets. At times local credits may be organised such that maize produce is exchanged for services and these largely utilize the various social networks and relations within the community. There is a multiplicity of locally embedded markets and forms of exchange that serve the Luo assemblage whose elements are heterogeneous and cannot be confined to a single form of exchange. These operate towards a self-regulating and self-sufficient Luo assemblage.

I draw some insights from the concept of *nested markets* (Hebinck *et al.*, 2014; Polman *et al.*, 2010; Schneider *et al.*, 2016; Van Der Ploeg *et al.*, 2012), to demonstrate how territorialised forms of exchanges are constructed and operate to serve the needs of the

[29] See Lamb (1974) who discusses the idea of cooperatives as advocated by the government of Kenya in peasant agriculture. Cooperatives are not new in Kenya.

peasant farmers. The literature on nested markets is based on the idea of nested exchange systems that are not only embedded in a local context, but also create links with global markets[30] through the sale of unique products that are specially made within a certain locality with local imprints. Nested markets operate in ways that are different from global markets but they may still interlink with them. Some nested markets develop from institutional voids or 'structural holes' within the institutional arrangements of global markets. I will not delve into the whole range of the characteristics of nested markets but use some of its analytical elements to explain the peasant farmers' practices in relation to markets and exchange arrangements. I will also demonstrate how the farmers have disassembled the elements of deterritorialisation as presented by MVP and partly OAF in terms of input access markets in a way that they reterritorialize them to make them fit in the Luo assemblage.

I begin by exploring the loopholes within the deterritorialising channels of marketing introduced to the farmers. These are the cooperatives as introduced by the MVP, marketing through the Cereals and Produce Board (NCPB) and also the OAF input access strategies. I discuss these to show how the peasant farmers disassemble the 'new' global tendencies within the marketing system and demonstrate their autonomy in decision making as relates to the choices of markets to engage in. I then explore the multiple forms of exchange and how the farmers engage with them and the unique use of exchange artefacts such as *the gorogoros* as opposed to the weighing scales used mainly within the 'global marketing structure' and how the farmers define quality maize in the markets. I also explain how the community self-regulates the locally produced maize and insulates itself from exploitation by global markets in order to be self-sufficient.

Peasant farmers disassembling the market deterritorialisation processes

Attempts have been persistently made to transform peasant farmers into entrepreneurial farmers who can also produce for global markets. The government agents and the MVP have been keen on this deterritorialisation process to have peasant farmers join the global circulation of farm produce through input acquisition and output disposal. The introduction of the marketing channels that are perceived as

[30] I use global markets to refer to the markets that are governed and controlled by global forces such as large industrial and/or commercial empires (Van Der Ploeg *et al.*, 2012: 150).

'formal' channels through controls and regulations at first attracted farmers who tried them out. The MVP established cooperatives for input access and as channels for marketing of surplus maize. The NCPB is a known channel through which the farmers can market their produce as well. These institutionalised channels operate through rigid rules that mostly do not fit within the Luo assemblage. I will explore the two main channels of marketing that are institutionalised and that present the peasant farmers in Yala with opportunities to join global markets. I highlight the reasons why the peasant farmers discontinued engaging with them and get involved in more territorialised forms of exchanges that constitute the Luo assemblage. I will also touch on the way input access has been territorialised by the peasant farmers; incorporating the initially institutionalised channels (such as currently run by OAF) within their local forms of exchange.

The Yala NCPB depot

Marketing boards are not new in Kenya. Before the implementation of the Structural Adjustment Programmes (SAPs), the maize marketing boards used to play a dominating role in Kenya's maize food marketing system. There was particularly rigid control exerted over maize since it was marketed all over the country and in unprotected state (Bates, 1987; Heyer, 1976). After the market liberalization in the 1980s following the Structural Adjustment Programme as I mentioned in *chapter 3*, the government no longer regulates the market prices of maize and this is left in the hands of the traders who fix the prices according to demand. However, the government has retained some elements of control within the marketing boards.

In Yala, the NCPB depot offers services such as storage and warehousing and drying of grains to interested individuals and organisations as well as selling inputs to farmers and purchasing maize from farmers as well. The depot has a storage capacity of about 5,000-10,000 bags. There is a reserve for grains which can be used by the government at special times; as relief food or for commercial purposes. They also outsource maize in times of scarcity and dispose of surpluses. The depot serves approximately 4,000 farmers within a radius of 40km. According to the officer in-charge, the farmers are currently being served with fertilizers only. The depot has stopped buying maize from the farmers as well as selling hybrid seeds to them. This is due to the way in which the farmers have been disassembling the elements of this institution, which the officer referred to as 'institutional challenges' and that has seen a decrease in the number of farmers marketing their maize produce through NCPB.

Some of these challenges are not new as they have been noted by other authors (Mango, 2002: 161; Wangia *et al.*, 2002: 12). Firstly, the procedures involved in obtaining inputs from NCPB are stringent and thus cumbersome and often result in delays. The farmers have to obtain written permission (a form) from the area chief that ascertains that they are truly farmers who come from within the locality. This is a measure meant to curb issues of dishonesty; where some people may pose as farmers from the area, get the government subsidized fertilizers but end up selling them at a profit. Secondly, the farmers need to take the form to the ministry of agriculture. Here agricultural officers issue the farmers with an application form for the government subsidised fertilizers that contain the farmers' details and indicates the quantity of fertilizers required. Thirdly, the farmer presents both forms (from the chief and the ministry of agriculture) to NCPB officials. She/he is then issued with Mpesa paybill transaction number (mobile money transfer account) where she can pay as per the quantity requested. The officers at the NCPB are not allowed to handle cash, the money has to go to the Mpesa account of NCPB. Finally, after the Mpesa transactions are completed, the farmers can get the fertilizers. These fertilizers are not issued in small quantities but only in packaging sizes of 50 kilos and the farmer has to find his/her own transportation home. At times the process may take longer especially when one of the parties in the process is absent for some reason. In addition to the existing procedure, registration of farmers has been introduced this year, according to the agricultural officers. Those farmers who show interest in applying for the subsidised fertilizers have to be registered and the list is sent to the headquarters in Nairobi for approval.

I was also informed that NCPB also faces competition from the middlemen who go directly to the farmers to buy at the farm gate. This form of marketing is attractive to the farmers as the middlemen offer the same prices as NCPB and also the farmer does not incur any transportation costs or the cumbersome process through NCPB. When the Yala NCPB was still buying maize from the farmers, they used to buy in bulk and not a few *gorogoros* (2 kilogram tin). The farmers produce maize primarily for consumption purposes and secondarily for cash and thus they rarely sell in bulk that is required by NCPB. Peasant farmers sell maize mainly in small quantities.

As I have mentioned, NCPB only sell fertilizers in a 50kg bag (minimum) which can be used for an acre of farmland. Most farmers cannot afford to buy this at once. Some

prefer to have 25 Kgs of fertilizer or lower amounts which are not provided by the institution and thus they cannot access the subsidized fertilizers. Some farmers group themselves in a way that they can collectively afford the fertilizers and share according to each one's needs and contribution. For instance, Zedi along with some other members of the Indigent Farmers Group collectively contribute to purchase the fertilizers and share according to individual contributions. The group still has to undergo the same procedure as the individual farmers who want to acquire the subsidised inputs from the government. However, the group arrangement does not happen very often.

Outside of the subsidy system by the government, the fertilizers are expensive. These can be acquired from shops such as agrovets and micro finance organisations such as OAF which also has its own ways of organising the farmers as discussed in the previous chapter. The prices of the inputs at the market prices and within the subsidy system for two points in time are shown in Table 4.

Table 4 Comparison of the costs of inputs with and without subsidy.

INPUTS	WITH SUBSIDY-NCPB (KSHS.)		WITHOUT SUBSIDY (MARKET PRICES) (KSHS.)	
	IN 2014	*IN 2017*	*IN 2014*	*IN 2017*
DAP (50KGS)	2,480	1,800	3,292	3,500
CAN (50KGS)	1,600	1,500	2,550	2500
UREA	1,800	STOPPED SELLING	2,735	--
NPK	--	1,800	--	3,500
HYBRID SEEDS (2KG)	280-390	STOPPED SELLING	450	450

Source: field data, 2017

In addition to the 'structural holes' presented by NCPB as a market institution, the farmers have concerns about the quality of the subsidized fertilizers they receive from the depot. They complain that the fertilizers are weak, compared to the ones they acquire from other channels. Zedi has observed that the fertilizers do not have an impressive impact on the crops and thus he always mixes them with fertilizers he gets from other channels such as agrovet or the MVP initiated Market Service Centre (MSC). The reason he still obtains some of the fertilizers from NCPB is because they are subsidized and thus cheaper than the rest of the other channels as shown in the table.

MVP initiated Cooperatives

The MVP introduced farmers to cooperatives in 2011 as an exit strategy and as part of the project sustainability measure. The cooperative mode of marketing, that connects the farmers to global markets is, just like the marketing boards, not new in Kenya as it began way back during colonial times as explained in chapter 3. The grain cooperatives were meant to help farmers to access inputs and also market their produce. The MVP funded cooperative initiative in Yala presented new challenges to the farmers who did not take long before they began to delink themselves from the institutional channel of marketing and input access.

In 2014, the Gem Sub-County Cooperative Union was formed as an umbrella union of all primaries (7 cooperative societies) housed at the Market Service Centre (MSC) in Yala town. MSC was established in 2011 courtesy of the MVP in partnership with the Municipal Council of Yala and Constituency Development Fund (CDF) where each of the partners played some key roles. The Municipal Council provided the land where the facility was set up, the CDF provided some building materials while the MVP funded the construction of the building and kick-started the cooperatives. The cooperatives began to operate in 2011 after receiving a total of Kshs. 33 million from MVP. The amount was meant to be a revolving fund. This means that it would be used to buy inputs that the farmers would be given in terms of loans to pay back with maize harvests which would be sold to buy more inputs for the next season to be loaned to the farmers. There are 7 cooperative societies housed at MSC and within the Gem Sub-County Cooperative Union which include the grain cooperatives (Kilimo ni Uhai and Indigent cooperatives), New Yala Dairy Cooperative, Gem Honey Cooperative, Gem Fish Cooperative, Gem Horticulture Cooperative and Gem Poultry Cooperative. The farmers are free to join one or more cooperatives as per their types of produce and what they wish to market. I focused on the grain cooperatives.

Despite the huge amounts of funds and training invested to ensure a smooth start and continuation of the Cooperative Societies, especially the grain cooperatives, membership in the cooperatives has been declining, according to the general manager, and there are fewer or no new members willing to join. MVP began by supplying farmers with free inputs that instilled the concept of 'free gifts' in relation to everything initiated by MVP. It has been hard for the farmers to transition from the 'free gift' to the reality of how cooperatives operate. Although even with the understanding of the

mode of cooperative operation, the farmers have not been interested to market through the cooperatives after the initial trials during the 'enticement' period. At the same time, the management of the cooperatives has been exploiting the farmers through corruption and generally squandering the money left behind by MVP.

Focusing on the grain cooperatives, the Indigent Cooperative comprises of the vulnerable members of the community; the poor farmers who cannot acquire inputs by themselves. These are also the farmers who cultivate an average of half an acre of land. At the initial stages of introduction, the members would be given inputs at the rate of 25 kilo of DAP, 6 kilos of hybrid seeds and 25 kilos of top dressing fertilizers (that would otherwise make a total of Kshs. 3,400). The farmers were expected to pay back with a bag of maize, that would be sold by the cooperative and put in revolving funds so that they would get inputs the following year. The cooperative did not, however, initially accept local coloured maize varieties as a payback but only the white varieties. The farmers were expected to plant hybrid seeds provided and payback using the hybrid maize harvested. Those indigents cultivating more than half an acre of land would be made to purchase more inputs at the MSC or elsewhere to cover for the difference. The Indigent Cooperative had the highest number of members at the beginning but most of them have since become dormant members or withdrawn from the cooperative. Actually, according to the union manager, in 2016, there was no single indigent who paid back his/her input loans. Most of them stopped marketing through the cooperatives almost immediately after inception. The indigents complain that the inputs are too little to warrant a payment with a bag of maize and at the same time they still have to purchase more inputs if they have more land to cultivate. The indigent farmers, also complained that the cooperative would demand that farmers pay one bag of maize plus an unexplained 5 extra *gorogoros* (10 kgs). They were also supposed to cater for the transport of maize to MSC. The cooperative required farmers to bring maize in bulk, but not a few *gorogoros.* The indigent cooperative society is collapsing.

The other grain cooperative is Kilimo ni Uhai which is still operating despite declining membership and at a smaller scale than the time it began. The cooperative was made for the farmers who are not indigents. These are the farmers who can buy inputs by themselves but with cooperative membership, they can get inputs at subsidized prices. Currently, the cooperative society operates in a business model in the sense of buying and selling maize that they accumulate from the farmers. They pay cash to the farmers

on delivery unlike in the past where there would be delays as farmers waited to be paid. They are also buying local coloured maize varieties, a practice that was not there initially. This is part of the reassembling the system in order to touch base with the peasant farmers. The prices are fixed. In both cooperatives, the Indigent and Kilimo ni Uhai, many farmers have defaulted in payments. Some of them do not produce enough surplus for sale in bulk and at the same time, the prices offered within the local forms of exchanges are more attractive. They can negotiate with other farmers and sell on mutual understanding.

It is largely agreed within the area that the MVP approach of giving farmers free inputs at the beginning of its implementation created a dependency syndrome among the farmers. It also triggered mismanagement of funds that was seen as free money by those entrusted to run the cooperatives. The farmers defaulted in the cooperatives and opted for other channels to obtain their inputs and market their produce while others have gone back to using farmyard manure or nothing at all for soil replenishment. Due to the fact that the soils 'have got used' to fertilizers, farmers find that they cannot harvest much without using fertilizers and thus they seek fertilizers from other avenues, such as open air markets as discussed later, that the trader together with the farmers construct.

Territorialising input access markets

One sunny morning on a market day during the planting season in mid-March, I walk to the open air market in Yala town. It became a routine for me to visit the market at least once a week to observe what was happening. On this particular day, I was not looking for anything specific but everything at random. I bought some tomatoes, ginger and garlic from different sellers located along the green vegetable section of the market and then I headed towards the main road but still within the market streets. At a certain corner I saw a boy selling fertilizers! I was taken aback. I had not expected to see fertilizers being sold at the open air market. I had only seen them being sold in bulk of 50 kilos or 25 kilos in other places such as the agrovet shops, at the MSC and NCPB or being distributed by OAF. I got curious and I approached the seller to enquire about the prices. He informs me that he is selling 1kg (he uses a one-kilogram *gorogoro* for the measurement) at Kshs. 70. The fertilizer he is selling is DAP of whitish colour. I had observed many farmers using the DAP of black or dark gray colours and I am later told that the dark coloured ones do better than the whitish ones, according to the farmers. I thank the seller and move on straight ahead. I got more excited to see another

seller, a lady, selling the black coloured DAP fertilizers. She was wearing an apron like most women sellers within the market unlike the previous seller I just talked to. She displayed the product in a temporary location, just like the previous seller, at a junction between two market street paths. It immediately occurred to me that the fertilizer business at the open air market is not permanent as it occurs occasionally and when needed. I later made more observations and found out that the fertilizer sellers only appeared at the open air market during planting time to sell DAP and afterwards when the maize crops have germinated and grown to a considerable height, to sell CAN and/or NPK for top dressing.

As I approach the second seller, I find that she has a 50 kilos bag of fertilizer from where she packages smaller quantities of 2 kilos or 1 kilo. She told me that her brother has an agrovet shop in Luanda (a shopping centre close to Yala) where he sells the fertilizers and during the market days she takes some of them to the open air markets to sell for him. She informed me that 1 kilo of fertilizers is Shs. 70. The whole 50 kilos can go for between Kshs. 3,800 and Kshs. 4,000. I asked if the one kilogram is enough and she replied that it can still be used to plant a relatively large portion of land. This is useful for the farmers who cannot afford to use fertilizers on the whole farm or to buy the 25 kilos or 50 kilos package sizes available at the institutions as it provides an option to plant a section of it using fertilizers. A customer who was buying the fertilizers chips in to the discussion. She has already bought a 1 kilo fertilizer, paid and she was waiting for her change. She informed me that the small quantity of fertilizers she has bought will go into 'repair' especially where the chickens have tampered with the crop as they peck out the seeds planted. I then realised that the farmers and the traders have figured out some of the unlikely eventualities that the interventionists do not talk to them about.

Figure 8 A trader selling DAP fertilizers in gorogoros at the open air market

In a similar way, birds or small animals such as the squirrel may eat seeds as the farmer is planting and the farmer will be made to incur extra costs for replanting. For this 'repair planting', the farmer will not buy a whole 25/50kg bag of fertilizers but will acquire them in smaller portions from the open air market.

This territorialised input access market is embraced by the farmers. It allows the farmers to even buy the fertilizers multiple times during the planting season as they plant at different times for different reasons. Some farmers plant before the rains begin, then a month later after the rains begin. The second planting is usually of local maize varieties and some farmers use fertilizers during the planting of the local maize varieties. This way they can access small quantities of fertilizers that fit their planting calendar. These newly constructed input markets represent an attempt to fill in the gaps that are not addressed within the deterritorialisation processes where the fertilizers are only sold in bulk, overlooking the various needs of some peasant farmers.

The territorialised exchange arrangements

As I have discussed so far, the peasant farmers' practices point at a move away from the more organised and controlled channels of marketing to more territorialised forms of exchange. They create some of these markets and exchange spaces by themselves, for instance, the incorporation of the input access that was initially accessed through the rigidly regulated and controlled markets into the local forms of exchange from more institutionalised spaces. Brooks *et al.* (2009) point out that 'many resource-poor farmers rely on informal maize systems even though most interventions focus on formal maize systems that displace the diversity of the informal systems and thus they do not serve the needs of the poor farmers' (Brooks *et al.*, 2009: 1). The peasant farmers engage in forms of exchanges that are diverse, heterogeneous and multiple and cannot be reduced to one abstract system as the deterritorialisation forces try to do or rather advocate for. Before I elaborate on these forms of exchanges, I will start with their brief historical background of market exchange in Yala that I gathered from the farmers' accounts.

The roots of the territorialised forms of exchanges

So how did the territorialised forms of exchange emerge over time in Yala? These forms of exchanges in Luoland largely stem from the historical and cultural elements in marketing that have endured and have been sustained over time. The Luo culturally and historically share food and exchange farm produce for services such as farm labour, and goods for goods. During pre-colonial times in Luoland, Luo people mostly shared and exchanged goods and services among each other. Marketing of food products was minimal because people used to plant and harvest enough food from their farms and selling food was not the norm. The household head would also ensure that the household did not run out of food by storing food in his *deero* (granary) that would be used during times of scarcity, to share with those who did not have, especially relatives and also for emergency purposes. They had a communal kind of life in a closely knit community where almost everybody was aware of each other's problems or issues. It was a punishable offence not to help others as I exemplified in *chapter 3*. With time the people began to barter, exchanging goods for goods as market centres developed. With the invention of paper money in 1922, people began to sell their produce in exchange for money or *noti* especially in market places. These forms of exchanges have continued to play a role in the farmers' marketing sphere. The farmers exchange their produce for money, labour or other goods and services and

this proceeds through social networks. These constitute part of the territorialised forms of exchange that I am going to discuss shortly.

The territorialised forms of exchange are diverse and allow peasant farmers to connect with one another in less rigid ways and sustain their survival. Luo peasant farmers have some special attachment to the local maize varieties, as I already mentioned, that they consider as valuable and of high quality for consumption compared to the hybrid maize varieties (Mango, 2002). According to the peasant farmers and the key informants, the local maize varieties are mostly produced within the locality, added value, consumed and exchanged locally. Culturally, the people in the area prefer to eat *kuon* (maize cake) made from whole grain of the local maize varieties over *kuon* made from the hybrid maize which is acquired through the global markets. They make their own local maize flour, adding value to the local maize that they consume. It is interesting that the local maize rotates within the community and in most cases it is not traded outside. The farmers reserve the maize genes for continuous use and do not depend on the global markets for their seeds. The following are the forms of exchanges that exist in Yala and in which most peasant farmers in one way or another engage.

Roadside stands

The roadside stands in Yala are not permanently located at certain points nor are they in fixed structures. The traders spread maize out on an empty sack on the ground for the buyers to see or it is put in *amiero,* a traditional basket made of locally available materials or just displayed in a plastic bucket. I observed that the farmers place their maize at strategic places where consumers are likely to pass by in large numbers, for instance, at the junction of two paths or simply along the roads. Some sell under (mango) trees while others sell under their own made tents to protect themselves mainly from the hot sun and yet others display their maize in the open. The peasant farmers/traders mostly take out their maize during the market days as they expect to tap in to the large numbers of people passing by to and from the market. Some combine the selling of maize with other goods and can sell by the roadside all days of the week or any day of the week. They may offer better prices than those at the market place.

Home-trade

The majority of farmers sell maize through the village networks. When one has some grains that they need to dispose off, they only need to tell to one or two people. The word goes around the village that someone is selling their produce. People come to

his/her home to buy maize at different quantities. The same goes for selling. This is done from the comfort of one's home, reduces the costs of transportation and above all enhances the social networks. People are more at ease when purchasing or selling to people they know. They can renegotiate the terms of trade. The farmers find the home trade easy. Dennis Otieno, a farmer in Nyamninia sub-location observes that:

> *"once you sell to one person, the word spreads very fast within the villages and before you know it, many people are coming to your home to buy maize".*

Similarly, a *posho mill* operator at Muhanda market indicated that:

> *"our interest to buy maize spreads through word of mouth. You know people talk to each other a lot and especially about the 'right' places to sell or buy maize. That's how most people come to sell to us because we offer good prices".*

During a FGD in Muhanda, the participants noted that sometimes it depends on the quantity of maize one wants to sell. For instance, if one has only a few *gorogoros* to sell, they may find it convenient to just sell within the neighbourhood rather than taking it to the market. On the other hand, if one has 4 or so bags of maize to sell, they may consider other marketing channels such as the lorry[31] if they are offered fair prices and if there is urgency for the money. This will enable them to sell everything at the same time and get instant cash without having to sell little by little to different consumers.

The maize the farmers sell at their homes is not usually displayed in the compound in a way that is it is done in the open air market. In fact, if one walks into a compound of the homestead where the maize is being sold, one will not notice any signs of maize sale unless a buyer is buying at that time. Even so, it may not be so obvious that selling of maize is going on. Maize is kept inside the houses. Long ago, the maize cobs used to be stored in a granary separate from the main house where the household members live. But times have changed and insecurities have arisen such as theft of maize from the granaries and also on the farms. The peasant farmers are increasingly and mostly storing maize in their houses. If a buyer comes in to buy maize, direct transactions normally don't take place immediately, depending on the circumstances at that time. The buyer and the seller may strike a conversation about any happenings around the area or other news of interest. They can discuss issues to do with families, agricultural activities, education or politics. They may or may not share a drink (mostly *chai-*

[31] The lorry in this case I about the mobile traders who supply maize using lorries. Most of this maize is obtained from far such as Kitale where maize is grown on large estates.

Kenyan tea) in the midst of the talks. It is the Luo custom that tea is always available at homes and it is offered to visitors. Then the buyer informs the seller about the news of his/her selling of maize and how the buyer heard about it. The buyer also mentions the amount of maize that he/she wants to buy. The buyer can also negotiate for the prices that can be reduced according to how close they are or their mutual interdependencies. They also define the terms of payment, for instance, the buyer may indicate that he/she does not have cash and can work for the seller to repay him/her. The seller then fetches the amount of maize they agree on, using *gorogoros* before the buyer goes away. Sometimes children may be sent to buy maize from neighbours and this does not involve too much time as the social talk is sparse with children. The home-trade, therefore, is not simply a seller-buyer kind of relationship but it involves a considerable amount of social connectedness and a continuation of social relationships that are present within the villages.

Maize assemblers

Within the villages, there are those traders who are well known to the people and contacted whenever a farmer needs to sell produce. Rose Ogutu, from Nyamninia sub-location is one such trader. She began by selling sweet potatoes in the open air market and after some time she had saved enough cash, with which she decided to start buying maize from the farmers when prices are low (especially immediately after harvest in January-February). She would then assemble the maize and later on sell it at the open air markets when prices are good enough, especially in March, April and May. She believes that farmers sell after harvest because of problems and not to gain cash to spend on luxury. She has thus taken up the opportunity to bulk up maize during such times. She buys maize in small quantities. She then sells the maize to consumers at Muhanda and Yala open air markets. She notes that buying from the farmers gains her more profit than buying from the lorries to sell to consumers. As of March 2016, she was buying maize from farmers at kshs. 60 per *gorogoro,* of which the lorry prices were at the rate of Kshs. 3,500 per bag (lorries sell in bulk). She also selects the best grains and puts them aside to sell them to farmers as seeds even at a much higher price. Most farmers sell to her to solve some immediate needs. For instance, a farmer may need to get flour from her maize, but may not have money to take the maize to the *posho mill*. So she would buy part of the maize, even half a *gorogoro* so that the farmer gets cash for *posho mill* services.

Angelina Aloo used to be a village assembler (she passed away in June 2017) in Sauri sub-location. She used to buy different maize varieties from farmers and would sell at the open air market. Before that, she used to sell *omena* and fish but switched to maize on the influence of her friend called Elida. She began by selling maize from her own farm. She then later on began to buy from farmers. Most farmers knew about her maize trade activities and so whenever they wanted to sell small quantities of maize, they would go to her homestead and get instant cash. She liked the business because apart from profits she got, she was also assured of food reserves for her family during times of hunger. She would keep some of the maize for consumption when there was scarcity. Initially, she used to announce to the farmers her intent to buy maize from them. With time she did not need to go around the village looking for maize to buy, the farmers would bring it to her. At times the farmers would call her before bringing their maize harvest to her, to confirm if she could buy. She would buy various maize varieties and keep them separately. Some people at the market preferred certain varieties over others and so they could choose what varieties they wanted. Just like Rose Ogutu, she would buy small quantities of maize and sell them at the open air market during the market days. At times at the market, some farmers would sell to her, then she would re-sell to consumers for a profit. She used to get some extra cash from a merry-go-round where she was a member. This would boost her business. The group is not only business oriented but it is also a social group. If a member of the group is in hardship, they come together to help her out. This unity is what keeps them together even outside of the business. Angelina had a working network and the farmers would bring maize to her any time of the day or night, whenever they needed instant cash. Maize assemblers are well known within the villages. They help cut down transportation costs, they can buy even the smallest quantities of maize and are reachable at any time.

Open air markets

The open air market in Yala operates every Tuesday and Friday. At the open air market, there are government controls, though minimal, and in most cases not taken into consideration by the traders. According to Yala Municipal Council, a trader needs to pay a minimum of Kshs. 20 to the municipal council as taxes for the market space. Depending on the officer collecting the charges, the amount can be anything between Ksh. 20 and Kshs. 60. The charges are such that the traders pay Kshs. 60 while trading within the town, Kshs. 40 out of town and Kshs. 20 within the villages. However, most of these charges have never been effected especially the charges for trade outside the

town and in the villages. There is also an option of getting permits for one year at Kshs. 1,000 or weekly at Kshs. 50. For the weekly permits, the traders have to pay every week regardless of whether they trade at the market or not. There are fines imposed upon non-compliance according to the law. The markets laws and taxes seem to be relative and are not adhered to at all the times. A market day may pass without the officers coming to collect taxes or the traders can duck the officers to evade the taxes. The traders complain that they pay taxes and they do not get any improved services from the municipal council. At times when the traders don't comply with the laws, they give excuses such as that they are not aware of such laws or they have just joined the market to try if things will work out.

Some farmers prefer to sell maize at the open air market during the market days. Monica Wadoyi explained that she used to take her maize to Yala market whenever she wanted to sell. She would then pay kshs. 20 for 10 *gorogoros* to the municipality. At the market, she would catch up with the news, meet other traders and costumers as well.

There are transport networks where the farmers use local transportation means like the *bodaboda* to transport their produce to the market. These are the people well known to the farmers and so they can even agree to settle the payment once the farmer has sold some of the produce they take to the market or in the evening once they close the market day and they have some money to settle the transport bills. Most of the farmers walk to the market centre which makes a distance of about four kilometres. Some sell along the road as they go to the market especially those who sell bananas. The market begins right from home, along the road and to the market place in some cases.

Local credit arrangements- 'Maize for services and services for maize' exchanges

There are local arrangements such that maize can be acquired or disposed off even without cash. These are done with mutual understanding of one another. The farmers can exchange produce for services or services for produce. Angelina Oloo said that she gives people maize in exchange for their labour. They work her field and at the end of the day they get maize according to the work they have done and the agreement she makes with them. Similarly, many farmers, I talked to, take maize to schools in exchange for their children to remain in school. They basically pay school fees with maize. George Okoth informs me that he takes maize to school for a school feeding program which requires 6kg of maize and 3kg of beans per pupil. He also takes maize

to school as payment for school fees for his children. On the other hand, farmers who do not have money to pay for services such as milling of maize can get such services and pay with maize. At times the *posho mill* operator is given maize that is just enough as payment for milling and at other times if the value for maize is higher than the milling charges, the operator gives customers the extra cash. At other times, people agree to give their maize to others who do not have, based on the agreement that the maize credit will be paid once the debtor harvests their own maize. This repayment is also done using maize of the same quantity as given. It can be seen as a form of sharing but not for free nor is it for profit making.

This kind of arrangement also applies to the settlement of debts such as school fees. Instead of the parents taking the maize to the market to sell and get cash so they can pay school fees, there is a provision that they can take the maize to school as part of school fees. This is a common practice within the villages and the village schools.

Selling to small shops, kiosks and posho mills

Esther Awour works as a *posho mill* operator in Muhanda market. In addition to providing milling services to her clients, she also buys maize from them. She receives a lot of maize, though in small quantities, when the farmers harvest their maize. At that time the prices are low, so she purchases and sells to the farmers when the prices are high as other traders do. She buys maize of different varieties and so the farmers are free to sell any maize varieties that they have for sale. Similarly, the same way the farmers market their maize in the *posho mills* is the same way they sell in small cereal shops: small quantities and maize of any varieties and colours.

One trader who operates a kiosk informs me that he obtains his stock of maize from the family farm, relatives and other farmers. Even though he sells different varieties of maize, on this particular day he is selling only the local maize varieties. He comments on the fact that they are delicious. Besides the strategic place by the road side where the kiosk is located, he maintains his own customers who always come to buy from him whenever they need any cereals. He largely relies on his networks to obtain cereals for sale as he does not get them from the mainstream market. However, at a certain time when there was shortage of maize from farmers, he could obtain some from the 'lorry'. The buyers do not like the maize from the lorries though because it is usually full of chaff and broken grains. The farmers cannot use it for planting either because they select their own seeds during harvest and keep them for planting.

Door to door selling

The other form of marketing I see around is door to door marketing. I have not seen this happen with maize but it is worth mentioning. This does not necessarily involve any social networking as the traders go to random doors in search of buyers. It involves moving from door to door, asking consumers if they are interested in the products they are selling. Some of the products marketed this way are fruit, milk and vegetables. It is done by most members of a family such as children or their parents. Maize does not feature a lot in this kind of marketing even though it has a potential to be included, especially green maize cobs.

The markets I have described have a common denominator. They rely mostly on social relations and do not follow any rigid rules of engagements. They operate within the sphere of mutual understanding that go beyond profit-making to demonstrate 'help' and 'care' for one another. They thus strengthen the bonds between neighbours within the villages, and between traders and their customers who together become part of the wider social networks of mutual care. These territorialised forms of exchange provide a social fabric in which the farmers and the traders feel safe and can beneficially interact with each other. They also provide a more localised access to food and income.

The territorialised practices and artefacts

The hegemonic market segments are unable to bring the desired produce qualities that the farmers prefer (Hebinck *et al.*, 2014: 190) such as taste, heaviness and also the social qualities such as sharing and local exchanges. The locally produced maize is preferred by the community to the 'imported', mostly hybrid maize varieties that are normally supplied by mobile lorries to the area. At times when the traders buy maize from the lorries, they have to clean it first before they sell it to the consumers. Hybrid maize is considered a commercial grain, but the way it is processed locally may differ from the way it is processed in large scale (elsewhere) for global markets.

Although hybrid maize (regarded as 'maize for business') may have several outlets or markets, local maize is limited to the locality. At first it was not accepted at the grain cooperatives and even currently at the government institutions such as the NCPB and it is not part of the package given as inputs by private organisations such as the OAF or even the non-profit organisation like the MVP. It has a different channel of acquisition and disposal in terms of markets that is farmer based and embedded

within the community. The local maize varieties are exchanged within the community following their long standing advantages and likeable features that they exhibit and also careful ways in which they are processed to maintain their quality. Their existence date back to more than a century ago when they were introduced in to the community and thus they have adopted to the climatic conditions of the area as discussed in chapter 3. They have endured despite the many interventions within the community that advocate for cultivation of hybrid maize as elaborated in chapter 4 and limit markets for the local maize varieties as I have earlier shown in this chapter. The territorialised exchange of the local maize varieties and other local exchanges involve unique practices and use of artefacts that are rarely or not used within the global markets. One of these artefacts is a *gorogoro* that enriches the Luo assemblage.

Use of gorogoros

In Yala, the unit of measure of maize is a *gorogoro* and not a weighing scale among the majority of farmers selling their maize produce. A *gorogoro* is a 2kg tin of used cooking fat and at times the traders use smaller tins of 1kg. The word *gorogoro* is believed to have been coined during the famine of 1983-1984 which was dubbed *gorogoro* famine. This was because the people would be given relief food that was measured in a *gorogoro.* The weighing scale is rarely used within the territorialised forms of exchanges. In his study on the ethnoecology of maize variety management, Bellon (1991) noted that yield is not a homogenous concept among the Spanish-speaking farmers whom he studied in *ejido,* in central Chiapas, Mexico. There is a distinction between yield-by-weight and yield-by-volume. Traditionally, maize in *ejido* was measured by volume which gradually changed. Maize began to be measured by weight although farmers selling small quantities of maize still used volume for measurement (Bellon, 1991: 409).

The farmers in Yala are mostly opposed to the weighing scales for the measurement of maize for trade for a reason. They claim that the *gorogoros* are voluminous, which means that a *gorogoro* contains more grains than a weighing scale for an equivalent of 2kg of maize. A handful of maize can be added on the top to make a mountain-like shape of grains which is a plus for a buyer. The *gorogoro* is used locally for both local varieties and hybrid varieties sold in small quantities, especially among the farmers. If a sale involves large quantities and if it is sold to the 'formal' institutions, a weighing scale is used per 90kg bag.

On the other hand, some of the traders have come up with cunning ways to get less grain in the *gorogoros* for more profit. Some disfigure or make lumps at the bottom of the tin to reduce its volume. The farmers also complain that the *gorogoros* that the traders use are smaller than the common ones although it is not easy for an inexperienced buyer to notice this. For instance, one Mrs. Okoth buys maize from farmers at her home. She has two *gorogoros;* one for buying and one for selling maize. The one for selling maize is smaller. When I looked at the two tins initially, I could not see the difference but when she explained to me, I could notice a slight difference in the sizes of the tins. She explained that the one she uses to buy maize from the farmers can contain a handful of extra grains.

In many communities throughout the country, traders use weighing scales but within the Luo community, the majority of traders maintain the use of the *gorogoros*. They can renegotiate around the *gorogoros* for more maize that can be 'over-filled' in the tins unlike in the weighing scales where the weights are rigid and fixed. The farmers like flexibility in most of their operations.

Exchange practices for quality: nyaluo maize for kuon or kodhi?

There are two kinds of *nyaluo* maize that are sold in the open air markets; *nyaluo* maize for consumption (making *kuon)* and *nyaluo* maize for seeds (*kodhi)*.

It is around mid-March. I decide to go to the maize market at the open air market. The maize market is located at the far end of the market. I walk there to see what is happening. I first decide to enquire about the maize prices considering that it is around planting time and at this time many farmers do not usually have enough maize in their stores and it's the time they start to go back to the market to buy maize for consumption and as seeds for planting. I ask the first seller I come across how much she is selling the maize for. She asks me whether I need maize for *ugali* or for planting. I am quiet for a moment thinking why it matters what I have to do with the maize I buy. I then inform her that I only need to know the prices. I am actually not out to make any purchases. She informs me that the maize she is selling is for planting and it goes for Kshs. 120 per *gorogoro.* She also informs me that the maize for *ugali* is going for Kshs. 100 per *gorogoro.* I thank her and go to another part of the market where they are also selling maize. I make the same inquiry and the trader tells me that she is selling both maize for *ugali* and for planting and quotes the prices as Kshs. 100 and Kshs. 150 respectively. I make an expression that reads that I am not satisfied with the prices and

she quickly says that we can 'talk'. I then inform her that I only want to know the prices. I thank her and leave the area. I realise the prices have risen with from between Kshs. 50 and Kshs. 70 per *gorogoro* since the last time I asked in the market in January. I later learn from the farmers that the difference between the maize for *ugali* and the maize for planting is that the maize for planting has been carefully selected form the healthiest cobs specifically to be sold for planting. The farmers trust this maize because they know how the quality has been arrived at and they can tell it is of quality grain.

Territorialisation as self-regulation and self-sufficiency?

The farmers have a way of regulating their food so that it is available to everyone. Those farmers who produce on a large-scale sell the food to their neighbours who do not have enough instead of taking it to global markets where it is hard or costly to retrieve in times of hunger. They act as food reservoirs for those who do not produce much food within the community. The traders within the area also have personal connections with their 'customers' whom they sell maize to and also buy from. They view this as 'helping each other' and less as doing business. Once they buy the food from the farmers, they are 'storing' the food for them in a way so that the farmers can access it at a later stage. Most of the food circulates within the villages and during times of hunger, the selling of maize to middlemen who come from far distances is regulated by the farmers with the help of local authorities in their capacity as farmers.

The meaning of large scale/small scale in Luo assemblage

At one point I needed to interview 'large-scale' farmers, those who produce relatively high yields. I did not really have a definition of how much qualifies to be large-scale. By then I had only interacted with those peasant farmers who produce just enough for consumption, paying school fees and generally to carry them through to the next harvesting season. I shared this with the lady, who at times assisted me in organising some activities such as FGDs, so that she could help me out with locating such people. She told me she knows several of such farmers. And then she added:

> *"someone who produces at least 10 bags of maize is a serious farmer, a large-scale farmer. I can take you to some of them".*

At that point I did not respond. I was still wondering if a farmer who produces 10 bags of maize can be classified as a large-scale farmer. I then remembered my discussion with a village elder in Sauri sub-location, who mentioned that there are farmers who come from the sub-location and produce more than 100 bags of maize even though their farms are miles away from western Kenya, in Rongai in Rift Valley. In my mind

at that time, this was what could have passed as a large-scale farmer. When I talked to some other farmers within the villages, the narrative seemed to be the same. They would consider their farmer-neighbours who produce at least 10-20 bags of maize as large-scale farmers. I then realised that the definition of 'large-scale' among the farmers in the villages is different. Any harvests above 10 bags of maize, to the usual peasant farmer, is large-scale since the majority of the farmers do not harvest that much. I then realised that I did not have a proper definition of large-scale and small-scale and I have always assumed a different categorization. I decided to adopt this new definition of large-scale and small-scale from the farmers and this meant doing away with the categorization as standard. I take large-scale to mean any harvests that are way above the average harvests of the farmers within the area and also such farmers who can have surplus to sell to the neighbours and still have enough food in their stores and small scale to imply the opposite.

I visited one of the 'large-scale farmers', Eudia. Every season, she harvests at least 10 bags of maize. She informed me that she had learned about farming from MVP although before then she could still grow maize and harvest considerable amounts. She used to live in Nairobi with her family before they moved to Arude village in Nyamninia sub-location, where they bought land some distance away from their ancestral land. Post-MVP, she would plant Kenya Seed maize varieties during the long season and DH4 or the local maize varieties (*nyamula* and *ababari*) during the short season. Nowadays she grows only *ababari* and she says she harvests about the same amount of bags she would harvest when she used to plant hybrid seeds. She uses ash to store her maize and so far she has not seen any weevil manifestation. She cultivates mainly for food but she always gets surplus that she sells to the neighbours. She always uses fertilizers and manure to plant her one and half acre farm. She buys the fertilizers from the agrovet. She cultivates with her husband since their five children are already grown-up and live away from home. They own a *posho* mill where they can make some extra cash to facilitate buying of inputs.

The neighbours always come to her to buy maize. She does not take the maize to the market but she finds buyers within the village. Some of them take the maize on credit and pay later and even have it milled on credit. She mostly sells her maize during the months of March, April and May at the market prices. She hires labour for planting, weeding and harvesting and some of the neighbours who work for her ask to be given

maize in return, some mill some of it at her *posho* mill and carry home maize flour for *kuon*.

Another large-scale farmer is George Willis. He lives near Muhanda centre and has two pieces of land for cultivation. One is a one acre piece of land which he purchased and he grows hybrid seeds while the other one is less than half an acre of land where his late father's house stood and which he inherited from the father. He grows the local maize varieties on this piece of land. He is a member of OAF where he gets his inputs and he harvests about 20 bags of maize during the long season. He markets his maize locally where the buyers come to buy from his home. He is one of those home-sellers. Even though he grows maize for consumption since he has a large family of 12 people, he also gets surplus for sale. He always has enough maize at his home to feed his family and the neighbours as well. He mostly sells the hybrid maize and consumes the local maize varieties with his family. It is also the local varieties that he shares with his relatives who do not have food. He participates in school feeding programs for his children where he contributes 6 kilo of maize and 3 kilo of beans and also takes maize to school as school fees.

As I have shown, every farmer is not at the same level of production within the community. This is also another angle of peasant farmer heterogeneity. There are those farmers who harvest more than the rest and they serve as a 'food reservoir' during times of hunger when neighbours who run out of food can acquire food from them using cash or other mutual arrangements and this ensures that, in the end, no one dies of hunger. The peasant farmers' markets are located within the community and community members' food access is still within the community. The food circulates in a beneficial way.

"Just keep for us, we will come back for it soon": The sale of maize after harvesting

Currently, the sale of maize is highest in quantity immediately after harvesting. This is when the farmers can have quick access to money to pay up debts or buy the things they wish to buy such as delicacies but also to pay up school fees and medical care. It is also a time when the prices of maize are at the lowest. One of the agricultural officers noted that:

> "*The farmers sell because they look at immediate needs and thus do not care about the amount of money they get. Some want to buy delicacies eg fish or meat and if you question it, they will tell you that they are 'eating their sweat'. Afterwards they run out*

of food and go back to the same markets to buy the same maize for higher prices. Sometimes, though, it is because of pressure. For instance, if a kid has been dismissed from school due to school fees, one sells maize to send the kid back to school. They find it hard to borrow money from the neighbours because the neighbours will claim that they have maize that they can sell and get school fees".

One of the respondents put it that most farmers sell their maize immediately after harvesting because they do not have other 'promising' sources of income and the maize is the only thing they can hold on to. Some of the debts they may have accumulated over time are actually acquired with the promise of paying back after maize harvests. Others need the money for immediate urgent expenditures and they cannot suffer when they have maize in store that they can sell and get cash. Some end up selling all the maize they have and within no time they are hungry. Mackrine, a trader at Muhanda market said that:

"*when farmers harvest their maize, they like to 'bring' it to me because they are my customers. I help them during the times of hunger so when they harvest they bring the maize to me. The farmers who sell to me also buy from me. They say, let us just give you the maize to keep for us, we will come back for it in due time".*

The trader understands her farmer-customers. She calls them 'my customers' and they can connect at a closer level where they understand each other. Selling maize to her is termed as 'keeping' because they trust she will have the maize when they finally run out of it in their stores. The farmers know that the maize is safe within the neighbourhood and they do not have to find it at great distances when they need it, as might be the case if they engaged in global markets. The trader also mentions that she 'helps' the farmers during times of hunger which means that the sale of maize to them has some meaning. It may imply that her function is more than just making profits. She buys the maize with mutual understanding that hard times may lie ahead and thus she 'keeps' the maize for the farmers. It also brings in an element of care and how the two parties interact with each other.

'We want the food to circulate within the community'; territorialised regulations

At the beginning of 2017, hunger was experienced in most parts of the country. In Yala, the short rains were not sufficient and so the farmers did not harvest as much and thus there was a perceived shortage of food. As usual, the selling of maize continued after the little harvests in January and February. The farmers were selling maize to the

assemblers, traders and other buyers within the community. The expected selling of maize immediately after harvest also attracts other buyers, usually middlemen, from the neighbouring Luhya communities and beyond. One of the senior village elders had this to say about the business of the middlemen:

> "These buyers move around with bicycles to the villages and assemble maize of whatever quantities the farmers can offer. It is tempting for the farmers especially if someone knocks at their door, waving money in their faces in exchange for maize. When the farmers see money, they go crazy and can end up selling everything. Some of the farmers are lured this way to sell their food even when they do not have pressing needs for such cash. The buyers are also tricky and at times send the children to fetch maize from their parents' stores and sell to them when the parents are not around. The children at times copy what they see the parents do and sell the maize without their parents' permission so they can get cash to buy 'delicacies' such as candies, *mandazis* etc. The people within the community do not like these middlemen even though they also welcome them in a way. So the assistant chief has issued a directive to us and the village elders to 'chase away' the middlemen whenever we see them because they are going to finish food of the Muhanda people and take it to a faraway distance. The same farmers who sell to these people will run out of food soon and they will become a burden to their neighbours, borrowing food all the time while the food they had got is transported to far distances instead of circulating around. We tell farmers not to sell to them because we want the food to circulate within the community. Giving it to other people when we are also hungry is very wrong. Money disappears very fast but food in store can last long".

The local authority, acting in the capacity of farmers, and in collaboration with the farmers saw the middlemen (who came from outside the community) as a threat to food security within the area and were concerned that problems would arise if they were not controlled. There was no official policy attached to this regulation. After several warnings from the local authority, the middlemen disappeared. This kind of

local regulations forms part of the social-material infrastructure[32] within the embedded or territorialised exchanges.

According to the peasant farmers global markets through their practices, take away food security from their hands. Once food is sold to global markets as opposed to circulating within the community, it costs even more to get it back as it travels long distances. In addition to costs, the food that the farmers get from global markets such as from the lorries is less attractive to the farmer consumers as it does not taste good. The governmental agents as well as the non-governmental organisations advocate for transformation of peasant farmers to small entrepreneurs. But the farmers have different opinions as echoed by one of the peasant farmers. She told me that:

> *"when MVP was implemented in this community, they mostly advocated for planting of commercial maize (hybrid maize) so that farmers could get income. They tried to make us forget the nyaluo maize, but in vain. They said the local maize varieties are not profitable, but that's our food. We are going back to our local maize varieties. We cannot sell all our food to rely on money".*

Conclusion

The proliferation of multiple manifestations of territorialised or locally embedded forms of exchanges in Yala is an indicator that the farmers have not been disembedded from the prevailing historical forms of exchanges by the deterritorialisation forces. This multiplicity of exchange channels cannot be reduced to one abstract form of marketing as the deterritorialisation processes attempt to do and the way global markets are operated (Hebinck *et al.*, 2014). The practices of territorialising markets by peasant farmers represent a response to the uncertainties presented by the global markets. The farmers' practices proceed as an autonomous and self-driven process which present the farmers with opportunities for growth and development. It shows that centrally organised markets are renegotiated and contested by the farmers who seek for market alternatives that suit them and engage in markets or exchange forms that resonate with their cultural values and enhance their social networks and relations. The introduced channels of marketing such as the cooperatives disconnect the peasant farmers from their social relationships that are crucial for survival. They somehow promote individualism, for instance, when the farmers can no longer share

[32] Van Der Ploeg *et al.* (2012) defines *infrastructure* as a set of specific artefacts that are used to channel flows of goods and services between places and people and the specific way in which these artefacts are tied together into a coherent and smoothly functioning whole (2012: 157).

their seeds within their social networks because they have to acquire them from global markets and this limits their sharing practices. This is external to the way elements interact with each other within the Luo assemblage especially the art of sharing and the social connectedness.

The increased trend towards deterritorialisation of the existing forms of exchanges that attempts to incorporate the peasant farmers within global markets pose a danger of draining the peasant farmers' food reservoir. Most of the farmers do not cultivate for the market but sell small quantities of their maize within the territorialised forms of exchange when need arises. Attempts to transform the peasant farmers to small scale entrepreneurs (as MVP attempted to do) calls for quantification of the amount of maize harvested and later conversion to monetary forms. This means that the farmers have to market their maize and gain an equivalent of cash. Cash cannot feed the family. As I noted in this chapter, when the farmers do not have food in their granaries, regardless of whether the supermarkets are full of food, they will still consider their situation as 'a state of hunger'. It is thus being food self-sufficient that satisfies them and not reliance on markets for food. As Mango (2002) points out, "it may not be mere coincidence that the local word for acquiring grains from the market – *rundo* - has a common phonological root with words describing mental instability - *rundrudk* and *rundore.* Most farmers have a strong feeling that, even if they have money, still they would rather produce food for themselves" (Mango 2002: 7).

The territorialised forms of exchanges ensure the maintenance of social relations and networks that are crucial in day-to-day survival. The circulation of maize within the community through social networks ensures that the community members have access to food through various affordable arrangements. This is particularly important for food security and not for profit as the global markets push the farmers to do. If the farmers were to comply with the global markets demands, given the average quantities of maize they produce due to their small sizes of land, they would be pushed deep into hunger. The huge amounts of money that the global markets purport to be acquired from the sale of maize may not be used for food but other expenditures, and the farmers may be made to buy food at higher prices from global markets which they may not afford. As one respondent said: *"we cannot sell all our food to rely on money, money runs out fast"*. The territorialised forms of exchange are enshrined within the social lives and culture of the Luo community and the farmers own and control the decisive social-material infrastructure through indirect rules and a code of conduct

that they carry as moral responsibilities to each other. The income the peasant farmers acquire through territorialised forms of exchange go directly to them and hence not shared by any other parties as in the case of the large food empires (Schneider *et al.*, 2014: 198).

Some deterritorialisation elements that were introduced by MVP and the government such as the use of fertilizers have been incorporated in the Luo assemblage as many peasant farmers can no longer harvest much without using fertilizers. However, the channels for fertilizer access have been disassembled by the farmers to comply with territorialised forms of exchange that the farmers largely engage in. This implies that the farmers can access fertilizers in small quantities and with mutual understanding with the traders. This also brings in an element of agency for mutual benefit and an opportunity for the farmers and traders to connect with each other in ways that are not rigidly defined. The peasant farmers' practices as they interact with deterritorialisation forces and with each other demonstrate struggles for autonomy through contestations, construction of new markets (Van Der Ploeg, 2018) and continuously engaging in territorialised forms of exchange which are vital for food availability but at the same time, their relevance is ignored by governmental and non-governmental organisations working with peasant farmers.

Chapter 6
Relations between women and men and maize cultivation practices

Figure 9 Male and female farmers during a focus group discussion

Introduction

One morning in January 2013 when I was doing fieldwork for my MSc thesis, I walked into Otoyo's compound. I had met this farmer several times and I knew him as a farmer who had been a key reference for interventionists such as ICRAF (as ICRAF agent) and MVP (as a lead farmer). He told me that he plants only hybrid maize and that he stopped cultivating *nyaluo* maize a long time ago, a typical picture most 'lead farmers' paint like to paint. On this particular day, I noticed something different. In his compound, I found *nyamula* maize varieties spread out to dry. I wondered if it belonged to him or someone else. I asked him about the same and he explained that the maize belonged to his wife; she is the one who grows the *nyaluo* maize while he cultivates hybrid maize. He went inside and brought some more cobs of the *nyamula* maize variety that had been selected for planting for the next season. It was at this point that I began to explore gender[33] as a key element in the Luo assemblage and to explain the perceived differences between the way men and women perform maize cultivation. I was curious to find out whether men and women cultivate different varieties of maize and the kind of practices involved. I sought to investigate this further, unearthing much more complex situations not only about the relations of men and women around maize cultivation and marketing, but also on resource (land) access and ownership and importantly, the (cultural) relations among women within a homestead[34] and their impacts on maize availability.

Part of the peasant farmers' practices in maize cultivation and marketing that scholars explore centre on the differences in practices of men and women. In many analyses of agrarian change, men and women are treated as distinct categories with distinct roles that impact on their food crop cultivation practices (Francis, 1998; Ouma *et al.*, 2006: 11). Men and women are generally said to be impacted differently (Bray, 2007; Defoer *et al.*, 1997; Doss, 2001; Doss & Morris, 2000; Guyer *et al.*, 1988; Mackenzie, 1990; Njuguna *et al.*, 2016; Nzioki & Kandiwa, 2015; Orr *et al.*, 2016; Simiyu, 2012) and this includes differences in adoption of hybrid maize varieties and use of inorganic fertilizers (Doss & Morris, 2000). Men and women are said to produce crops for different purposes; women produce maize for subsistence while men produce for the market (Carr, 2008a; Kiptot, 2015) as the case of Otoyo may imply. Additionally, the

[33] In this chapter, I do not wish to explore gender theories but to bring out the practices and relations of men and women as part of the Luo assemblage that influences maize cultivation.

[34] I use the word household to refer to a family that lives together within the same homestead. I sometimes interchange it with 'homestead' or simply 'family'.

way men and women relate and their practices around resources for food cultivation has also been explored with women being presented as having less or no access to land, inputs and information on 'modern' crop production technology despite being the primary producers (Karanja, 1991; Lambrecht, 2016; Momsen, 2010). Thus most projects and programs advocate for women registering or owning land so as to increase their access to land and decision making power over the use of land and also to boost household income. However, the women themselves may not be willing to increase their responsibilities within the household and become income providers (Lambrecht, 2016: 198).

Grace (2004) points out that 'gender practices do not only refer to the constructed differences in activities of men and women, but also include differences between women themselves, the young and the old' (2004: 1). Feminist scholars have been critiquing how 'women' or 'men' are often treated as a homogenous, monolithic category of analysis in development practice. Mohanty (1988) points to the simplistic view in which "men and women are always seen as pre-constituted whole populations, and relations of dominance and exploitation are also posited in terms of whole peoples-wholes coming into exploitative relations" (1988: 78). The problem with this categorization is that it disregards the heterogeneity of either category and thus becomes ineffective in designing strategies to combat oppressions, dominance and exploitations (Mohanty, 1988: 73). Looking into the 'categories' unveils important dynamics within these categories. Are the Luo women equal as mostly presented in development discourse? There are various power dynamics especially in the way senior women relate to junior women who may be their co-wives or daughters-in-law within a homestead that impact on food availability and these are constantly changing. This in part relates to the generational differences between the practices of the younger and older generations of farmers.

These gender issues in maize cultivation have informed research and some intervention components in Yala (Kiptot, 2015; Kiptot & Franzel, 2012; Mutuo *et al.*, 2007; Nyasimi *et al.*, 2009) that approach such issues from a female-male dichotomy. This obscures some of the more complex relations and practices that I encountered in the field, some of which do not conform to the gender binary/categories of 'men' or 'women'. In this chapter, I bring out the real and actual practices that show the complexities involved in the issues of men and women. This tones down generalisation and the rigid binary of men's and women's practices or roles. I present

the issues of men and women in maize cultivation as important elements and processes in Luo assemblage. These are the processes of negotiating, contesting and accepting that reveals the contingent nature of the relations and which explain territorialisation and deterritorialisation processes. I begin by exploring the senior-junior women's relations and the impact of these relations and practices within Luo households, then I discuss the issues of land access and ownership by men and women and finally explore deterritorialised farm practices of men and women which include seemingly differentiated but overlapping practices and the question of whether men and women plant different crops and different maize varieties for different purposes as the case of Otoyo suggests.

Senior-junior women's maize cultivation practices and relations

In this subsection, I will discuss the senior-junior relations and practices within a household and how these impact on maize cultivation and are in turn impacted by the deterritorialisation processes. Anthropological literatures such as Potash, (1981) point out the differences between the senior and junior Luo women, for instance, the mother-in-law versus daughter-in-law relationships in food crop cultivation where the mothers-in-law make most of the farm decisions. Some other literature point out the differences over the life cycle (Kandiyoti, 2005; Quisumbing *et al.*, 2014). Quisumbing *et al.* (2014) stress that "focusing narrowly on the differences between men and women masks more important differences among women, including those that arise from where they are in their life cycle" (2014: 14). They explain how older women can be untapped resources for spreading extension messages due to their status in a particular community and also the importance of investing in youth (future generation of farmers) and thus foresee the life-cycle heterogeneities becoming increasingly important as factors to consider in agricultural programs (ibid.: 15). I look at these differences from a different angle of continuous reassembling of elements noting that the young women resist the cultural powers of the older women in varying ways to act autonomously in a deterritorialised environment influenced by various factors such as the elements of the MVP.

In a Luo homestead, the *mikayi* is a powerful pillar and key to decision making as dictated by the Luo customs. According to the culture, her roles in maize cultivation and harvesting are well known and respected by the members of the homestead. She potentially holds the key to food availability within a homestead, depending on how she chooses to use her power. There are on-going struggles among the co-wives and

junior women's reactions to the power of the *mikayi* is varied. Some may endure the way she exercises her power, even when she acts selfishly, for social approval as a way of territorialisation while others choose to challenge and contest that power to liberate themselves, portraying deterritorialisation.

The key roles of the mikayi in maize cultivation

The *Mikayi* is seen as the co-owner of the home and the co-wives ideally get married to her husband and stay at her home. As I indicated in the introduction, the *mikayi's* roles are vital in maize cultivation and in the *dala*. During the planting time, some of the maize seeds (usually the *nyaluo* maize) to be sown are put in the hut/house of the *mikayi.* The husband spends the night with her before the sowing day which is normally the following day. The *Mikayi* then sows the seeds the following day and the husband spends the next four nights with her in her hut/house after sowing. If the husband is not alive or available, she can perform the ritual using a cock and hen. She throws the seeds to be planted to the hen, makes sure that the hen mates with the cock and then plants them following day. After the *mikayi* has planted, the ritual is repeated by the rest of the wives within the household following the order of seniority. The *Mikayi* does not need to plant the whole farm but only a few seeds, to give way to the rest of the women who follow suit in order of seniority. The seeds have to be taken through the gate to the farm for planting for the reasons we explain later. If a married woman lives within the same compound with the mother-in-law, she has to let the mother-in-law plant first according to the culture. When crops are ready for harvesting, *dwoko cham,* is performed. The order of seniority is again observed and the *mikayi* has to harvest first. Harvesting in this context implies that the *mikayi* takes a few ears of maize from her farm and eats them privately after either boiling or roasting them. This then permits the other wives or daughters-in-law to harvest as well. According to the culture, before *mikayi* performs *dwoko cham,* the rest of the younger women are not allowed to harvest even if they have nothing to eat at home.

As the 'co-owner' of the home, the *mikayi's* roles in the past (and presently in some cases) were vital in the successful establishment of a home, or *boma,* through the necessary rituals and rites. The first wife was always aware of all the happenings in the home and nothing would pass without her knowledge. The husband could not do much without consulting her. If the husband wanted to start preparing the land and any other subsequent practices in farm cultivation from planting to harvesting, he had

to consult the first wife first. Even in old age, her status could not be overridden and she would take the position of a *pim,* an elderly and respected woman trusted with the education of the young girls and women (Musandu, 2012 : 547-548). It was actually the *mikayi* who was allowed to take issues concerning her co-wives and the household affairs to the husband. For instance, if the co-wives and their children ran out of food in their granaries, she would inform the husband who would open his *deero* (granary) and distribute the food to his wives. The co-wives had to pass issues to the husband through her, a protocol that had to be followed. If she was not on good terms with a certain co-wife, then that woman would suffer under her power. If the first wife become a big problem for the rest of the household members by abusing her powers, she would be called before the husband and his brothers where the problems would be discussed and a warning would be issued to her. Most of the household decisions would revolve around the first wife and the husband, the rest of the household members were expected to follow suit.

The *mikayi* is a powerful pillar in a household and an authority especially among the women folks within the household. She can use the power for the benefit of the household and for some this power is abused in a way to punish co-wives and their children especially when it comes to *golo kodhi* and *dwoko cham* rituals. The co-wives do not have much say over the decisions of the *mikayi* since they '*stay at to her home'* and are *'married to her husband'*. The home belongs to her. In the past as I pointed out in the introduction, the fourth co-wife to the last wife would be regarded as a daughter of the first, second and third wives. This shows already the kind of relationships that exist and the power differences involved. This calls for submission on the part of the younger wives to the *mikayi* and the husband. Monica Makaya, a second wife explained to me her relations with the *mikayi:*

> *"She was like my mother. My parents had also advised me if I get married to someone's husband, I should respect her and stay with her well. I would thus wait for mikayi to do her duties like golo kodhi and dwoko cham. Even after our husband died, I still would let her plant and harvest first".*

It is therefore important for the younger co-wives to 'show respect' to the *mikayi* and the husband through territorialised practices for harmonious co-existence. Adhering to the tradition is seen as a sign of respect to the elderly who are deemed knowledgeable as regards to maize cultivation practices. However, deterritorialisation is taking place as one farmers alluded to:

"in the past, the older people used to teach young ones about good cultivation practices but nowadays, the young ones teach the older people".

This implies that the meaning of knowledge is changing such that the young people, especially newly married women, who traditionally leave the farming decisions to their mothers-in-law upon marriage as Potash (1981) pointed out, are embracing new (scientific) knowledge and in turn teaching this to the older people as opposed to learning the folk ways of farming from the elderly folks.

The *mikayi* has the power to make or break the household. If she does not do the right thing especially in regards to food crop cultivation, she may not only cause conflicts but also jeopardise the livelihoods of other members of the household. For instance, if she delays in planting, it means that the others will delay further and this will have implications on the yields. The *mikayi* uses her power to gain control over the co-wives so as to define her own identity as the eldest wife and the co-owner of the *dala*.

Even though the co-wives are expected to respect each other and especially accord respect to the *mikayi*, their relationship with the *mikayi* does not always proceed without hiccups. The *mikayi* may not always reciprocate the respect accorded to her or may overdo her power, especially if she is not on good terms with the co-wife/co-wives and daughter(s)-in-law, in a way that brings about suffering to the junior women and their children. During one of the FGDs, a participant who is a daughter-in-law indicated that:

"The challenge with golo kodhi is that some mothers-in-law or mikayi delay too much in planting intentionally. This delays the young wives who would want to plant in good time, especially the hybrid maize seeds. It is more of a punishment, especially if they are not on good terms. I had to persuade my husband so we could establish our own dala because of this challenge and now I can plant as I wish".

The conflict with the *mikayi* and the need to plant hybrid maize in good time as it is required (as the farmers were trained by MVP) resulted in deterritorialisation.

Below, I will explore two cases about the co-existence of co-wives and mothers-in-law and daughters-in-law and the extent to which these relationships impact on maize cultivation and availability of food. The first case is that of Atieno that brings out the character of endurance for peaceful co-existence, the paradox in relation to the step-daughter-in-law and the repercussions of this endurance. This represents practices of territorialisation and deterritorialisation as the same time. The second case is that of

Akinyi that depicts the struggle for autonomy through power contestation which is largely deterritorialisation of the Luo assemblage especially the cultural elements.

Enduring the power of the mikayi; The story of Atieno

Atieno was born in 1953 and got married in 1972 as a second wife in Sauri sub-location. She has endured suffering under the *mikayi* whom she used to refer to as *mama.* All her married life, she has faced difficulties in relation to crop cultivation which is largely controlled by *mikayi.* As expected, *mikayi* has been in control over most decisions in the household. During the planting seasons, *mikayi* delayed planting intentionally. She is financially well-off as she controls her husband's income to some extent and thus she can hire external labour to help with cultivation activities especially when utilizing hybrid maize technology as trained by MVP which is labour intensive. When it rains, she does not want to plant immediately, mostly to intentionally delay and punish Atieno because Atieno cannot plant before she performs the *golo kodhi* ritual. Since the *mikayi,* has money, she knows that planting her farm takes her a single day with the help of the hired labour and so she is usually in no hurry. On the other hand, Atieno has to use family labour, that is, plant with her children for several days in addition to being delayed. This means that the seeds planted by the *mikayi* and those planted by Atieno during the last days of her planting have about two weeks' time difference. This is time enough to impact on yields, especially of hybrid maize that is supposed to be planted before or at the onset of rains. Most of the time Atieno plants late as she does not want to act in a way that would brand her as a disrespectful woman. From the MVP trainings that Atieno has received, she is aware that late planting of hybrid maize seeds negatively impacts on yields but at the same time, her hands are tied to the cultural rituals. During the harvesting time, the same story repeats itself as the *mikayi* is supposed to harvest first or rather bring the harvest home first so that the rest of the household members can follow suit in the order of seniority. The *mikayi* does not perform *dwoko cham* early enough once the maize is ready for consumption to allow Atieno to start consuming her maize with her children. The *mikayi* has always had money to buy food in case of shortage and most of the time she has food in store. It is only Atieno who suffers with her children, at times even when the maize is ready for consumption on the farm and in some extreme cases the mature maize is spoiled by excess rains on the farm. This means that her yields are reduced.

Atieno's survival tactic has been to find some other work to feed herself and her children. She does not have any formal job but has been involved in various

community activities to gain some income which implies deterritorialisation in a seemingly territorialised situation. She started as a traditional birth attendant and later went for training and became a midwife. She later joined Community Based Development (CBD) in family planning before being absorbed by Pathfinder International[35] as a village counsellor. She also worked within the health sector of MVP as a Community Health Worker until 2012. She is now the acting village elder. All these other activities she has been doing outside her home are not controlled by the *mikayi*, thus exercising her agency enabled by the delaying acts of the *mikayi* to feed her children.

Ironically, the *mikayi's* daughter-in-law who has just basic education does not follow the traditions of *golo kodhi* and *dwoko cham.* Culturally, she should be the third in line in terms of planting such that her mother-in-law plants first, then Atieno who is her step mother-in-law and then her lastly. However, after taking MVP training she started planting before her mother-in-law. Once it rains, she plants as she was taught by MVP to benefit more from the hybrid maize package. During harvesting time, she harvests her maize normally without having to wait for the senior women within the household to harvest first. Once the *mikayi's* daughter-in-law began to deviate from cultural expectations, the *mikayi* stopped her delaying tactics in planting and harvesting. Even though the *mikayi's* daughter-in-law's actions are not in accordance with cultural expectations, she has come to be Atieno's 'saviour' from the power abuses exercised through delayed planting and harvesting by the *mikayi*. Atieno sticks to the traditions as a sign of respect to the *mikayi* and to keep her dignity within the village while the *mikayi*'s daughter-in-law continues to ignore her mother-in-law's authority through the planting practice.

It is a complicated relationship through the generations where the older generation of women feel indebted to the culture but the young generation of women are not so keen on adhering to the cultural demands. The insertion of new knowledge (trainings on hybrid maize applications) and materials (hybrid maize) to Luo assemblage has led to deterritorialisation of the assemblage; redefining the assemblage as different patterns of gendering emerge. The introduced maize technology by MVP within the community becomes part of the drive in the deterritorialisation process. The power differences among the women within the same household that is manifested through

[35] This is an NGO that worked within the community, dealing with reproductive health care.

the dominating power of *mikayi* and her junior co-wives are shifting as a result. This implies that "relations are not fixed and stable" (Bueger, 2014: 62). The older women, like the *mikayi* and Atieno, find it important to act as per cultural expectations and this implies efforts towards territorialisation. They do so in innovative ways such as finding off-farm jobs to get income to feed their children or establishing their own *dala* together with their husbands. The practices of the young women towards deterritorialisation form the basis of the shift that threatens the authority of the *mikayi*, who acts in a way to rescue her position as the 'co-owner' of the home, such as absorbing the ideological changes without losing face within and beyond the household.

Contesting the power of the mikayi; the story of Akinyi

Akinyi is 82 years old and a female head of her family. She studied up to class eight and got married as the first wife at the age of 22. Her husband got married again later on but he separated from the second wife. The husband was the last born among three brothers. Since the husband was the last born, he did not establish his own *dala,* but instead lived with his family within the *dala* of his father. The husband died later, leaving behind Akinyi and their 6 children, four of whom later passed away. The other brothers later on established their own *dalas* near the father's *dala,* but initially they all lived within the same homestead, the father's *dala,* together with their wives and children which meant that they were all under the cultural rules of one homestead. During her working years, Akinyi was a primary school teacher and taught in a school away from home where she lived with her children. She retired from teaching at the age of 57 in 1993 and went home to become a full-time farmer. She considers herself one of the earlier elites in the village and due to her experience during the period she spent away from home, she viewed gender issues differently from her *nyieka*. At that time, her family was still living within the same homestead with the larger family, that is, with the husband's brothers, their wives and children. She thus found herself under cultural rules. The mother-in-law, whom I also refer to as *mikayi* in this case, was supposed to guide her sons' wives when it came to planting and harvesting according the Luo culture.

When Akinyi settled home, she realised that her *mikayi* was very slow in performing the cultural rituals of *golo kodhi* and *dwoko cham.* During the planting time, the other farmers within the neighbourhood would plant, the seeds would germinate and the crops would grow before her *mikayi* could perform *golo kodhi* to let the rest of the

women within the homestead plant. The *Mikayi* would actually wake up in the morning and sit outside her hut, basking in the sun as other people within the village worked on their land. Many times the other wives in the homestead had to 'sweet talk' her so that she would perform *golo kodhi*. As earlier indicated, the culture does not actually require the *mikayi* to plant the whole farm, but just even a few seeds and that would be enough to allow the other wives to plant as well in the order of seniority. She did not want to do that on the right time, that is, immediately when it rained. That is how the *mikayi* would discipline them so they would obey her or rather experience her authority.

Akinyi sought a different path. She could not endure the *mikayi's* power abuses through her delaying tactics because she needed to cultivate for her children productively since she did not have any other source of income. She decided she would not go through this ordeal every planting season after she returned to stay at home permanently. The planting season that followed, she took out her seeds and went through the gate and planted before the *mikayi* could plant. When the *mikayi* found out, she was furious. She asked Akinyi why she was being disrespectful, pointing out that the 'women of nowadays' do not respect the elderly. The other wives continued to wait for the *mikayi* to plant first as they were afraid of the repercussions of not obeying the culture taboo that they believed in. It was only after Akinyi became adamant and continued to overtake the *mikayi* in planting every season that the *mikayi* began to perform the *golo kodhi* rituals immediately when it rained. During harvesting time, Akinyi did not wait for the *mikayi* to harvest first either. The *nyieka* were happy that Akinyi finally brought the *mikayi* to act reasonably although they still partially believed in the practice and thus always waited for the *mikayi* to plant first unlike Akinyi. However, it did not happen without people within the village talking about how disrespectful Akinyi was because she planted and harvested before her mother-in-law.

In this case, exposure to other norms and values through education and interaction plays a role in the deterritorialisation process. Having been removed from the cultural environment for some time, Akinyi adopted a more autonomous way of life constituted by different ideologies from the rest of the women in the homestead. She had come to believe that even if she deviated from cultural expectations in this context, no repercussions would befall her. This gave her the strength to ignore the food crop cultivation rituals. She did not mind what people within the community would say

about her since she believed she was doing the right thing for herself and her children. As an outsider within, she forms part of the external elements inserted into the Luo assemblages as she came with different beliefs and ways of doing things.

The two cases, the cultural rituals and generational disassembling

The two cases represent the situation of many women who are part of the Luo assemblage in regard to their intra-household relations and food availability. The first case largely portrays the practices of territorialisation where women endure suffering to fulfil the cultural demands. Francis (1998) notes that women have been sub-ordinated in the past within households and they accept their subordination with prospects of greater domestic power to be exerted on their daughters-in-law (Francis, 1998: 76). This may not have been true for Atieno although she acknowledges that times have changed which implies that deterritorialisation is taking place fast and the young generation is no longer expected to conform to the territorialisation forces. This takes a different shape as women like Atieno find new routes by engaging in activities that are not monitored through the cultural lenses and this implies a different kind of deterritorialisation. It also shows the generational differences as younger women are no longer so willing to obey the rules of the cultural rituals. The second case demonstrates how the earlier cultivation practices have been deterritorialised. From MVP trainings and other deterritorialisation forces, hybrid maize is supposed to be planted at the onset of the rains or shortly before the onset of the rains. This training has implications for the way cultural rituals are to be performed so that everyone gets to plant at the right time for good yields. The deterritorialisation recommended practices and exposure to other cultures (as the case of Akinyi) threaten the way the *mikayi* maintains her authority within the homestead. Her authority is being contested by the young women who seek to be independent in maize cultivation. These young women set themselves free so that they can plant and harvest their maize whenever appropriate without being limited by the *mikayi.*

The way *golo kodhi* and *dwoko cham* are practised is now changing in both scope and depth. Currently, not all homesteads practice these rituals and their significance is reducing with time and especially among the young generation in Yala, one of the more cosmopolitan areas in Luoland. In this regard, the farmers told me that the rituals are intensively performed in some other areas of Luoland. I have also observed changes in terms of depth where some of the elements of the rituals are not performed. Apart from the earlier shift from using sorghum and millet for rituals to using maize

as the main seed, there are also changes in the way the maize is used. In the past, the family seed, *koth dala,* would be the only seed used for the ritual (Mango, 2002). The farmers indicate that any maize seed the farmer intends to plant can be used for that purpose nowadays. In addition, some other farmers who run out of seeds, especially the local varieties, can acquire them through the market and still perform the rituals using such seeds. This implies that the meaning of *koth dala* has changed over time. George Willy, a village elder and also a believer of the tradition, explained that-:

> *"Koth dala is the maize that we select from the previous harvest and everyone must have it. You have to select the good ones for planting. You can plant them in the surudu (kitchen garden) to eat before the rest of the maize is ready. Koth dala can also be found in the market. If you select well, you can sell at the market and other people who do not have seeds can buy it for planting. Some other people sell them from home".*

In this case, George Willy equates *koth dala* to any other well selected local maize varieties. To him, it is the maize variety that can be acquired locally and through local markets. It does not have to have stayed within the family for ages. During the FGDs with young female and male farmers in both Sauri and Nyamninia sub-locations, participants agreed that *koth dala* can be bought especially if one runs out of maize seeds completely and thus they go to the market to buy the local maize varieties. They expressed this in various statements:

> *"For golo kodhi, the farmers don't have to use koth dala for the ritual. They can use either hybrid or local seeds. Koth dala is used in surudu where the harvest is used for early eating and one does not need to follow the ritual. If you have to walk out through the gate to the farm, then you need to follow the cultural ritual. Surudu is just within the compound and one can plant freely. You can do golo kodhi with seeds you get from the market or the seeds you have, if you have any".*

> *"Koth dala, it can also be bought. Sometimes one runs out of maize completely and they go to buy the local maize".*

> *"Nowadays we go to the market to get seeds if we don't have any for planting. And that is what we use for the cultural rituals"*

Some farmers buy the *nyaluo* maize seeds for planting and it does not matter where one acquires them from, one can still perform the rituals using the seeds they have bought from the market or the ones they have selected from the previous harvest or received from a relative. *Koth dala* is now reduced to any local maize varieties.

Land ownership and access for maize cultivation

In this second part of the chapter, I explore the practices of men and women in relation to access to land for maize cultivation. In many instances, women are depicted as primary producers who are mostly deprived of land for cultivation. This perceived bias is seen in terms of land ownership (Momsen, 2010: 141). I explore this aspect to show how land is assembled to attain multiple meanings within the Luo assemblage. This includes owning land through the titling procedures where one acquires a title deed with his/her names on it as legal owners and inheriting land and the cultural rules that accompany it such as land co-ownership/access through marriage.

"Men own land and women cultivate it"

In the past, inherited land was 'owned' neither by men nor by women in most cases. The Luo women were also limited in access to all forms of property because the land belongs to the lineage. They would only have access to land if they remained in a viable marriage. They would thus access land for cultivation of crops, performing the bulk for agricultural production. They remained legal minors all their lives, changing guardianship from their fathers to that of their husbands and could not inherit anything. They however occupied the most essential roles in food production. Even though women did not 'own' land in the Luo society, it would also be incorrect in most cases to say that men 'owned land'. Men acquired access and entitlement to land only through the patriarchal lineage inheritance of which they were obliged to pass it on to their sons (Hay, 1982: 110-116).

Land is assembled from different points of view by different people. For the Luo community, land may mean a territory, a connection of lineages and a place for productivity while for the neoliberalists it represents capital and an economic resource. In Luoland, women are free to cultivate and improve the land that belongs to their husbands either through inheritance or otherwise. Men may have the title deeds but do not have cultural rights to restrict the women or rather their wives from using the land. Women may not be allowed to register land in their names, but at the same time they are not much bothered by that as long as they are not restricted in the use of the land. In any case, the inherited land is not seen as land for enhancing capitalism but has other meanings for the Luo community. It is prohibited to sell inherited land. Even those with title deeds, mostly the men, do not mainly use the title deeds to acquire loans or credits to improve on farm productivity.

Drawing from the previous studies, the respondents indicated various issues that prevent the farmers from using their (inherited) land as collateral for bank loans. They cited the cultural value of land where if one sells land, one is cursed. This may be selling indirectly, for instance, one's land may be auctioned due to failure to pay back loans. Some cited the tedious processes of applying for land and harassment by the government agents in the process while others complained that the banks ignore some important aspects in productivity such as the farmers' experiences, their management capabilities and the crops to be grown and focus on the size of the land where the farmers are supposed to own about 2 acres in order to get a bank loan (Mango, 2002 : 164-165).

Under the 2010 Kenyan constitution, it is legal for women to inherit land but this remains mostly on paper especially in many households within the Luo community. For a woman to own land, the easiest way would be for her to purchase it, although this may come along with some cultural implications such as stigma, especially if the woman is married as I will discuss shortly. Additionally, land is an expensive resource which can be afforded by only a few women and it is almost impossible for the common 'village woman' to buy it by herself. It is the majority of the men in Luoland who hold title deeds for land acquired either through land inheritance or by purchase. During an FGD of men and women, a participant asserted that:

> *"even though the constitution allows for women to inherit land, here they are still not allowed. If a man dies, the land is registered in the name of the eldest son and never the daughter or the wife. The process of the land transfer after the death of the man begins here with the chief. The chief will ask the woman if she has a son to whom the land ownership can be transferred and the chief will issue a letter that confirms this before the land transfer process begins".*

Even the government agents admitted this. One of the agricultural officers explained that:

> *"Women don't inherit land directly, but they do it in a way that their children can inherit the parcel of land that their mother controls. If the women don't have children, the land goes back to the in-laws. If a man passes away without subdividing the land, it is the woman who controls the land but she will register the land in the son's name. She acts as the custodian of the land. She cannot use this land to acquire credits as the banks*

may not acknowledge a title deed if it is not registered in her name. It is a challenge for women here".

Florence also shared the same sentiments:

"You cannot find inherited land being registered in the name of the woman even if she has no sons to transfer the land to. The in-laws take the land back if she wants to relocate when the husband dies. The daughters are not given land either".

The customary arrangement is such that a woman is allowed to control the land that belongs to the husband if he dies and use it for productivity, but she is not allowed to register the land as her own. Some of the reasons given for such actions as provided by the respondents include the fear that if the deceased man's wife inherits the land, she may sell it to a stranger who may settle among the extended family. Another reason concerns security where the children left behind may not have land in case it is sold and thus they would not have space within their ancestral land. In one of the FGDs, I was informed that:

"There is fear that when a man dies, the woman can go to get married to another man and she will sell off the family land that should not be sold. The woman is not taken as a permanent member of the household but their children will forever belong to the family even if the woman gets married elsewhere. The son takes over the land because that is where he belongs. In this village, we don't know of any woman who has transferred her deceased husband's land to her name. The situation is also shaky if the woman's children are girls only. That's when the in-laws come in to object to any transfers".

There is a small number of women who own land either through purchasing or inheritance. There are some exceptional and rare cases where women own land through inheritance. These include women who registered land during the land adjudication, according to the officer in charge of land registry. The land registry records in Siaya County headquarters show that in Anyiko sub-location where Sauri Sub-location lies (from the former administrative divisions), out of a sample of 840 land records checked, 780 (92.85%) are owned by men with 37 (4.40%) being acquired through inheritance. Women own 60 (7.14%) pieces of land of which 30 pieces (3.57%) were acquired through inheritance. In Nyamninia sub-location, out of a sample of 1813 records checked, men own 1756 pieces of land which is 96.8% of all the land with 77 land pieces (4.2%) having been acquired through the inheritance. The women own 57 pieces of land (3.1%) with 16 pieces of land (0.88%) having been acquired through

inheritance. The low numbers of women who have land registered in their names acquired the land mostly through other ways. This statistics indicate that the men continue to be the primary land owners, which places women (their wives) as the secondary land owners with no title deeds but with the rights to cultivate the land owned by their husbands. It is a prerequisite for men to acquire land where their wives can cultivate and together they can feed their families. These findings are summarised in table 5.

Table 5 Comparison of the number of men and women who own land through inheritance or otherwise.

SUB-LOCATION	NO. OF ENTRIES CHECKED	LAND ACQUIRED THROUGH INHERITANCE		LAND ACQUIRED OTHERWISE (EG PURCHASE)	
NYAMNINIA SUB-LOCATION	1813	MEN	77	MEN	1679
		WOMEN	16	WOMEN	41
SAURI SUB-LOCATION	840	MEN	37	MEN	743
		WOMEN	30	WOMEN	30

Source: Land registry, Siaya county

The data may also suggest that land for inheritance is diminishing as more farmers are acquiring land through purchase. However, most of the land acquired through inheritance in the two sub-locations has not been registered by 'new' owners especially after subdivisions and thus the owners do not have title deeds. After land consolidation and registration in the country in 1950s[36], the land was then registered in the name of their grandfathers. After being subdivided among the sons and later grandsons, the portions of land have not been registered in the respective names of the new owners. The purpose of this inherited land is not mainly for commercial purposes but for production and family dwelling. The idea of such land is not to generate income through the sale or by other means but for sustaining life and is to be passed on to the sons of the owners. As Cohen and Odhiambo (1989) indicate, 'land', according to the Luo has several meanings; it can imply *piny* to mean territory, *thur* to mean home ground and *lowo* to mean reproductive soil'. In this case, the inherited land has some limited allowance for its commercialization and thus such land is mostly used for production (Cohen & Odhiambo, 1989).

[36] See (Hebinck, 2001; Mango, 2002; Thurston, 1987)

If in case the inherited land is sold out, then the seller has to register it in his name and acquire title deeds so that it can be transferred to the buyer. This means that the buyer has to wait for land transfers from the past owners (grandfather to father to son) so that they can register it in their own names. One of the FGD participants noted that:

> *"Some people have title deeds while others do not have. Most of those who don't have the title deeds are the ones waiting for the land to be transferred to their names. Maybe the land is still in block; meaning that the title deed is in the name of the grandfather, who divided the land to the sons but the sons did not go to get individual title deeds. So if the son sells his land or part of his land to someone else, the buyer cannot get the tittle deed immediately since the seller does not have one. He/she will have to wait for the seller to acquire the title deed so it can be transferred to the buyer".*

The process of land transfer is long and tedious although a buyer can already begin to use the land immediately after payment is completed but they cannot use it to get loans or credits since they don't have title deeds. Shipton and Goheen (1992) cite this as one of the reasons why land mortgage systems have failed in rural Africa; *"Farmers even in titled areas tend not to report their inheritances, sub-divisions, gifts, sales or other land transfers to the state authorities"* (Shipton & Goheen, 1992: 317). The farmers also complain that the process of registering land is time consuming and costs a lot of money. When I talked to the officer in charge of the land registry, he informed me that it takes about 6-12 months for completion of land transfers for land acquired through inheritance. There are court proceedings for the succession where one is required to present passport photos, title deed copies and court fees of Kshs. 5,010. It also involves a lot of traveling back and forth. Some of these procedures discourage the farmers from participating actively in land transfers. In whichever way land becomes available, the men are always the 'owners' and their wives become 'co-owners' as they have all the rights to access the land of their husbands.

'I did not register the land in my name, it would look bad'

There is stigma associated with women owning land. I realised this when I talked to Beatrice. Beatrice is one of the senior village elders in Nyamninia sub-location. During my fieldwork, she offered to assist me with organising FGDs and the initial visits to the farmers. She is well known throughout the villages. At one time during one of our usual missions, I went to pick her up at the assistant chief's office where she would report for work every day. We sat in the office chatting as we waited for her colleague

to come so she could hand over the office keys. The discussion then shifted to issues of land registration and she explained to me how women nowadays are beginning to think of owning their own land which implies thinking towards deterritorialisation of the Luo assemblage. She talked about herself and her struggles to acquire land together with her husband. She explained:

> *"I made most efforts during the legal process of buying the land we have, which was cumbersome and also invested money in the land. My husband was less involved and I could have finally registered the land in my name but I did not because it would look bad".*

Karanja (1991) points out that the attempts for women to acquire land have been interpreted as attempts to disrupt the power balance and threaten power and authority of the husband in the home. Thus the women abandon their land rights to avoid marital problems and to be socially approved. It may be socially unacceptable for a woman to have land registered in her name. There is much stigma that goes with it (Karanja, 1991). In some parts of Ghana, if a woman buys land, her actions are reacted to with suspicion and ridicule and it is seen as a sign of disrespect to the husband (Lambrecht, 2016: 197). This may be true in Luoland as well. Beatrice is afraid of what people may say about her if she indeed registers the land in her name and not her husband's name. At the same time, it seems that her own husband does not object to that, the issue is with the wider community where owning land as a woman, especially for a 'village woman', is looked down upon. However, it seems more acceptable for single women to own land, probably through purchase since they cannot inherit land. According to the farmers, a single women who owns land may not get married (again) as the land defines that she has power to set boundaries.

Are the women in Luoland bothered by the fact that they cannot have land registered in their name and is this a hindrance to personal and community development? The customary law concepts are complex. Most projects and programs advocate for women to be able to register land in order to increase their access to land, their decision making power over the use of land and also to boost household income. The women themselves may not be willing to increase their responsibilities within the household and become income providers (Lambrecht, 2016: 198). In addition, land access through marriage guarantees the women unlimited use of the land and thus the women have a sense of ownership to the land. This can be deduced from certain expressions from the Luo women such as '*my land is now infertile*' or '*I work on my farm all day*'. These

expressions indicate that despite having no shared or their own title deeds, they regard the land of their husbands as their own and even the community expects them to take care of it and make it productive. They do anything within their power to protect that land and the crops on it. It does not seem to bother most women that they don't have title deeds.

Assembling land for maize cultivation indicates varying ways of territorialisation and deterritorialisation. As the development agents advocate for deterritorialisation so that the women can own land to increase their access to production, the female peasant farmers themselves do not see the need for such since they have unlimited access to their husbands' land. Even the men themselves do not use the (inherited) land as collaterals to get credit. The women (and men) operate within a territorialised cultural environment even though this situation is being deterritorialised as some women are beginning to think of registering land in their names as a result of the influence of external elements.

Deterritorialised farm practices of men and women in maize cultivation

The way men and women farmers perform their farm duties is not fixed in terms of binary gender distinctions or categories but presents fluid situations. The distinction of the roles of men and women in farm activities has been deterritorialised and the actual practices on the farms represent an overlap such that there are no clear cut distinctions anymore as would be claimed in the past. The organisations working with the farmers such as OAF or the MVP have been engaging the farmers without distinctions along gender lines, giving men and women equal opportunities. However, there are still activities that are preferred by men or by women and done accordingly depending on the circumstances. Different from the past, men have become more involved in agricultural activities and more so with technological advancement. During FGDs with farmers, they stated that both men and women are involved in planting and in other cultivation activities. The use of new technologies increase the women's burden on the farm and at home and thus male labour is required. For instance, modern maize technology requires timely (line) planting, application of fertilizers and top dressing. Most men like to take control of the use of equipment such as ox-drawn ploughs and to do most heavy tasks on the farm such as land clearing and digging during land preparations. Even though this is seen as their cultural role and the men feel obliged to perform this role, the women are not excluded from it. In this

sub-section, I explore the practices of men and women in relation to maize varietal cultivation, access to agricultural information, the actual daily work on the farms, the off-farm work and the marketing of limited maize harvests to deconstruct the idea of gender binaries in farm practices.

Cultivating various maize varieties

Local maize varieties predominate in the area of study. Most households plant the local maize varieties along with hybrids. The women in particular want to feed their families with high quality food. The quality in this case is defined by the taste, colour and the period of time that the food can stay in the stomach without getting hungry. This is particularly important, as I earlier stated, because the families work long hours each day continuously without taking food breaks, mostly from 7 o'clock till noon. It is thus imperative for the food they eat to be able to carry them throughout working hours. The children also need to be able to study without rumbling stomachs especially before lunchtime in school. Together with their husbands, the women find space to cultivate such crops that are suitable for these purposes. *Kuon* and *nyoyo* (food made from maize and beans) are preferred meals for lunch and/or dinner and sometimes taken with tea for breakfast but in most cases the women prefer to feed their families with sweet potatoes and tea. *Kuon* and *nyoyo* that are made from *nyaluo* maize are most preferred because *nyaluo* maize, as I explained in *chapter 4*, tastes good and it is heavy.

The women are particularly keen on planting local maize varieties. They have *surudus* or kitchen gardens where they can plant any crops or vegetables for quick access. Due to the fact that they make most of the decisions about what is to be eaten in the homes on daily basis, they are keen on producing the 'right' consumable food crops such as local maize varieties and vegetables. The *surudus* are also not culturally restricted in the sense that the women do not have to wait for the senior women within the household to perform *golo kodhi* and *dwoko cham*. This is because one does not have to walk through the gate to go to plant. Most of the *surudus* are within the compound. They can still cultivate in the *surudus* irrespective of whether the senior wife, where applicable, has planted. However, the *surudus* are usually small and crops planted there cannot be relied on for long time use. The crops planted in the field result in a substantial amount of food that can sustain the household consumption needs for a long time.

Both men and women support the cultivation of local maize varieties. When I walked to Otoyo's homestead that morning, I had no clue that *nyaluo* maize was also being grown by a member of his household. For him to have informed me earlier that he does not grow local maize varieties could have meant two things. Firstly, as a lead farmer, it might not be appropriate to disclose that local maize varieties could be associated with him since lead farmers are supposed to demonstrate the use of maize technology to other farmers and thus they are not expected to be cultivating the *nyaluo* maize. Since I had talked to him several times, I almost concluded that he does not cultivate the local maize varieties as he had insisted. I had generalized this to the entire family; that his household produces only hybrid maize. I had also observed his farm where he planted the hybrid varieties. Secondly, his efforts were channelled to production of hybrid maize as an individual within the household and mainly for the market. He did not restrict what other household members wanted to produce and he was actually supportive of local maize cultivation. He even told me that *"nyaluo maize is the Luo community's maize"*; a statement that implied that *nyaluo* maize is part of their lives of the Luo people that they cannot simply do away with. As a lead farmer, he had to defend his position as a 'modern' farmer; someone who plants only hybrid seeds and thus paint a picture of how the outside world should know him. But deep inside, he maintains the cultivation of local maize varieties through his wife. In practice, he supports the cultivation of the *nyaluo* maize, as he acknowledges its importance and value within the community and makes sure, together with his wife, that it is available for consumption.

Zedi has also been one of the 'lead' farmers as I described in chapter 4. He knows a lot about 'modern' maize cultivation and has been in line with most of the projects that have been implemented within the village. He also interacts a lot with researchers. At times I would do some farming activities with him and his family such as planting and shelling of maize. All along he would talk about hybrid technology. He did not want to talk about local maize varieties and every time he talked about them, he would be talking in general about how the people within the village cultivate them. At one time I asked if he plants *nyaluo* maize and he said he only cultivates hybrid maize during the two rainy seasons of the year although at one point he mentioned that his wife plants some *nyaluo* maize at the *surudu*. When one time I found lot of *nyaluo* maize at a corner of his compound, Zedi explained to me that he also plants the local maize varieties. He admitted that he did not want to tell me about it previously. He opened up and explained that there is no way he could do away with *nyaluo* maize. During

the short season, he plants *nyaluo* maize and during the long season he plants hybrid maize varieties but at the same time his wife plants some *nyaluo* maize in a portion of the farm next to the house or rather the *surudu*. Zedi markets most of the hybrid maize to pay school fees for his children as well as cater for other expenses.

The fact that Zedi's wife plants the local varieties in the *surudu* even during the long season, a season when the family cultivates the hybrid seed, implies that she is keen on maintaining them especially for consumption purposes. However, since the family cultivates them during the short season and Zedi acknowledges their importance, it is more than the wife's affair. Everyone in the family participates in cultivating *nyaluo* maize. Zedi explained the importance of cultivating the *nyaluo* maize, noting that, like the rest of the farmers, it is 'their food' and they will always keep them.

The farmers find local maize more nutritious, its taste better, it's more nutritious and seeds can be shared freely among themselves unlike the hybrid maize varieties whose seeds have to be purchased every planting season. The local maize varieties can be found in most households in the study sub-locations. Within a household, a man may be keen on producing the hybrid maize for the market while the wife concentrates more on the local maize varieties for consumption, like in the case of Otoyo and Zedi. However, this does not mean that men or women exclude themselves from the decisions and activities around local maize. They still participate directly or indirectly and in the end, there are no conflicts about what varieties to grow or what not to grow. The farmers, both men and women, agree on the importance of the local maize varieties. Even though the 'lead' farmers want to paint a picture of themselves as 'modern' farmers who go with the 'modernization trend' of cultivating only the hybrid maize, they are still deeply rooted within the Luo culture in terms of their consumption patterns of the *nyaluo* maize. This cannot be pinned down to women alone. Men and women do not separate for each to attend to their selected varieties.

On the other hand, within the female headed households, women grow both the local and the hybrid varieties. Florence is one such a farmer. Her husband died and she was left with 5 children to take care of. She was inherited by the brother of the deceased husband, referred to as *jater* or the inheritor, in accordance to the Luo traditions but she got into problems with the wife of the *jater.* The wife always complained that the husband bought her the nicest things. Sometimes the *jater* would work with her on the farm and provide for her. But when problems escalated, she cut off the relationship.

She now feeds her children alone. She grows both hybrid and *nyaluo* maize in different sections of her farm during the long season and grows *nyaluo* maize during the short season. Whenever she needs money, she sells the hybrid maize and keeps the local maize for planting for next season and for consumption. She only sells the local varieties if she does not have the hybrid maize to sell but again she prefers to sell other things such as chickens for cash. She cultivates the land together with her children. Similarly, Akinyi, who is a 'modern' farmer and a widow as previously discussed, has two farms of about half an acre each where she plants hybrid maize. She also has a *surudu* where she plants *ababari.* She says this local variety is for consumption before the hybrid maize matures since it matures faster and tastes good.

In some households, the *nyaluo* maize is planted during both the long season (*chwiri)* and short season (*opon*). The man and his wife or wives may choose to be planting the local maize varieties throughout the rainy season. Mzee Williams and his family, who include his wife, son and daughter-in-law plant local maize varieties on their half acre of land. They all go to the farm together to plant, weed and harvest. The maize they harvest is mostly for subsistence and at times they sell it to get some money for household expenditures. They are opposed to growing hybrid maize varieties as a family. The local varieties work for them. In this case, the men and women in families like that of Mzee Williams all participate in planting *nyaluo* which constitutes their diets and some source of income.

We thus notice minimal differences between men and women in terms of the types of maize varieties that they grow. The man and the wife support each other in the process and are aware of the importance of each of the varieties they choose to plant. In some households, growing either the local or the hybrid maize is entirely a family affair. Both men and women cultivate the same varieties in agreement with each other. For the female headed households, the woman solely makes decisions on what to plant and in most cases, she plants both hybrid and local maize varieties for consumption and also for cash. In the end, both men and women are involved in cultivation of hybrid and local maize varieties to a certain extent.

Access to agricultural information

Access to agricultural information is cited as one of the key elements in agricultural technology adoption (Shiferaw *et al.*, 2015). The farmers in Yala have been receiving agricultural information through various channels such as the MVP, extensionists and

OAF. The issue of information access came across to me as important because of the way I saw the farmers being so enthusiastic to attend FGDs and also because of the fact that for more than a decade, the community has had to deal with a lot of information relying on meetings from the various channels. I explore access to this information in relation to both male and female farmers. This information is normally passed to the farmers through various ways which include the chief's *barazas*, meetings with the agricultural officers and trainings with other agents such as the OAF and MVP.

Some of the farmers are of the view that the women attend more agricultural meetings than men. During one of the FGDs, I was told that:

> *"men just ignore meetings because there is a perception that those who attend every 'small' meeting that is convened are idlers or lack something important to do or even have a weakness. Most men do not want to be seen as idlers and so they ignore these meetings unless it is very important. On the other hand, the women like to attend and meet other women as well. There they also talk to each other about other matters. Even during parents meetings in schools, more women attend than men. But at times more men than women work outside the villages and so they cannot attend".*

At the same time, the farmers felt that most women are held up with household responsibilities that limit them from participating in such meetings. However, they also noted that some women are the 'heads' of their families and so they have to do all the work including attending most of the meetings that concern them as they have no one else to step in to their places. The agricultural officers also confirmed that whenever they organise meetings with the farmers, the majority of those who attend are the women, mostly for the same reasons.

Women are good participants in public meetings hence in good positions to receive agricultural information available. An OAF official also added that:

> *"Here we find that women farmers are really good in terms of attending meetings, loan repayments etc. and we have more women members than men. You know our loan is more like a soft loan rather than a bank loan and men under rate this and the farmers need to pay little by little. This is not something that gives men 'a heartbeat' (something of a great concern) but the women take it seriously. We have learned this from the ground. Men take it as something small. Men postpone a lot their payments and they don't usually adhere to paying something every week as they see it as very little. The*

farmers can pay as little as kshs. 50. We actually have to push the men to pay more than the women".

OAF estimated they have about 60% women and 40% men as their members. However, it is noted that this is slightly different when it comes to the leadership positions. You will find that most the leaders in their OAF groups are men and are voted in by the group members whose majority are women.

However, it was also noted that the women are quick to take up information but also quick to drop it. They become explorers, getting immersed in deterritorialisation processes, only to reterritorialize if the results are not as expected.

Farm work for men and women

The farm activities carried out by men and women overlap and cannot be said to be clear cut so that I am note able to categorize them as men's or women's work. I am going to outline some of the main activities in maize cultivation and how men and women engage with these activities.

Land clearing and preparation for planting: Men assume the work of clearing the land because *"it has been like that since long time*", a farmer told me. The man uses the *slasher* and *panga.* Karanja (1991) who investigates the women's land ownership rights in Central Kenya indicates that there is access to land through bush clearing. The person who clears the bush is deemed to be the 'owner' of the land. In most cases, men are the ones who clear the land while the women cultivate the land (Karanja, 1991: 115). Again, clearing land is physically demanding and such jobs are mostly left for men since they are physically stronger. These kinds of jobs ensure that the men have stronger individual rights to the land (Lambrecht, 2016: 195). The Luo farmers see bush clearing as men's work because he is the owner of the home. In female-headed households, women do this work by themselves. Carol, one of the FGD participants says she has no husband and so she does all the work by herself. Some other women whose husbands are away also do the 'men-work'. Another FDG participant stated that:

"Even women know how to clear the land but the moment the husband realizes she can do it well, he will stop doing it and let her do it all the time. He may give excuses as to why he won't get time to clear the land e.g. going for meetings etc".

This implies that the meaning of 'bush clearing' has changed and the role may not have much significance as before; thus the men do not mind the women clearing bushes. Before planting, some farmers use animal drawn ploughs for land preparation where

the man controls the plough while others work the soil manually and this is mostly done by men.

Obtaining inputs: Both men and women have access to inputs and are responsible for obtaining them. The study area, being one of the areas in Siaya county that has received a lot of international and national attention in terms of agricultural interventions, is well informed as regards to awareness of agricultural technologies. Both male and female farmers have access to agricultural inputs even though some respondents indicated that the men have more access since they are the ones mostly in control of income. The inputs are supplied through various channels such as the traders in agrovets, open air markets, the government through the National Cereals and Produce Board and also micro-financial institutions such as OAF. According to the senior field officer of OAF, female farmers make up the largest membership within the farming groups and they have higher rates of loan repayment than the male farmers. This may imply better input access for women even though some of them may be the 'heads' of their families, receiving money from their working husbands to purchase inputs.

Planting and weeding: Planting involves mainly using a string-line to dig holes at certain intervals. When men and women plant together, the man digs the holes and the woman applies the fertilizers and sows the seeds. The farmers use line planting, whether male or female. This is a technology that has been well adopted by the farmers and it is rare (if it happens at all) to find any farmer broadcasting seeds as it used to be the case in the past. Even though men still weed their farms, they do not like it as such because it involves a lot of 'bending' that they find strenuous, according to most farmers who felt that at times the men do a shoddy job because they mostly do not bend to pick up the weeds that cannot be cut with the hoe especially if the weeds are growing too close to the crops.

Spraying of insecticides/pesticides: Men mostly do the work of spraying chemicals (see also Momsen, 2010: 148). During a FGD composed of both men and women, it was noted that it's mostly the men who take up the work of spraying the crops with insecticides. The participants agreed that this is because, even though the chemicals have some effects on both men and women which include sneezing, coughing, chest burns and eye problems, women suffer more because it affects the various household chores they perform such as cooking and cleaning while if the man is affected, he can

just relax at home to get better. However, this does not mean the women do not do this work. This is only applicable if the men are available and willing to do the work.

Dusting grains: Most farmers dust their grains with *mburu* or ash before storage. This is mostly done by women. At times if there is bumper harvest, the men do help. One thing the participants highlighted is that dusting grains is mostly done by women as it has been a tradition. Stephen, FGD participant, says since he was born he has always observed his mother do the dusting of maize with ash; somehow because this kind of grain treatment requires one to go down on their knees so that they can apply the ashes thoroughly to the grains. This much bending does not suit the men. A participant explained that they were trained how to use their feet to apply chemicals to the grains and in this way men get encouraged to participate and thus most men participate if chemicals are used for dusting as opposed to ash treatment.

Off-farm work for men and women

There are temporary 'small jobs' or piece work done by the farmers to supplement their agricultural incomes. These activities involve both men and women and include jobs such as planting, weeding, harvesting or land preparations for money. The farmers, however, note that there are some differences in the way the income for the piece-work is managed. The woman may go to do piece-work as the man takes care of the home and the farm or the other way round. The difference can be noticed in the way they money acquired from the off-farm work is used. For most women, the income they acquire goes directly to cater for household expenses. They know better which household goods are missing from home and they can thus buy them as they go home or pay some related bills. Some men may also do the same but some of them keep a considerable amount of the money they acquire as 'pocket money' for themselves and use it in other non-household expenditures.

Marketing of limited maize harvests

Within the study area, the farmers cultivate primarily for consumption. Most farmers only sell small quantities of maize grains to get cash for other expenses such as household goods. They do not sell it all at once. For instance, some of the farmers sell or exchange maize for services such as milling to get flour for *kuon.* Within households, a lot of negotiation goes on as to how maize or other farm produce is to be sold and at times this can be overlooked by either party (the man or the woman) who take independent decisions according to the situations they are in.

As many farmers indicated, both men and women are involved in the marketing of farm produce. However, women sell farm produce more frequently especially in small quantities. Since they are the ones largely involved in household chores, they know better the household supplies that need to be purchased such as food stuffs and other things. In consultation with the husband, the woman can sell quantities of maize in order to buy some household goods. In many instances the couple have to reach a decision on when to sell maize and what quantities to be sold. At times when there is fear that an agreement may not be reached due to an inappropriate reason to sell the maize, either party may '*steal*[37]*'* and sell the grains without the knowledge of the other. The woman may have pressing needs that she may not want to disclose to the husband. She can therefore decide to *'steal'* some maize to sell and get cash for her needs. Similarly, the man may run out of 'pocket money' for alcohol or cigarettes or similar things that can warrant disapproval from the wife and so the man may also *'steal'* maize and sell for cash. The men are not expected to sell small quantities of farm produce because it is well known that such money is not likely to go into family spending and so they are afraid of what people will say if they see them selling such little amounts. At times the man can bring a seller to the house, sell some maize and give the wife a certain amount of money to spend on household expenses while he retains the rest for his 'pocket money', or to pay other debts.

Discussion and conclusion

In this chapter, I have explored three aspects of the practices of men and women in maize cultivation and exchanges. Firstly, I looked at the senior-junior women relations and practices in maize cultivation rituals and how these impacts on food availability within the homestead and the changing nature of these relations and practices. The junior women are continuously resisting the exclusive authority of the senior women which is manifested mainly through the cultural rituals of *golo kodhi* and *dwoko cham* within the homestead and this constitutes a deterritorialisation process. This forces the senior women to adjust their behaviour for fear of losing their authority, a form of reterritorializing behaviour. I have also shown that the Luo women are not just a monolithic group of 'women' but are first wives, second wives etc, mothers-in-law and daughters-in-law who all have unique social positions within the homestead. The way

[37] I talk of 'stealing' because it is done without consent of either spouse and it is the exact word the farmers repeatedly used.

they relate to each other is constantly shifting due to ongoing negotiations and contestations as partly engineered through the de/territorialisation processes. The differences within the 'Luo women category' and the changing dynamics are often overlooked in development practices where women are presented as a unified category. The younger women are involved in a struggle with the dilemma of acting according to cultural norms vis-à-vis the expectations of development practices such as the use of maize technology (as advocated by the governmental and non-governmental organisations like MVP and OAF) that require early planting and how to deal with the 'power of *mikayi'*. They are involved in struggles towards redefining their relations and reclaiming their individual autonomy within the historically specific cultural boundaries. As Herbert (2000) indicates, these struggles provide a middle ground that offsets the larger processes of global development and cultural expectations (2000: 555). At the same time, the older women face challenges as their authority is challenged and threatened and thus struggle to maintain their power as 'co-owners' of the home.

Secondly, I have engaged with the issues of land access and ownership for men and women. I have shown how land, as a resource for maize cultivation, is assembled through inheritance or purchase. These have implications for both men and women. The inherited land, according to the Luo customs is not for sale. The men acquire this land through patriarchal lineage inheritance and are obliged to pass it on to their sons. This land is not a commodity and cannot be the object of commercial processes such as acquiring bank credit and using it as collateral because the land may be lost through such processes and this brings in a curse on the land inheritor according to local beliefs. At the same time, customs restrict men from limiting their wives from using the land. This means that the women acquire unlimited access to the land for maize cultivation and thus have a sense of land 'co-ownership'. This implies that the women are not striving to own land as recommended by development practitioners who claim that owning land will increase the women's land access and decision making power (Lambrecht, 2016: 198). On the contrary, the women's accounts indicate that there is a stigma associated with women owning land or registering land in their name especially when they are married and the husbands are still alive. This is seen as an attempt to threaten the power and authority of the husband and so it is socially disapproved of. This presents a conflict or dilemma that concerns the 'developmental' recommendations to increase female land ownership so as to increase their decision making power versus the stigma associated with women owning land. Additionally,

women are not culturally allowed to register inherited land in their names if the husband dies, but land transfers are only made in their sons' names. Even if the women cannot have this land registered in their names, customs also do not allow the men to sell it or use it to acquire credits and thus the land remains as a means to sustain (family) life regardless of whose name appears in the lands register. In short the inherited land is still limited for both men and women. On the other hand, land acquired through purchase is in principle open for transactions. Even though it may be hard for the 'village woman' to buy land, it is equally not easy for the 'village man' as well. Data shows that some women actually have land registered in their names which implies that these cases are not the same throughout the study area but presents heterogeneity and to some extent, a process of deterritorialisation.

Thirdly, I have explored deterritorialised farm activities and practices of men and women. I have shown that even though the activities may be categorised as 'men's' or 'women's', these activities/roles overlap. Women are now involved in activities that have been perceived as men's and vice versa. However, some activities may be more preferred by women or men than others, for instance, attending agricultural meetings may attract more women than men especially if it is a 'small', regular meeting. It is therefore ineffective to apply gender roles in relation to maize cultivation and the actual work done by men and women on the farms and also in the community. Additionally, both men and women are involved in the cultivation of both hybrid and local maize varieties in various ways; as a family or as an individual. This implies that there are no maize varieties for men and for women.

These three aspects reflect the real and actual practices of men and women in maize cultivation that does not always comply with binary theoretical approaches to gender roles. Reddock (2000) points out that the divisions between male and female are not fixed and clear cut as once thought which means that male-female dichotomy is seen as being problematic like other dichotomies in Western thought (2000: 39). Men and women are involved in various struggles towards redefining their relations and reclaiming their individual autonomy within the cultural boundaries, not only in the households but also within the community. They struggle with the dilemma of engaging in practices as per the cultural expectations vis-à-vis the recommendations by government agents as well as non-governmental organisations such as the MVP. The evidence in this chapter calls for a move away from how men and women are treated by scholars and interventionists in binary oppositions to more open forms that

accommodate more fluid situations. These issues bring forth new informative ideas about deterritorialisation or rather changes in society especially in the development sphere. On the other hand, these relations and practices I described are in relation to maize which brings out the agency of maize in this chapter. Maize has culturally provided grounds for engendered contestations within households, demonstrating how relations are reconstructed and renegotiated through struggles. Maize becomes a medium through which gender and generational relations and practices are reassembled through (re)territorialisation and deterritorialisation processes.

Chapter 7 Conclusion
Peasant maize cultivation as an assemblage

Introduction

This concluding chapter brings together the insights generated by the empirical data and the theoretical analysis of the data. I set out to explore the Luo peasant farmers' practices in maize cultivation in situations of increased deterritorialisation attempts in Yala area in western Kenya. The four empirical chapters (chapters 3-6) explore the complexity, the processes, relations and the changing dynamics of peasant maize cultivation and marketing or exchanges. *Chapter 3* examines the historical processes through which maize entered, spread and became rooted and part of the Luo assemblage of maize cultivation. It explores important processes, relations and actors, actants and their agency that have been interacting and contributed to the expansion of maize cultivation. *Chapter 4* examines two recent deterritorialisation forces in the form of outside interventions (The MVP and the OAF) that are part of the many interventions implemented in Yala area that advocate for Green Revolution style of cultivation through the use of hybrid maize technology using hybrid maize as the main element of deterritorialisation. The chapter elaborates on how the peasant farmers engage with the deterritorialisation forces in reassembled ways and the way they maintain cultivation of the local maize varieties (*nyaluo)* even in small plots for consumption and to preserve the seeds that they value and trust. *Chapter 5* explores the various forms of exchanges which I refer to as 'territorialised forms of exchange that peasant farmers engage in and how these are viewed against the more controlled and regulated markets introduced through the processes of deterritorialisation. Markets or exchanges are part of the process of maize cultivation from the start (acquiring seeds) to the end (selling the maize produce). I explore the relations and practices of peasant farmers towards being self-sufficient that are key in the way the territorialised forms of exchange operate. The territorialised forms of exchange and marketing represent a space in which the farmers own and control the decisive socio-material infrastructure (Van Der Ploeg, 2014) that they carry as moral responsibilities for each other (Hyden, 1980a, 1980b). In *chapter 6,* I explore the practices of men and women in maize cultivation and exchanges that bring out the power relations of women within homesteads, the relations around land and the farm practices of men and women in maize cultivation. These show how the practices of men and women overlap and how the power dynamics within homesteads affect the cultivation of maize. In this thesis therefore, I reflect on the various issues across these chapters that point out the way peasant maize cultivation transforms as well as how agrarian changes occur. The analytic power of assemblage thinking has been the core of the analysis of the peasant farmers' practices.

A theoretical reflection and empirical implications

My analysis of the peasant maize cultivation in western Kenya shows endless connections that are diverse, non-linear, complex and continuously emerging and changing with various actors and actants at play. It would be insufficient to make use of frameworks that categorise peasant farmers and their practices. It shows that categorizations such as resource poor or resource rich, large-scale or small-scale, men or women, formal or informal, knowledgeable or lacking in knowledge and modern or traditional are extremely problematic when examining peasant farmers' practices in maize cultivation. These categorizations represent specific ways in which communities are framed and labelled and the associated interventions that come along with them mostly apply rigid, standardised or linear ways of operation. These ways of deterritorialising are then applied, perceiving farmers' situations as fixed, solvable and controllable. They leave little room, if any, for renegotiations, reconstructions or even regard to the heterogeneities and complexities inherent within communities, as well as the changing nature of the social situations (Li, 2007a, 2007b; Long, 2001; Scott, 1998; Umans & Arce, 2014). In order to explain the complexity, and the emerging and changing dynamics involved in peasant maize cultivation, assemblage thinking has been useful. Higgins and Larner (2017) note that "new social science framings are needed to capture the world beyond the neat categorizations that underpinned last century's social science, and assemblage thinking offers us a way to trace these framings as they are being made"(2017: 312). Assemblage thinking is gaining popularity as a way of interpreting social situations as it offers the flexibility and the space to explain the constantly changing complex situations and dynamics of social life. Moreover, the processes through which social contexts are framed can be captured and associations traced by tearing apart the constitutive elements (Acuto & Curtis, 2014; Allen, 2011; Anderson & Mcfarlane, 2011; Baker & Mcguirk, 2017; Bueger, 2014; Delanda, 2006; Haynes, 2010b; Li, 2007a; Mcfarlane, 2009; Mclean, 2017; Müller, 2015; Ureta, 2014; Woods, 2015). Assemblage thinking largely involves examining practices of various actors and their relations, making and 'unmaking' or rather the assembling and disassembling of elements, agency, multiplicity and heterogeneity within social situations and change processes such as deterritorialisation and (re)territorialisation (Bueger, 2014; Delanda, 2006; Latour, 2005; Woods, 2015). These have formed the basis for the collection and interpretation of my data to explain processes of change, various relations and interactions, influences and transformations.

Deterritorialisation and (re)territorialisation influences

The Luo assemblage in maize cultivation comprises of elements which include cultural elements, the use of *nyaluo* maize and manure, and territorialised forms of exchange, and is continuously undergoing changes like any other assemblage. As I show in chapter 3, maize is an exogenous crop that found its way to Kenya and to the Luo assemblage more than a century ago. This deterritorialised the way the Luo organised themselves for food production as maize gradually become the centre of food security, replacing sorghum and millet. This also impacted on cultural rituals for planting and harvesting, *golo kodhi* and *dwoko cham,* that were previously performed using sorghum and millet seeds but as a new element, maize, penetrated in the Luo assemblage from the New World and America, the farmers began to use maize to perform the rituals. This was part of the earlier forms of deterritorialisation that gradually became rooted through colonial and government interventions. These included maize policies, land and labour appropriation and setting up institutions and systems that cemented the cultivation of maize hence deterritorialising food security to become equivalent with maize security, not only in Luoland but also in the country as a whole. As maize cultivation expanded and hybrid maize was introduced, (re)territorialisation began to take place. Luo farmers found that hybrid maize and its associated marketing framework could not fit entirely within their assemblage for institutional, financial, agronomic and culinary reasons that were against their culture of sharing, food security and the way they organised themselves around maize and food cultivation.

Deterritorialisation of food security to include maize in the diet was facilitated by various elements; *actors* such as traders, peasant farmers, colonial state agents, European settlers, missionaries and researchers; *events* such as famines that led to the introduction of various maize varieties in the country; *maize policies* and *systems* of controls that ensured regulated and monitored production and expansion; *resources* such as land, labour and maize genes introduced by the agrarian sciences and *knowledge* and *ideas* such as the early breeding of maize, new ways of maize cultivation and cultivation of maize in bulk for export. Even though the Luo peasant farmers took part in deterritorialisation process, for instance, by bringing maize home from settler farms where they worked or by trying out new maize varieties as advised by the government agents, they have also been involved in (re-)territorialisation. Luo assemblages have been developing as the farmers enriched local maize varieties

through selection and continuous reproduction despite the introduction of high yielding hybrid maize. There have been many attempts to deterritorialise maize cultivation further in Luoland through governmental agents and non-governmental organisations. This mainly concerns the use of maize technologies such as hybrid seeds and inorganic fertilizers as part of the Green Revolution endeavours that I explore. These attempts involve similar practices as those employed by the colonial government such as the use of 'progressive' farmers who are presumed to influence other farmers to adapt. This implies a repetition of strategies that have been reported not to succeed in the past. The way peasant farmers' practices were indicated with a negative connotation led to elevating some farmers within the community to be examples for other farmers. For instance, when ICRAF implemented fallow trees for soil replenishment, they chose some farmers from the community who became 'ICRAF agents' (Mango, 2002; Place *et al*., 2007). These farmers enjoyed a lot of benefits from tips to trips and this aroused jealousy. MVP followed suit, choosing 'lead farmers' to be examples for maize technology use. The farmers end up associating the organisations with those specific individuals. Some of these deterritorialisation strategies result in the opposite of the anticipated practices by peasant farmers hence territorialisation. In *chapter 4*, I show how the recent deterritorialisation forces, the MVP and OAF, are using various strategies to get peasant farmers to use hybrid maize technologies without regard for the local maize technologies. Hybrid maize technology is perceived as superior to the *nyaluo* maize, just as was the case during the colonial era. The increasing advocacy for hybrid maize technologies ignores the use of elements that exist within the Luo assemblages such as local resources and their mode of enrichment like local maize varieties, manure, local knowledge and sharing through social relations and networks. The farmers' responses to the deterritorialisation forces can be deducted through from their various practices, some of which do not comply with the advice they receive. Some farmers shun loans and thus keep away from the lending institutions, dispose (surplus) maize through their networks locally and use *nyaluo* seeds that they select and keep to plant the following season. In these ways they avoid the mainstream markets that are controlled and regulated centrally. They use territorialised forms of exchange and local resources since they trust these channels and resources and their availability is not limited nor is it restricted by conditions that they cannot fulfil. Deterritorialisation processes partly lead the peasant farmers to strengthen their use of local resources and local forms of exchange.

On the other hand, some elements of deterritorialisation become part of the Luo assemblages, for instance, the peasant farmers begin to use some maize cultivation technologies such as line planting as I discuss in Chapter 4 or 'territorialise' the forms of exchange to make fertilizers accessible by embedding them within the territorialised forms of exchange hence becoming negotiable as opposed to the cooperatives that follow rigid rules. Engaging in territorialised forms of exchange and other maize cultivation practices such as the use of *nyaluo* maize, sharing seeds and shunning loaning institutions show a desire for autonomy.

Deterritorialisation attempts have indirectly resulted in power reconstructions within the *dala.* In regard to cultural relations and power, hybrid maize technology as a deterritorialisation element of the Luo assemblage in relation to maize cultivation does not fit well with the culture of *golo kodhi.* Hybrid technology requires that the seeds be sown before or immediately it rains. In case of delays and insufficient rains, hybrid maize cannot perform well. Junior women who have to wait for the older women to plant first find themselves in a fix. They are in a dilemma between the need to plant at their own pace and at the right time and the cultural requirement to wait for the *mikayi* to plant first. The conflicts involved in the struggle for autonomy by the junior women and the struggles of the *mikayi* to maintain power within the homestead become the ground on which contestations, negotiations and reconstruction of power relations and change occur. As a result, the Luo assemblage is being deterritorialised from within as well. For instance, the way cultural rituals of *golo kodhi* and *dwoko cham* were performed in the past is different from the way they are performed nowadays. Many of the rituals' elements are slowly fading away such as the use of *koth dala* (family seed) which is now replaced by the use of any seed, even those obtained from the market.

It is clear that the processes of deterritorialisation and territorialisation are key to the ways that peasant maize cultivation transforms. Even with the (re)territorialisation forces acting against deterritorialisation, some elements of deterritorialisation are retained that trigger changes in the way maize cultivation is practiced by the farmers and eventually becomes part of the peasant farmers' assemblage. At the same time, the movement of some elements (individual farmers) in and out of the assemblage results in changes that can be said to originate from within through contestations and negotiations as elements return with new ideologies to influence the assemblage.

Agency, relations and farm practices

Peasant farmers navigate not only deterritorialisation forces but also, through their agency, the unpleasant effects of inadequate rainfalls. As I discussed in *Chapter 4*, the farmers plant over an extended period of time from the earliest fall of rains. The choice of seeds to be planted during such circumstances stems from their experiences. *Nyaluo* maize is used since it can withstand drought and the farmers try to minimise risks. Due to fluctuating rainfalls, farmers do not take risks with hybrid maize, but even if they plant the hybrid, they ensure that they also plant *nyaluo* as a back-up in case the rains are not sufficient. *Nyaluo* maize is seen as 'maize for consumption' while the idea of hybrid is mostly 'maize for business' as MVP instilled in farmers. Replanting hybrids after failed rains is costly since the seeds have to be acquired through markets. The necessity to use fertilizers is growing as the farmers observe that the soils are too weak and cannot be productive without the use of the fertilizers and hence they also use fertilizers with *nyaluo* maize as well. Some of the farmers use fertilizers from various sources to minimize costs and for effectiveness. As I discuss in *Chapter 5*, the farmers experience low productivity when they use subsidized fertilizers from the government and so some of them combine these with fertilisers from other sources such as OAF or the agrovet dealers for efficiency and at the same time to minimize costs. Generally, the farmers pick some elements from the deterritorialisation forces and incorporate them into their own practices. For instance, the line planting that the farmers picked up from MVP is also applied to *nyaluo* maize. They assessed the usefulness of this technology and embraced it.

The farmers struggle to set themselves free from rigid rules set by the deterritorialisation forces which include the colonial state, government agencies, OAF and MVP which use various strategies to 'win' the farmers. The farmers devise ways of dodging them without getting into conflict. I explain in *Chapter 4* how the farmers use various tactics to evade the strict monitoring of OAF and their rigid rules, such as using OAF inputs on hired land far away from home to avoid being monitored by OAF and so that they can apply flexible practices as they wish. This is part of the strategy of the farmers who still want to be involved with deterritorialisation forces but at the same time stay connected to the Luo assemblage, as they strive for autonomy in maize cultivation. Additionally, some farmers get involved with more controlled marketing institutions such as cooperatives so that they can access inputs but they market their produce in the territorialised forms of exchanges instead of within the cooperatives. They benefit more in these locally embedded markets as they are flexible, negotiable

and contribute to building social relations among the farmers. The farmers, together with the traders, also create or rather territorialise markets so that they can access inputs in ways that resonate with the Luo assemblage such as buying fertilizers in *gorogoros* as opposed to the standard measures (bags) offered by the deterritorialisation forces.

Peasant farmers' practices in their interactions with interventions reveal not only the agency of the farmers, but also the agency of maize, especially the *nyaluo* maize. As the reference base for the farmers, *nyaluo* maize enables the farmers to form defence lines against undesirable interventionists' practices and drought. For instance, those who do not like to be in debt through loans for fear of their property being taken away in case of defaults organise their decisions around *nyaluo* maize and they pursue the relations and practices associated with it. Thus the *nyaluo* maize influences the farmers decisions and becomes an element of (re-)territorialisation. Moreover, maize in general has impacted on the way the peasant farmers organise their socio-cultural lives not only in relation to food security but also in other areas such as education as maize is now exchanged for school fees to keep children in school. Maize also partly defines the way senior women relate to the junior women within a homestead, becoming an actant/facilitator in power renegotiations and contestations.

Peasant maize cultivation is permeable as it allows for external elements to influence it but limits them through territorialisation if they do not fit within the assemblages. This is despite the degree of pressure through the processes of deterritorialisation. Peasant maize cultivation involves a multiplicity of practices that cannot be reduced to unified practices such as the channels of marketing, resource acquisition and actual farm work. The practices also differ between individuals, manifesting heterogeneity in the way peasant farmers carry out their farm activities and the way these changes depend on the choices they make such as what type of seeds to plant and how far the can get involved with the forces of deterritorialisation. Their abilities and the autonomy to control their practices are important and this has been shown through the way they disassemble new knowledge, resources and new ways of organising themselves. This autonomy allows them to manoeuvre, innovate and critically explore various options available to them. Peasant maize cultivation therefore is an assemblage that involves both (re)territorialisation and deterritorialisation elements that continuously interact in a way the blurs their distinction when describing peasant agriculture. This implies a state referred by Long (2001) as 'hybridity'. However, this

situation is continuously in flux such that we cannot stick to a permanent way of describing it but be flexible and receptive to the changing dynamics.

Final conclusions; engaging with the assemblages

The findings of this study imply that peasant farmers and their farming activities are complex, heterogeneous and constantly changing through territorialisation and deterritorialisation influences. Assemblage thinking is a useful lens through which to analyse agrarian change: an assemblage perspective allows for the disentangling of the constitutive elements in agriculture and illuminates the processes through which these interact, are transformed and/ or reconstructed, presenting agrarian situations as being in a flux. It distances itself from *problematisation* which usually involves categorization and labelling mainly for intervention and this only makes visible some elements of 'target' importance and submerge others (Escobar, 2011; Li, 2007a; Savage, 2018: 13). Assemblage thinking offers a new way of conceptualizing peasant agriculture as it allows for consideration of all elements that play a role in peasant agriculture as well as tracing how changes occur through the interactions of elements. Peasant maize cultivation is an important assemblage that cannot be reduced to unified ways of practices. To engage with this assemblage calls for open-mindedness, and treating peasant farming practices as diverse, heterogeneous, dynamic, constantly changing and open-ended. At the same time it is important on the part of interventionists to embrace flexibility and continuous learning from the farmers' practices that largely indicate what the farmers value instead of sticking to rigid categories that side-line other important dynamics.

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Summary

This thesis explores the practices of peasant farmers in maize cultivation in situations of increased maize technological interventions or deterritorialisation forces in Yala area, western Kenya where majority of the inhabitants are the Luo ethnic group. Maize is a staple crop in Kenya, a crop that is not indigenous to Africa but was introduced from the New world and America from the sixteenth century and eventually found its way in Luoland and Yala area. Yala area has been home to many interventions since the colonial times towards Green revolution. The farmers have been provided with a range of hybrid maize varieties, inorganic fertilizers and trainings on how to apply the hybrid maize technology for increased yields but at the same time the farmers have not been disembedded from the use local resources such 'local' maize varieties or *nyaluo* maize and manure for soil replenishment. The farmers' practices are varied and they variously interact with the deterritorialisation forces such as the Millennium Villages Project (MVP) and One Acre Fund (OAF) as well as to each other in complex ways that do not warrant categorization. The peasant maize cultivation in Yala is characterised by heterogeneous elements and multiple, complex relations and practices that are continuously in flux.

I set out to understand the farmers' practices in situations of increased deterritorialisation attempts in maize cultivation using ethnographic methods for data collection. This required disassembling various elements that make up the Luo assemblage and to understand how these elements interact with each other and with external elements to form a continuous process. Assemblage thinking has been a useful theoretical resource in analysing the peasant farmers' practices as it takes into account not only the various dynamics in the way elements interact, but also the constantly changing nature of the interactions and situations. The theoretical approach is explained in *Chapter 2* where the building blocks of assemblage thinking that are important in the analysis of this thesis are explained. These are the territorialisation and deterritorialisation processes, agency, multiplicity and heterogeneity, assembling and disassembling and relations and practices. In the subsequent empirical chapters, the farmers practices in maize cultivation are analysed through these concepts.

Territorialisation and deterritorialisation processes have shown how maize actually became part of the Luo assemblage after being introduced from the New World and America and how the *nyaluo* maize are defended and maintained locally. I explore the history of maize in *Chapter 3* and examine the various ways in which

deterritorialisation of food security to be equal to maize security occurred during the colonial times. *Nyaluo* maize has adapted to the climatic conditions of the area and has come to be regarded as 'local' thus being part of the Luo assemblage. Hybrid maize varieties are being introduced as the main elements of deterritorialisation of peasant maize cultivation and come with different imprints. Both these processes explain the way peasant maize cultivation is practiced and how it has changed over time as new elements are selectively incorporated in the Luo assemblage. *Chapter 4* has examined two recent deterritorialisation forces that are part of the many interventions implemented in Yala area that advocate for Green Revolution style of cultivation through the use of hybrid maize technology using hybrid maize as the main element of deterritorialisation. The chapter has elaborated on how the peasant farmers engage with the deterritorialisation forces in reassembled ways and the way they maintain the cultivation of *nyaluo* maize even in small plots as *nyaluo* maize is considered as 'maize for consumption'. Hybrid maize is perceived as the 'maize for business'. *Chapter 5* focuses on the territorialised forms of exchanges that the peasant farmers engage in, constituting part of the Luo assemblage and delinking from the more controlled 'global' markets introduced to them such as the cooperative channels of marketing. The proliferation of multiple manifestations of the territorialised or locally embedded forms of exchanges in Yala indicates that the farmers have not been disembedded from the prevailing historical forms of exchanges by the deterritorialisation forces and that they value these forms of exchanges as useful to them. The multiplicity of exchange channels cannot be reduced to one abstract form of marketing the way 'global' markets are operated and as the deterritorialisation forces attempt to do. The territorialised forms of exchanges ensure maintenance of social relations and networks that are crucial in day to day survival. They are enshrined within the social lives and culture of the Luo community and the farmers own and control the decisive social-material infrastructure through the indirect rules and code of conduct that they carry as moral responsibilities to each other. *Chapter 6* explores the way men and women or women themselves relate to each other culturally, in farm practices and in resource use (seeds and land) which is important in peasant maize cultivation in Yala. The relations of female farmers and male farmers are being deterritorialised such that the farm practices of men and women overlap. At the same time, the cultural ritual, *golo kodhi,* that require the junior women to wait for the senior women or *mikayi* to plant first is being deterritorialised as new elements such as hybrid maize find their way in Luo assemblage. The hybrid maize technology require the farmers to plant at the start of the rains or shortly before it rains that conflicts with the cultural arrangements for

planting hence efforts to reterritorialise especially from the older generation who feel disrespected if the cultural rituals are not obeyed. The processes of deterritorialisation and territorialisation are key in the way the peasant maize cultivation transforms and proceed through various relations and practices.

The peasant maize cultivation is permeable as it allows for external elements to influence it but limits them through territorialisation if they do not fit within the assemblages. This is despite the degree of pressure through the processes of deterritorialisation. Even with the (re)territorialisation forces acting against the deterritorialisation, some elements of deterritorialisation are retained that trigger changes in the way maize cultivation is practiced by the farmers and eventually become part of the peasant farmers' assemblage. The peasant maize cultivation transformations are facilitated by the agency of actors and actants. The peasant farmers navigate unpleasantness in cultivation from either within or without. This includes erratic rainfalls and deterritorialisation elements that find little space within their assemblage. They, for instance, plant *nyaluo* maize with the earliest fall of rains and plant multiple times during the rainy season to minimize risks from erratic rainfall as opposed to planting the hybrid maize that requires consistent sufficient rains. The farmers pick some elements from the deterritorialisation forces and incorporate them with their own. For instance, the line planting that the farmers picked from MVP is also applied to *nyaluo* maize. At the same time, the peasant farmers' relations and practices bring out the agency of maize. For instance, maize has culturally provided grounds for engendered contestations within households, demonstrating how relations are reconstructed and renegotiated through struggles.

Peasant maize cultivation and transformation is complex, heterogeneous and constantly changing. Assemblage thinking, which is gaining popularity in social sciences is a useful theoretical resource in conceptualising these dynamics as opposed to categorisation. It distances itself from categorizations that makes visible some elements and conceals others. It allows for consideration of the movements of elements and the changing nature of social situations. To engage with this assemblage calls for open-mindedness; to treat peasant farmers and farming practices as diverse, heterogeneous, dynamic, constantly changing and open-ended.

Abbreviations and Acronyms

CAN	Calcium Ammonium Nitrate
CDF	Constituency Development Fund
DAP	Diammonium Phosphate
FGD	Focus Group Discussions
ICRAF	International Centre for Research in Agriculture
IMF	International Monetary Fund
KAR	King's African Rifle
KARI	Kenya Agriculture Research Institute
KEFRI	Kenya Forestry Research Institute
KFA	Kenya Farmers' Association
MDG	Millennium Development Goals
MOALD	Ministry Of Agriculture And Livestock Development
MSC	Market Service Centre
MVP	Millennium Villages Project
NCPB	National Cereals and Produce Board
NPK	Nitrogen, Phosphorus and Potassium
OAF	One Acre Fund
SMV	Sauri Millennium Village
UNDP	United Nations Development Programme
UNICEF	United Nations International Children's Emergency Fund

Glossary

Nyaluo maize	This is used to refer to the local maize varieties in general.
Chwiri	the long rainy season mostly from March to June
Opon	The short rainy season between September and December
Dala	A homestead
Mikayi	The first wife in a Luo polygamous marriage
Nyieka	A co-wife. The meaning of *nyieka* has expanded to include wives married to the brothers in the same family.
Oduma	Maize in Luo language
Kisuma	Traditionally, people would go to ask for food from their kin during hunger times. It still happens across many ethnic groups and the Luo refer to this practice as *kisuma*
Kuon	A maize cake (steamed maize meal). It is commonly referred to as *ugali* in the wider Kenyan society.
Deero	A granary that is mostly managed by the male household head.
Gorogoro	A two-kilogram tin used as a standard measure for maize and other products at the villages and in the markets.
Surudu	A kitchen garden
Thuthi	Weevils
Dwoko cham	A ritual performed before maize harvesting
Golo kodhi	A cultural ritual performed before planting of maize

About the author

Hellen Kimanthi was born on 19th April, 1982 in Kitui, Kenya. She joined the Faculty of Arts and Social Sciences at Egerton University in 2002 and graduated in 2007 with a Bachelor of Arts Degree. She worked for 4 years with various governmental and non-governmental organisations in the capacity of a research assistant/consultant on different projects. The organisations included; National Council for Population and Development, Kenya National Bureau of Statistics, School to School International, African Population and Health Research Centre and Kenya Institute for Public Policy Research and Analysis. The projects were funded by various institutional donors/funders and (charity) organizations such as The World Bank, USAID, WHO, UNFPA, UNICEF, DANIDA, Melinda and Bill Gates Foundation and Global Fund. As part of a team in 2011, she successfully carried out an independent evaluation of Affordable Medicines Facility-malaria (AMFm), a project that was piloted in 8 countries across Africa and aimed at increasing affordability, accessibility and usage of quality anti-malarial drugs. In 2012, she won Nuffic scholarship to study International Development in Wageningen University, The Netherlands. During her MSc studies, she did her internship with the International Crops Research Institute for Semi-Tropics (ICRISAT) where she assessed the effectiveness of the climate services transfer channels and the benefits of the climate information to smallholder farmers. She graduated in 2014 and was awarded a Nuffic grant to pursue her PhD in International Development, focusing on food security.

Hellen Vilita Kimanthi
Wageningen School of Social Sciences (WASS)
Completed Training and Supervision Plan

Name of the learning activity	Department/ Institute	Year	ECTS*
A) Project related competences			
Gender: core concept in society science and society	Radboud University	2015	2.0
'Street food in Africa; An interdisciplinary development perspective'	Role of street food in Africa, Egerton University, Kenya	2015	1.0
Project proposal writing	WUR	2015	6.0
B) General research related competences			
Project and time management	WGS	2016	1.5
Introduction course for PhD candidates	WASS	2015	1.0
Reviewing a scientific paper	WGS	2016	0.1
PhD Symposium, Connecting Ideas, Combining Forces	Wageningen PhD Council	2015	0.3
Ceres basic training course	CERES, Utrecht University	2015	12.0
Qualitative data analysis for development research	CERES, Utrecht University	2015	1.5
Quantitative Methodology and Economics Quantitative	CERES, Utrecht University	2015	2.0
A practical course on methodology of fieldwork	CERES, Utrecht University	2015	2.0
'Gender as an assemblage: exploring gender dynamics in food crop cultivation within the Millennium Villages Project implementation site in western Kenya'	Rethinking development: Development research conference 22nd-23rd August, 2018, Goteborg University, Sweden	2018	1.0
'Examining gender assemblages in food crop cultivation in western Kenya'	WASS PhD Day	2018	1.0
'"We sell within the villages to whoever likes to buy" Of nested market arrangements in western Kenya'	CERES summer school, Radboud University, The Netherlands	2018	1.0
C) Career related competences/personal development			
Scientific writing	WGS	2016	1.8
Scientific publishing	WGS	2016	0.3
Start to teach	WGS	2018	1.0
Career orientation	WGS	2018	1.5
Total			**37.0**

*One credit according to ECTS is on average equivalent to 28 hours of study load

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