

Responsible Consolidation of Customary Lands: A Framework for Land Reallocation

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SUMMARY

Land reallocation is an important step of land consolidation where farmland parcels are reorganised and redistributed. Most current land reallocation approaches focus on the technical aspects, at the expense of the social, cultural, economic, and political factors which are important on customary lands. This paper develops an approach for land reallocation to support responsible land consolidation on customary lands taking these factors into consideration. Using the process model approach, we identify the key characteristics of customary land tenure and the general requirements for land reallocation of these lands; from which a land reallocation approach is developed. This is subsequently applied to a case study in Northern Ghana. The results show that even though the approach is successful to the extent that land fragmentation (physical and legal) is significantly reduced in the study area; social land mobility, land tenure and cultural practices hinder the application of the land reallocation as this would either increase legal or physical land fragmentation.

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1. INTRODUCTION

The primary interventions to increase food productivity in Ghana have been largely focused on the intensification of agricultural production by use of fertilizers, and mechanized farming (Asiama et al., 2017; Houmy et al., 2013; NDPC, 2014). However, the small and separated farmland parcels that resulted from the practice of shifting cultivation farming system, practiced in the past, militated against these approaches. Land consolidation is an approach used in many Western European countries for at least a century and more recently in many Central and Eastern European and South East Asian countries, to counter land fragmentation. Land consolidation in this paper is defined as a land management activity that involves all the procedures for exchanging, rearranging, and expanding farmland parcels, with the goal of increasing farm productivity (Asiama et al., 2017a).

Land reallocation, the core of the land consolidation process, is a potential source of dissatisfaction among farmers and land owners. Several attempts have hence been made to make land reallocation processes more objective. However, with regards to Sub-Saharan Africa's (SSA) customary lands, little has been explored with land reallocation. Previous attempts at land consolidation on SSA's customary lands resulted in the breakdown of the customary land tenure system, as happened in Kenya, or a later breakdown of the new parcel arrangement with farmers returning to their old farms, as happened in Malawi (Coldham, 1978; Nothale, 1986). The main reason attributed to the inability of land consolidation projects to thrive in SSA is the inadequate consideration for the local customary land management system (Asiama et al., 2017a). To solve this problem, Asiama et al. (2017c) recommends the development of responsible approaches to land consolidation for sub-Saharan Africa. Responsible land consolidation uses practices that continuously align the technical and administrative requirements, and the internal processes of land consolidation to the dynamic local societal demands, economic conditions, political forces, and cultural and legal requirements (Asiama et al., 2017c).

This paper develops the framework for a land reallocation approach to support responsible land consolidation on customary lands. To achieve this goal, the next section presents the model design and development, where the general requirements for land reallocation are identified together with the general characteristics of customary lands, to develop a framework for land reallocation model on customary lands. The model is then applied to a case in northern Ghana, with the findings presented and discussed in terms of land fragmentation and the farming system, mediating authority and the land tenure system, local customs, and land mobility.

2. MODEL DESIGN AND DEVELOPMENT

In this section, the model for customary land reallocation is developed. The framework for the customary land reallocation model has similar constructs to previous land reallocation models developed for other regions in the world mentioned in the introduction. However, these were developed under different circumstances and conditions. Therefore, to understand the general requirements under which a land reallocation approach is developed, the current models are studied under the three key criteria for responsible approaches - political considerations, economic and social issues, and technical and legal aspects (Asiama et al., 2017; de Vries et al., 2015; Masser & Williams, 1986; Van Dijk, 2002). The nature of customary lands and the land fragmentation on customary lands are then explored and identified to provide a background for the development of the approach. The process of the land reallocation is then developed in line with the general requirements and principles identified.

2.1 General Requirements for Land Reallocation

The political considerations for land reallocation centres around the ability of a mediating authority to act as an arbitrating force during the planning and implementation (Tang et al., 2015; Zhang et al., 2018). This is because land reallocation may provoke disputes and dissatisfactions due to the resulting rearrangements of property rights (Cay et al., 2010). The ability of the mediating authority to broker agreements and intervene in disputes without force rests on the trust and respect the parties have for the authority and each other (Rothstein, 2005). The central government and its agencies have been natural mediating forces in the past land reallocations, however, recent approaches to land consolidation, being more participatory and locally managed, have seen local leaders as the mediating authorities (Liu et al., 2016; Louwsma et al., 2014; Zhang et al., 2018). These local leaders have been found to drive up local participation and agreements more than the government is able to, as existing trust relationships can be leveraged (Haldrup, 2015; Liu et al., 2016). The existence of a trusted and respected mediating authority to oversee the land reallocation is therefore a basic requirement for land reallocation.

The economic and social issues in land reallocation revolve around land mobility, via land markets and the social/cultural views of land. Land mobility is described as the extent to which land rights can be exchanged, sold, or leased as it proves possible for land reallocation within a particular system of land holding (Asiama et al., 2018; Hartvigsen, 2014). Soerensen (1987) in developing the theory of land mobility in the Danish context, identifies three key factors that determine land mobility as the local agricultural structure, the available land pool, and the availability of knowledge and capacity (Hartvigsen, 2014). This form of land mobility focuses on rational economic decisions which are characteristic of areas with already existing land markets. However later studies find that land mobility goes beyond rational economic decisions, but border on the nature of social structure and relations in the locality as well as the emotional and psychic ties to the land (Akudugu et al., 2012; Van Dijk, 2007; Van Dijk & Kopeva, 2006). This results in a social land mobility - the ease with which land can pass hands in the context of social and cultural norms and rules existing in the local community. Therefore, land reallocation requires not just economic views about land, but also a social ease for the re-allocation.

The technical and legal aspects of land reallocation cover the land tenure system, the land fragmentation situation and the land reallocation process. The land tenure arrangements in an area informs the extent to which land can be reallocated, especially in areas with several land tenure types and layers existing. This follows the legal principle of *nemo dat quod non habet* (one cannot give what one does not have). This was an often-overlooked aspect of land consolidation as most land fragmentation situations tended to be a physical problem, not a legal one, as the farmers holding ownership rights to their farmlands. This further explains the failure of land consolidation in countries like Malawi where even though land fragmentation was considered a physical problem, the legal and institutional aspect was not given much consideration. This resulted in the re-allocation of farmland parcels that mixed up the land tenure arrangements (Nothale, 1986; Takane, 2008). The farmers ended up returning to their old parcels after the first farming season as the new parcel arrangements were not in line with their land tenure system. Furthermore, in areas where there are secondary, flexible, and spatio-temporal rights, such as gathering rights, and pastoralists' access rights, which conventional land administration system mostly neglect, this lack of consideration could lead to conflicts in the area (Lengoiboni et al., 2010; Mwangi, 2007). These rights are often seen as subordinate to private ownership rights in conventional land administration systems but are still relevant in reality.

Land fragmentation takes two forms – physical and tenure (legal) land fragmentation. Physical land fragmentation refers to the spatial dispersion of farmlands over a large area of land, known as scattering, and the division of farmland parcels into small near-unproductive parcels, known as sub-division (Bullard, 2007; King & Burton, 1982; McPherson, 1982; Van Dijk, 2003). Physical land fragmentation has been the Western European view of land fragmentation, as the key causes of fragmentation in that region are inheritance and population growth, hence the solution to land fragmentation had been geared towards dealing with the physical aspect. Several studies limit the indicators for physical land fragmentation to the number of farmland parcels owned by a farmer, and the sizes of the farmland parcels (Akkaya Aslan et al., 2018; Cay & Uyan, 2013; Ertunç et al., 2018; Uyan et al., 2013). Though the shape of the parcels, and the accessibility to the parcels also play a role in the effects of fragmentation (Demetriou et al, 2013). Van Dijk (2003b) in examining land fragmentation in Central and Eastern European (CEE) post-socialist countries, further finds that the four indicators identified do not provide a complete picture of land fragmentation, observing land tenure fragmentation as another form of land fragmentation. Land tenure fragmentation is described as a discrepancy between land use and land ownership. The indicators for land tenure fragmentation are therefore the ownership distribution, the land use structure, and the overlap between the land ownership and land use. The overlap is a representation of the owners that are at the same time users – the ideal situation. A small overlap means that leases and tenancy play a very important role in the agriculture. Land reallocation should therefore consider the form of land fragmentation and understand the aspect to deal with.

2.2 Customary Lands: A Background And General Characteristics

Customary land is defined in several ways depending on the origins. However, there are three fundamental elements. The first is that land is held on the basis of locally evolved native land tenure; secondly, the basis of the land holding is both group and individual rights, with the

former superseding the later; and thirdly, the mechanisms for obtaining, using, distributing and disseminating these rights arise from accepted practices based on the group's customs and traditions (Arko-Adjei, 2011; Kalabamu, 2014; van Gils et al., 2014). Customary lands may also be referred to as community lands, communal land, indigenous lands, traditional lands, among others (Asiama, 2004; Migot-Adholla et al., 1991; Quiggin, 1995; van Gils et al., 2014). Customary land tenure reflects the socio-cultural and spiritual bonds among generations – the many who have passed on, the living few, and the countless generation yet unborn. The basic tenet of customary land administration is that the current generation is a mere caretaker of the land meant to protect it as the legacy of their ancestors and safeguard it for the future generation. In Ghana, customary lands cover 80% of the lands in the country, with the remaining 20% being held as public lands (Asiama et al., 2017; Biitir & Nara, 2016; Kuusaana & Eledi, 2015). Four main customary interests in land are relevant to farming and hence land consolidation – the allodial title, the usufructuary (customary law freehold) interest, the tenancy and licenses (**Fejl! Henvisningskilde ikke fundet.**). The allodial title, the highest interest, is vested in the stool/skin¹, the clan, or the Tindana². The allodial title is acquired through conquest, settlement, or a gift. The allodial title is managed by the community leaders for and on behalf of the community members. It is free from all restrictions, obligations, and encumbrances, save for those imposed by the laws of Ghana. The sub-allodial title is held by the sub-stools, families or clans under the stool/skin, clan, or Tindana respectively. The acquisition of the sub-allodial is synonymous to the allodial interest as they are both acquired at the same time, but at different levels of importance (Ollennu, 1962, p.15). The 1992 Constitution of Ghana restricts the transfer of the allodial interest in stool/skin lands in order to save these lands for the future generation. The usufructuary interest is the highest interest that an individual may hold on customary lands. It is held by members of the allodial title holding group subject to certain restrictions and obligations, upon the payment of a nominal amount of money. The usufructuary interest is transferable within the land holding group upon the agreement of the members of the group. The holder of the usufructuary interest may pass his interest to his successor upon his demise. Exercise of this interest is through active occupation, and in a situation of abandonment, or want of successor, the land reverts to the allodial title holder for reassignment. Tenancies can be acquired by any person, indigene or stranger³, and is held off the usufruct based on standard terms for the landholding group, including payment of rent, provision of services, with the more common sharecropping arrangements being abunu and abusa⁴. The tenant may not alienate the land to another because this interest is personal to the tenant. However, since customary law looks at an individual as an integral part of the family – the individual himself being a property

¹ The stool/skin is a “shrine containing the soul and spirit of the community (the family, the tribe of the nation/kingdom)” and is therefore the embodiment of the collective authority of all members of the community. The occupant of the stool/skin is a trustee holding the land for and on behalf of the community (Ollennu, 1962).

² The Tindana (literally translated land priest; plural – Tindaamba) is the earth priest, who by virtue of his ownership is the only one known by the “spirit of the land” and acts as the intermediary between the people and the gods of the land. There is therefore primacy in the Tindana's office on issues relating to farming and the day to day living on the land (Imam, 2015).

³ Stranger is a person without an inherent right to occupy community land.

⁴ Abunu and Abusa is a system of share cropping where the landowner of a cultivated or an uncultivated land grants it to another person (usually a stranger) to maintain or cultivate and share the produce with the land owner equally for abunu or in a ratio of 2:1 in abusa (Ollennu, 1962).

of the family, the family may step in the place of the individual upon his demise on condition that they honour his part of the tenancy agreement (Kludze, 1973). A tenancy may be determined in cases where the tenant refuses to perform his obligations to the landlord, the ruin of the farm through an act of God or the tenant's negligence, abandonment, or where the tenant denies the title of his landlord and asserts his own title or that of another. A customary license is the right to occupy and enjoy land for a specific period of time or indefinitely, based on agreed terms. Woodman (1996) draws a strict distinction between a tenancy and a licence as the former is held on terms set predominantly and strictly by standard categories of the land holding group, while the latter is held on the basis of expressly negotiated terms.

2.3 Framework for General Land reallocation Process on Customary Lands

The conditions and constraints in the framework for the model of land reallocation on customary lands is developed by drawing from the general requirements of land reallocation and the principles of customary land tenure. The process centres around the technical and legal aspects of land reallocation.

In terms of the nature of the land rights that can be exchanged, it is seen that customary lands have several layers of interest in land, depending on the area being dealt with. However, the minimum ownership right is at the family level, from where the individuals receive their usufructuary interests. Furthermore, since the goal is to keep lands within the family as much as possible in favour of the future generation, land exchanges should be done within the families first before it is done between families. The usufructuary interest is also exclusive to the members of the family, and the tenancy is also derived from this interest. The tenancy can however be held by a person who is not a member of the family, therefore in order to keep the land within the family in accordance with the customary laws, tenancy will be excluded from the initial land reallocation. To facilitate the preservation of the lands as much as possible, the parcel shapes will not be altered.

On the level of the family, customary land tenure allows for the alienation of land outside the family with the consent and concurrence of the family members and elders. Therefore any land exchanges that are done outside the family should be done with the consent and concurrence of both families. The same applies to the exchanges of land between two villages. Therefore, the undertaking of these re-allocations will require the presence of the two families.

In terms of the farms to be included in the land exchanges, in order to allow farmers to have their parcels where they most need them, they may pick one parcel (the priority parcel) around which their new parcels will be re-allocated. In the absence of a choice of the priority parcel, the largest parcel will be used. The farmers can also indicate the parcels they do not want included in the land reallocation as the unavailable parcels.

Finally, to facilitate the exchanges at the family level, only families with more than two farmland parcels in the area of interest, with at least one family member holding 2 farmland parcels in the area will be included in the first round of re-allocation. The re-allocation framework will therefore cover exchanges within the families, and the farmland parcels that may potentially be re-allocated outside the family lands will be placed in the village re-allocation pool.

Based on the above conditions and constraints, in the land reallocation process, only family lands with more than two farmland parcels, with at least two farmers are selected. These are

grouped into Eligible Blocks (EB). The farms in each block are ranked according to the Land Value Indices (LVI). A farmer is selected from the Eligible Blocks. If this farmer has designated a priority parcel (PP), that parcel is immediately allocated to the farmer. Where no priority parcel has been designated, the largest parcel is selected, designated as the priority parcel and allocated to the farmer and eliminated from the process. Where the farmer has designated Unavailable Parcels (UP), those parcels are selected, allocated to the farmer and then eliminated from the process. All the farmers' remaining parcels are then added to the re-allocation pool. If the farmer has more than one parcel in the block, the priority parcel is selected and all neighbouring parcels to the priority parcel in the block (which are not other farmers' priority or unavailable parcels) are ranked by the LVI as Available Parcels (AP). All the farmer's parcels in the block are selected as Subject Parcels (SP). The subject parcels and the available parcels in the block are compared. Where there are matches, the available parcels are selected, reallocated to the subject farmer and eliminated from the process. Where there are no matching available parcels, the subject parcels are compared to available parcels in the other blocks of the same family, for the exchange to be done. Where this is not possible, neighbouring parcels outside the priority block are selected and ranked according to the LVI. Where there are matches, those parcels are placed in the Village Re-allocation pool for re-allocation through negotiations. This process is summarised in Figure 1. This will be tested and assessed in the next section.

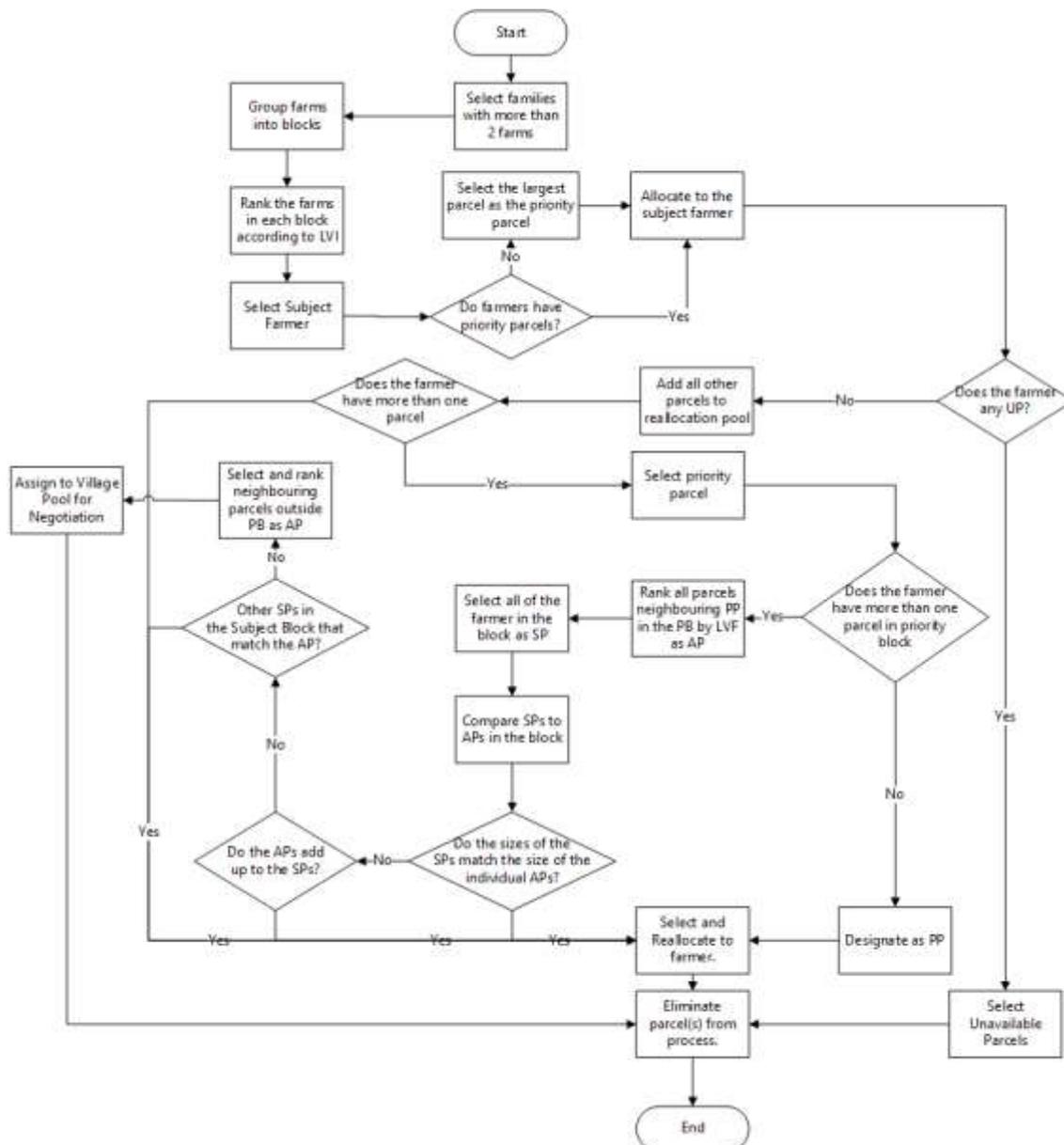


Figure 1: Flowchart of the Land reallocation Framework for Customary Lands⁵

3. APPLYING THE MODEL: CASE STUDY AND FINDINGS

This section details the testing and evaluation of the responsible approach to land reallocation on customary lands developed in the previous sections. The section begins with an overview of the area of interest as well the details of the testing procedure. The results of the framework's

⁵ **Block** – Contiguous farmland parcels that belong to the same family; **PP** – **Priority Parcel** – The Parcel selected by the farmer, around which the re-allocation will be done; **PB** – **Priority Block** - The block in which the priority parcel lies; **AP** – **Available Parcel** – Parcels that can be re-allocated; **UP** – **Unavailable Parcel** – Parcels that cannot be re-allocated; **SP** – **Subject Parcel** – Parcels held by a farmer with a block that are available for re-allocation; **LVI** – Land Value Indices; Farms in this diagram mean farmland parcels.

application is presented and discussed in the context of the land fragmentation situation and the farming system, the mediating authority, and the land tenure situation, local customs and land mobility.

3.1 Overview of the Area of Interest

The study takes place in a farming community in the Northern Region of Ghana called Nanton. Nanton village is the seat of the Nanton Traditional Area (State), within the traditional Kingdom of Dagbon. Nanton is located 18km from Tamale, the regional capital and 646km from Accra, the national capital. The community is within the Guinea Savannah grassland vegetation zone, characterised by tall grasses and dotted by a few big trees (mainly mango, shea, acacia, and baobab). The area experiences a single short rainfall season (April to September) accompanied by the long dry season that brings harmattan winds from the Sahara.

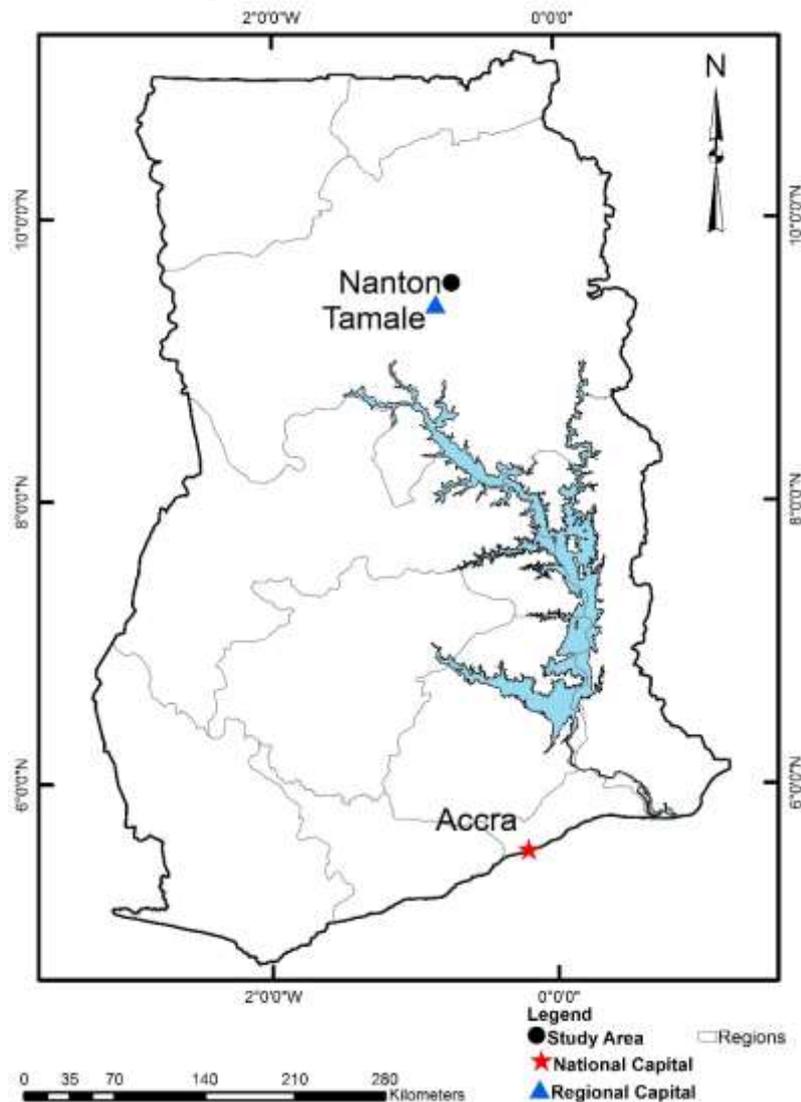


Figure 2: Map of Ghana Showing the Location of the Area of Interest

Data for the area of interest was collected according to the land consolidation needs. The area of interest was mapped using the participatory land administration approach developed by Asiama et al., (2017b), and adapted into the customary cadastre (Asiama et al., 2018). Here, the parcel boundaries were mapped using a smartphone app, the ESRI collector for ArcGIS, taking into careful consideration the land rights in the area, primary and secondary, with all being considered and mapped. This was done in order to get a snapshot view of the land rights in the area, as well as their spatial extent. Furthermore, the farmland parcel values were derived through the land value indices approach developed by Asiama et al., (2018) that provides quid pro quo values on rural agricultural farmlands that have no land markets.

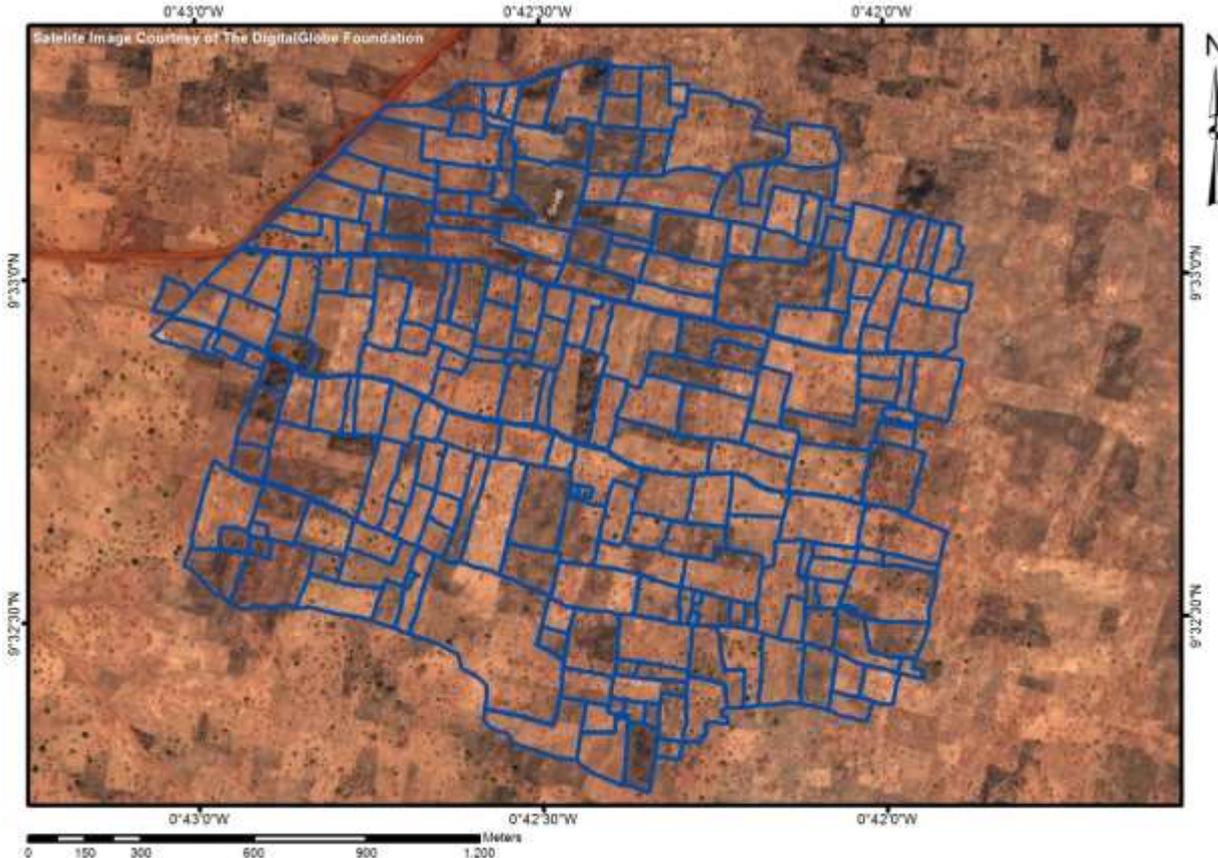


Table 1: Map Showing the Farmland Parcels in the Area of Interest

In the assessment of the approach, the land reallocation was done using the developed process in the previous section. The village re-allocation was then done in five small families with all the farmers within the family and the elders present. The results were then presented to the local community for their inputs. The inputs and views on the developed process were collected through interviews with the Nanton-Na, the head of the farmers’ union in the area, the staff of the customary land secretariat, two land registration officers and a land surveyor from the Lands Commission, and an agricultural extension officer from the Savannah Agricultural Research Institute. Focus group discussions were also conducted with the traditional authority (excluding the Nanton-Na), the farmers in the area, and family heads. A summary of the characteristics of the farms in the area of interest can be found in Table 2.

3.2 The Land Fragmentation Situation and Farming System

The results from the application of the approach on the physical land fragmentation is presented in the following paragraphs. Physical land fragmentation was assessed based on the four factors identified in Section 2 - the number of farmland parcels per landholding, the size of the farmland parcels, the shape of the farmland parcels, and the accessibility to the parcels.

The physical land fragmentation situation in the area of interest improved significantly with the application of the developed land reallocation approach (Figure 3). The largest farmland parcel in the area of interest remained 10.79ha before and after the land reallocation. However, the smallest farmland parcel size increased from 0.06ha to 0.22ha. The average size of the parcels increased from 1.25 to 2.20ha, with standard deviations of 1.08 and 1.68 respectively. In a focus group discussion, the farms identified one of the problems with the farm sizes is their inability to hire mechanised farming equipment. Since the hiring companies do not rent out to farmers with parcels less than 3ha, this is a significant figure with respect to farmland parcel sizes for mechanisation. The number of farmland parcels in the area of interest that were more than 3ha was 20 out of 230 (9%) with this proportion increasing to 39 out of 130 parcels (30%) after the re-allocation. The number of farmland parcels per holding also reduced after the re-allocation. The ideal situation for the farming would be 1 parcel per land holding. However the initial average parcels per landholding in the area of interest was 2.4, with a maximum of 9 parcels in a landholding and a minimum of 1. This reduced to a maximum of 3 parcels per holding.

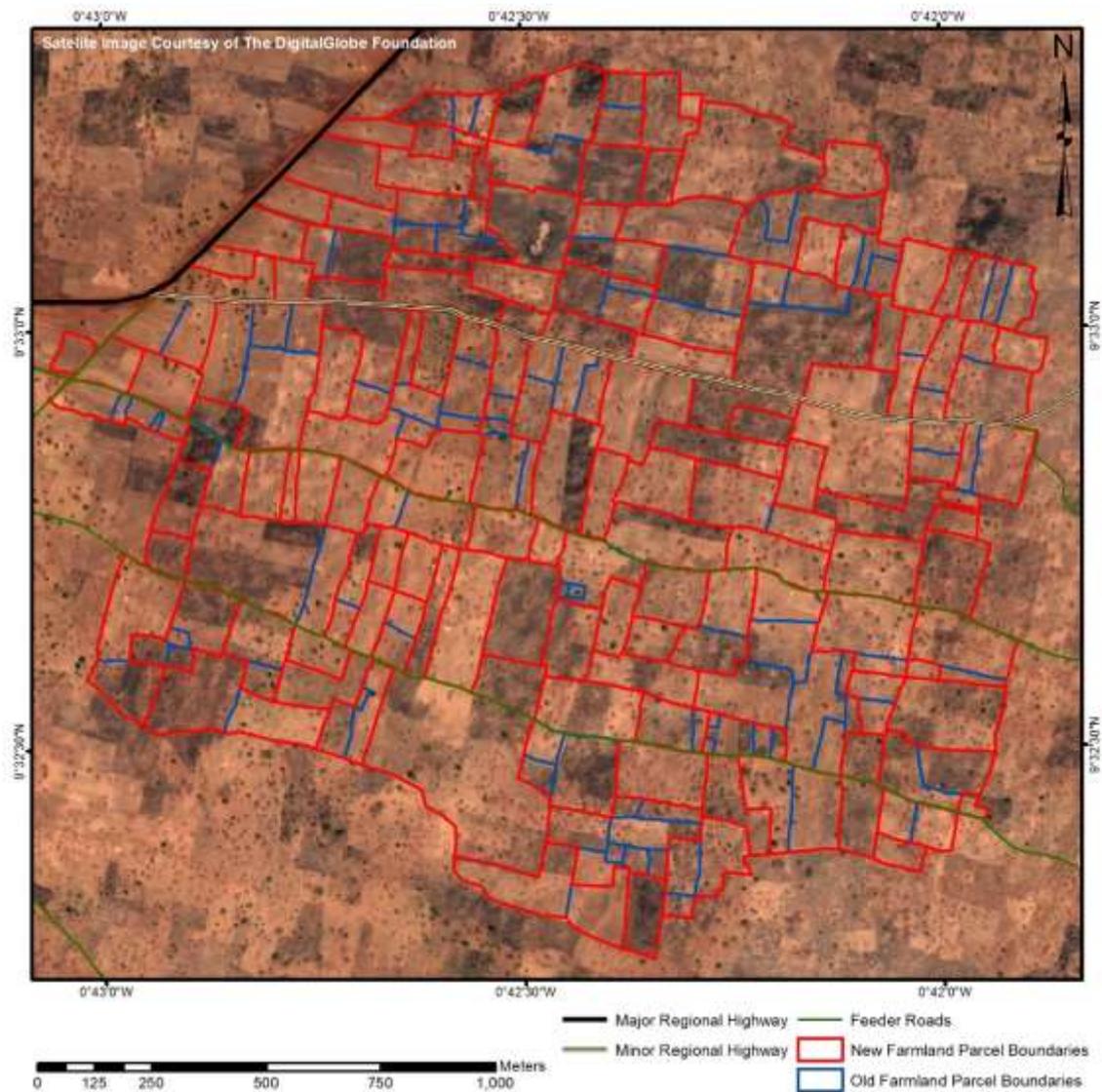


Figure 3: Original and New Farmland Parcel Arrangements

The accessibility of farmland parcels is determined by how many farmland parcels have access to the key lines of transportation. In the area of interest, the key lines of transportation – the major and minor regional highways and the local roads. However, the footpaths were not deemed important by the local people as they connected every parcel. The road access is particularly important in this area because farmers with road access are able to access mechanised equipment and transport their farm produce quicker (Focus group discussion with Farmers). It was found that before the re-allocation, 108 out of 230 farmland parcels, representing 47% were accessible by the lines of transportation indicated above. After the re-allocation, this proportion increased to 76 out of 130 farmland parcels representing 59% (Figure 3).

Category	Initial	Final
Number of individual farmland parcels in area of interest	230 Parcels	130 Parcels
Number of Farmers in the area of interest	95 Farmers	95 Farmers
Average number of farmland parcels per Farmer	2.4 Parcels	1.37 Parcels
Number of Family Lands	42 Farm holdings	42 Farm holdings
Average number of farmland parcels per Family	5.4 Parcels	3.1 Parcels
Area of largest farmland parcel	10.79 Hectares	10.79 Hectares
Area of smallest farmland parcel	0.07 Hectares	0.22 Hectares
Average farmland parcel size	1.25 Hectares	2.20 Hectares
Standard deviation of farmland parcel areas	1.08	1.68
Maximum Parcel Shape Index	1.0	1.0
Minimum Parcel Shape Index	0.00	0.02
Average Parcel Shape Index	0.66	0.76

Table 2: Summary of the Effect of the Approach of the Physical Land Fragmentation

To assess the parcel shape, the Parcel Shape Index (PSI), developed by Demetriou et al., (2013), is used to calculate scores that serve as a basis for comparison. The PSI uses six geometric parameters, combined with value functions for parameter standardisation. The average PSI for the original parcel arrangements was 0.66, with a standard deviation of 0.21. The average PSI after the re-allocation increased to 0.76, though it wasn't considered (Please find the equations for the PSI in the Appendix One, and the detailed calculation of the PSI of this Area of Interest in Asiana et al. (2018).

3.3 Mediating Authority

There are two key centres of authority in the area of interest – the traditional authority (the chief, elders, and the family heads), and the local government authority (the district assembly member and the unit committee members). However, the local people and the local government authority point to the traditional authority as the most appropriate mediating body to deal with matter relating to land and farming in the area⁶. The traditional authority's role in the community is three pronged – religious, judicial, and land management⁷. These roles are enforced through the respect that the people have for them. In its historical religious role, the traditional authority plays the role of the intermediary between the local people and the gods of the land. The traditional authority is viewed as a council of wise men and women, hence their judicial role, where minor issues in the community are arbitrated⁸. The third role is that of land management. As custodians of the land, they are required to manage the land for and on behalf of the local people for their benefit.

The structure of the traditional authority in Nanton is in consonance with the land tenure arrangements in the area. The Ya-Na skin is at the top of the traditional authority structure. Under this skin are the divisional skins of which the Nanton skin is one. Directly under the

⁶ Focus Group Discussion with farmers and unit committee members.

⁷ Interview with Traditional Authority and District Assemblyman.

⁸ Interview with the Farmers' Association.

Nanton skin are the family heads. This is in line with the customary administration structure described in Section **Fejl! Henvisningskilde ikke fundet..** The role of the traditional authorities in the land management field is also exercised in the manner of the hierarchy. The family heads are responsible for the allocation of the family lands, especially in cases of abandonment and the passing of a land holder. The family heads were therefore pointed to as the appropriate mediating authority in the re-allocation of land within the family lands. The family head here is the most respected and usually the oldest member of the family. In terms of re-allocation between families, the chief and his elders are regarded as the most appropriate mediating authority.

3.4 The Land Tenure Situation, Local Customs and Land Mobility

The land tenure system in the area of interest that relates to farming are allodial title, the usufructuary interest, and tenancy (**Fejl! Henvisningskilde ikke fundet.**). The allodial title is held by the Dagbon (Kingdom) Skin, with the Ya-Na (the King) as the occupant of the skin, in trust for the people. The allodial title is however managed at the Traditional Area level by the divisional skin (Nanton Skin), with the Nanton-Na (with the traditional council) as the custodian. The families hold their sub-allodial interests off the divisional skin, from whence the individual farmers within the families derive their usufructuary interest. There are also a few farmers in the area that hold the tenancy. The nature of the land tenure system creates a land tenure fragmentation between the usufructs as the “owners” and the tenants as the “users”, thus affecting the land reallocation. Per the customs in the area, a tenant cannot transfer his tenancy, therefore the tenancy cannot be included in the land reallocation plan⁹. The usufruct’s interest may however be included, with consideration for the tenancy’s encumbrance.

Due to land mobility, the initial re-allocation was therefore done only with respect to the farms with the usufructuary interest in the same families. Tenancies were not included as the initial re-allocations were done on the basis of the usufructs’ families. The re-allocation also took the ownership into higher consideration than users. The tenant in the area of study does not hold a fixed term, but rather renews his tenancy every farming season until the farmer needs his farm back¹⁰. The tenant is also only allowed to plant annual crops, which he may share with the usufruct on sharecropping terms. Out of the 95 farmers in the area, there were five tenant farmers. All five tenant farmers confirmed their terms of tenancies, and the usufruct’s family’s sub-allodial interest. The usufructs in answering why they rented out their farms, indicated the distance between their farmland parcels as a key determining factor. The tenancies were therefore a result of the physical land fragmentation in the area and would likely cease when land fragmentation is reduced. Thus, tenancies can therefore only be reallocated according to the usufruct’s family, reducing the land tenure fragmentation in the area.

Land reallocation outside families was also not done during the initial re-allocation. The allocation outside of families means the families would have to give up their sub-allodial interest in exchange for another. This suggestion was however, flatly rejected by all the participants of the focus group discussions, as they described the act as an absolute affront to the ancestors who strived to hold the land for them to meet it, and their future generation. An elder remarked that the only good reason to sell one’s family land is to defray debts and that

⁹ Interview with the Traditional Authority.

¹⁰ Focus Group Discussion with the Farmer’s Association

reason makes parting ways with the land disgraceful. The traditional authority however suggested a solution to this as the grant of tenancies as the basis of exchange in lieu of the sub-allodial interest. This is also not an optimum solution, because even though it would reduce physical land fragmentation, land tenure fragmentation would be further increased. Therefore as with the implication of the approach on the physical fragmentation, the local customs are also an impediment to the reduction of the land tenure fragmentation.

4. CONCLUSION

The main objective of this paper was to develop a land reallocation approach to support responsible land consolidation on customary lands. The study arises out of the recent trend of land reallocation studies that focus mainly on the technical processes. To achieve the objective, the general characteristics of customary lands and the general requirements for land reallocation were identified from literature and developed. Based on the relationship between these factors and the general principles of customary lands, a land reallocation approach was developed to fit the context of Ghana's rural customary lands and tested in Nanton, Ghana.

The results showed that even though the developed approach was able to significantly reduce land fragmentation, both physical and land tenure, in Nanton, the local customs were an obstruction to the technical processes to achieve the best form of the farm structures. However, this is the basic tenet of a responsible approach - to consider all aspects of a society and technology when undertaking a process (Asiama et al., 2017a). This study recommends two lines of further research. First, the local customs should be further studied to understand how the re-allocation between two families can be undertaken without compromising the land tenure system or increasing land tenure fragmentation. Secondly, the framework of the customary land reallocation should be further developed into a spatial decision support system to enable its easy application, based on the opinions of the local actors.

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