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Land tenure regimes for women in Community Resource Management Areas (CREMAs) in Northern Ghana: Opportunities and threats

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ABSTRACT

This paper analyses women's access and security to land under customary land governance in Community Resource Management Areas (CREMAs) in Northern Ghana through document analyses and surveys of 312 land right holders and tenants from 13 communities. The key interest is to investigate the potential for combining customary land practices with land title registration and education in improving women's economic empowerment and social development in the Dorimon and Zukpiri CREMAs. The paper focuses on the motivation of land right holders to grant land rights to women through land use agreements and reasons for terminating such agreements, and provides critical perspectives and data to support the development of tenure security indicators for community protected agro-ecological areas. The study also assesses the position of women in anticipation of forest carbon credits as against their current land holding rights and concludes that despite inherent weaknesses of customary land governance in protected areas, opportunities exist to scale up and expand the formalisation of land use rights through CREMAs, education and the use of Voluntary Savings and Loans Association to enable women gain access to sufficient land. This could significantly help improve women smallholder farmers' tenure security to land, provide livelihood options, enhance food security and ensure their participation and profit from entering into result based ecosystem payment scheme such as REDD+.

1. Introduction

Increasing competition for land and natural resources for various uses continue to be the most existential threats to rural livelihoods, conservation and natural resource governance in the global south. Population growth, urbanisation, "land grabbing" and climate change have been suggested as the prime catalysts for the current situation (Akinola, 2018; Higgins et al., 2018; Sward, 2017). Such competition is leading to food insecurity, reduction in agricultural lands, landlessness and livelihoods challenges for women smallholder farmers and other vulnerable groups (Thornton et al., 2019).

Women have the potential to increase farm yield by 20–30% and also reduce the number of hungry people in the world by 12–17% if they have the same access to productive resources as men (Doss, 2018). Interestingly, women's contributions to agriculture in the global south, have still not been valorised enough to activate the necessary discussions and policy options (Gatzweiler and Von Braun, 2016).

Interventions in agriculture targeted at women do not only bridge the productivity gap but may also spark holistic development in rural communities (Diiro et al., 2018). However, these benefits are impaired by limited access to fertile lands, farm inputs, markets, information and finance. Aside the use of basic tools and limited access to irrigational facilities, women smallholder farmers also suffer from unsupportive public policies (Muzari, 2017). Due to the low level of female representation in agriculture extension services, officers usually focus on male farmers (Diiro et al., 2018; Okonya and Kroschel, 2014). Undeniably, household and societal pay-offs due to women's constraints in agricultural activities are enormous and far reaching (Muzari, 2017).

Despite lack of secured and equitable land rights (FAO, 2018a, 2018b), women, produce 70 per cent of Africa's food supply and they play a significant role in household food production despite small sized plots and nutrient deficient soils (Lowder et al., 2016; Scalise, 2014). Women with secured land use rights are strategic centres for reducing hunger, malnutrition, and poverty in households in addition to educational attainment (Akinola, 2018; Loison, 2019).

Women's contribution to farming activities and food security is not

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proportionate to the influence they have on land and natural resource use decisions (Scalise, 2014). Agriculture is a hegemonic male gendered institution that has obscured women as ancillary helpers with little or no decision making on farming activities (Lowder et al., 2016). When women have the same access and rights to resources and opportunities as men, statistics on the poor and hungry is expected to be lower (Nyasimi and Huyer, 2017). Weak land rights and tenure insecurity continue to be a plague and a limitation to women's economic empowerment (McKinsey, 2015). A key enabler to improve food security, nutrition and women empowerment is women's access to land rights and tenure security (Chagomoka et al., 2015). Secured tenure rights ensure women make long-term decisions on the use of land and also invest in sustainable land practices (Akram et al., 2019).

1.1. Changing narratives of women land tenure security in Ghana

Within Ghana, the northern region records poor human development indicators and climate variability is expected to worsen and negatively impact agriculture. Although women here constitute half the agricultural labour force and produce more than 70% of the food, they are still poor (Meinzen-Dick et al., 2019). This is closely attributed to the fact that 90% of women have no secured rights to lands, as compared to 7% of males (Richardson and Gaafar, 2016). Weak tenure rights restrict women farmers' access to information, technology and capital assets which inhibits long-term, sustainable land use practices (Samii, 2013).

Land rights under customary practice in Ghana is accessed through marriage, clan/family control, gift, inheritance, plea or tenancy arrangement (Giovarelli, 2006; Kasanga and Kotey, 2001), with women's access to land largely determined by male family relations, stability of marriages and inheritance (Yaro, 2012; Kevane, 1999). This makes women's land tenure negotiable, fluid, oral and ambiguous (Apusiga, 2016; Kuusaana and Gerber, 2015). The weak land tenure of women is enhanced by customary law and etched in tradition (Kasanga and Kotey, 2001) and is a major barrier for exercising land use rights (Dery, 2016; OECD, 2016). Customary law posits that married women are obliged to assist their husbands in the acquisition of wealth but gives no proprietary rights to the wife, regardless of the level of assistance (Akinola, 2018; ABANTU, 2004; Fobih, 2004).

When there is divorce or death, the rights of the widow over farm land at best weans or at worst, is lost. In cases of polygamy, the deceased husband often leaves behind several vulnerable widows and children without secured farmlands. It is also commonly believed that a woman is the property of the husband and how then is it possible for a "property" to own a property?

Uncertainty over tenure weakens women's rights to land and other productive assets (Croppenstedt et al., 2013). Land tenure security is the source of food, water, fuel, recreation, shelter and plant medicine for right holders (Satterthwaite et al., 2010). Therefore, the inability of women to exercise rights over land affects their access to these services and productive resources, limiting their prospects of improving their economic and social wellbeing (FAO, 2017; Whitehead and Tsikata, 2003).

Over the years, land under customary administration has experienced a major paradigm shift away from being a communal, social service to becoming more of a commercial item of individual ownership (Bugri, 2013). The accelerated transformation of agrarian society have increased deprivation among women, deteriorating their access to farming lands (Yaro, 2012; Lavigne and Durand-Lasserve, 2009).

Despite attempts made by governments and partners through policy and legislation to improve women's land use rights, many still do not have tenure security. Policies seeking to secure women's land use rights include for instance the 1992 Constitution and Provisional National Defense Council (PNDC) Law 111. These policies and legislation processes have to a large extent not been successful in improving social equity and justice among the various interest groups (Apusiga, 2016). Although article 35 (1) of Ghana's constitution prohibits discrimination and prejudices with regard to access, user rights and title holding based on gender, this clause is rarely enforced. Also, the Provisional National Defence Council (PNDC) Law 111, which was passed in 1985 to improve spouses' access to properties, is silent on bequeathing land to surviving wives and does not protect women in non-marital situations. Since the introduction of the Land Administration Project (LAP) in 2003 by the World Bank and the Ghanaian government, women hold of agricultural land has deteriorated (Deane et al., 2017). There are issues of cost of land title registration, bureaucracy, corruption, and centralisation of land titling processes (Ali et al., 2017; Jones-casey and Knox, 2011). Indeed, the Customary Land Secretariat (CLS) created as part of the LAP to address these challenges, has not achieved much due to resource and human capital constraints (Asiama et al., 2018). Ghana`s pluralist land regime has dislocated land resources from the social, cultural and spiritual life of its indigenous people (Alhassan, 2006). The superimposition of titling on pre-existing customary regimes has so far failed to address the real challenges and has increased the uncertainties surrounding land ownership and tenure regimes (Anying, 2014).

1.2. Research objectives

Given the long-standing challenges for women to secure land tenure in Ghana, this paper investigates the potential for combining customary land practices with land title registration and education in two case areas through four research objectives.

The first objective of this paper is to understand the mind set and motivation of key stakeholders in rural and naturally endowed communities concerning a possible paradigm shift from the business as usual (customary) to documented land title registration. Close to 80% of lands in northern Ghana are governed by customary law (Sward, 2017; Bugri, 2013). Over the years, attempts have been made to streamline the governance structure to align with that of the statutory system by encouraging individual titling. However, customary tenure regimes are community-based property systems for which practices are engrained in the culture of adherents (Ehwi and Asante, 2016; Mark Freudenberger, 2013).

Secondly, this paper seeks to provide critical perspectives and data to support the development of indicators of tenure security for women in community protected agro-ecological areas. These indicators are relevant to the attainment of the SDGs. Despite the relative support that customary land practices offer women and vulnerable groups, indicators of tenure rights and security are not fully defined and addressed (ILC, 2019). The design of appropriate tools to measure indicators of tenure security under the Sustainable Development Goals (SDG) 5, target 5a,[1] and SDG 1, target 1.4[2] is still being debated (UNIDO, 2018).

Thirdly, this paper seeks to document the extent and type of benefit sharing and different motivations of patriarchal systems to grant land use rights to women. It also attempts to find answers to the questions: how long are land right holders willing to grant rights to women through land use agreements and what are the possible reasons for terminating such arrangements? The paper digs further to determine farmlands sizes, right holders are willing to grant to women as it is generally known that women work on farms not more than 5 ha (Cavenett, 2005).

Fourthly, this paper assesses the prospects of women to participate and benefit from REDD+ initiatives in light of their current land holding

[1] Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources in accordance with national laws.

[2] By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance.

rights. For women to participate fully in the REDD+ Programme and to benefit from carbon credits as well as from shea parkland restoration activities, their access and tenure security to land is *sine qua non*. The landscape is described as the most vulnerable and susceptible to climate change in Ghana but still provides an estimated three million rural women with livelihood opportunities through the shea value chain (GCF, 2019; Foli et al., 2018).

2. Theory

2.1. Evolutionary Theory of Land Rights

The research was conducted along the Evolutionary Theory of Land Rights (ETLR) with the basic tenet to shift from customary or communal bundle of rights and governance practices to individual land rights due to population explosion, market integration and scarcity of land (Boone, 2019; Perz et al., 2017). As communal lands acquire new value due to scarcity, it is argued that customary governance systems are limited in their ability to protect individual rights and therefore there's a need for government intervention (Hull et al., 2019; Musembi, 2007; Yngstrom, 2002).

ETLR is argued to have been ignited by the Boserupian thesis which posits that for customary/communal land rights practices to move towards individualism, it must be stimulated by land scarcity, increased population density and advancement in agricultural technology (Yngstrom, 2002; Boserup, 1965). This position was further strengthened by Hardin's 'tragedy of the commons' (Hardin, 1968). Hardin suggests that a number of natural resource management faux pas and false steps emanated from open access. He argued that open access to common or public goods, such as land, lead to exploitation, scarcity and a decline in societal welfare (Simmons and Smith, 1996; Hardin, 1968).

The thesis of 'the tragedy of the commons' led to the rise of the property rights school of thought,[3] which postulates that rights on land and other natural resources are best used efficiently and productively if held by individuals (Perz et al., 2017; Alchian and Demsetz, 1973). They contend that a clear identification, delineation and assignment of property rights over common resources would help control actions of free riders and sanction others with equal rights to the resource (Demsetz, 2002). Scholars of this orientation assert that private property rights provide security and allows for substantial and strategic investment to make land more productive. In line with these thoughts, ETLR emerged as one of the responses and corrective measures to the 'tragedy of the commons'.

ETLR is premised on the fact that as population grows and land scarcity rises, the collateral effect of these changes cannot be appropriately responded to by the inherent limitations of the customary land governance systems (Boone, 2019; World Bank, 2003; Platteau, 1996). This therefore creates inefficiencies in the land market and incentivises governments to respond to the needs of right holders through land title registration (Singirankabo and Ertsen, 2020; Deininger et al., 1999). Indeed, the key tenet of ETLR is land title registrations, which is copiously projected by adherents of the property rights school of thought and organisations such as the World Bank. In the scheme of ETLR, Governments are expected to create enabling environment, establish institutional frameworks, deepen conflict resolution mechanisms and invest in technology and innovation to support land property registration and titling. These responsibilities of governments, fit seamlessly into the theory of induced institutional innovation, which contends that population growth that leads to scarcity and hence redefines land value, triggers institutional reforms needed to secure private property rights (Mwesigye et al., 2017; Hayami and Ruttan, 1985). Aside generating revenue for governments, ETLR is expected to minimise costs associated with litigation (World Bank, 1989). Other motivations for governments is the added benefit of employment creation, secure favourable rating from multilateral agencies aligned to ETLR and the application of eminent domain to annex community lands.

Generally, ETLR encapsulates the following; proof of land ownership, exclusive use of land, ability to transfer land rights and specific duration of land ownership and rights (Boone, 2019; Feder and Nishioy, 1998; Platteau, 1996). ETLR assumes that individual property rights are homogenous and provide a test case for identifying the source of environmental degradation due to the distinct use of private lands (Perz et al., 2017). It is posited in ETLR practice that, the transfer of land from less efficient farmer to a more dynamic one will lead to the consolidation of agricultural lands for commercial production. ETLR is envisaged to create, activate and stimulate an efficient land market that organically generate financial hubs in rural communities. These hubs are expected to provide the needed credit facilities to support agricultural activities since title registration makes land fungible (Perz et al., 2017; Yaro, 2012).

However, Ostrom (1999) argues that policy prescription for the governance of common-pool resources as espoused in the previous paragraph is not supported by empirical evidence. She submits that, communities and resource users have established a plethora of functional institutional arrangements that have successfully managed common resources and thus, the Governance of the Commons. The other argument is that, governments do not have the magic wand to "sustain long-term, productive use of natural resource systems' without the participation of the locals (Forsyth and Johnson, 2014; Ostrom, 1999; Tang, 1992; Bromely, 1992). Local knowledge, reliance on disaggregated knowledge, better adapted rules, inclusion of trustworthy participants and lower enforcement costs have made the Commons approach to resource governance effective and efficient. The concept of the Commons, also seeks greater societal welfare than markets and governments (Frischmann et al., 2019; Ostrom, 1999).

2.1.1. ETLR theory in practice

The practice of ETLR had some level of successes in South America when it was rolled out in the 1980s (Barnes and Griffith-charles, 2007). However, sub-Saharan Africa first engagement on ETLR was during the 1970s food insecurity challenges. The challenge, was attributed to the inefficient customary land governance practice by property rights advocates. It was argued that the indigenous land tenure arrangements was a serious constraint and threat to the growth of the agriculture sector (Barrow et al., 2016; Demsetz, 2002; De Soto, 2000). Furthermore, Morrison et al. (2018) submits that "the multiplicity and cascading nature of land rights, subsisting in customary land ownership regimes in Sub-Saharan Africa are anachronistic, costly and unresponsive to market signals".

Secondly, ETLR became part of the prescription for structural adjustment and economic liberalisation programmes spearheaded by the World Bank in the late 1980s (Boone, 2019; Yngstrom, 2002). The World Bank maintains interest in land titling as a mechanism for tenure reforms and believes in state privatisation of land rights as an essential element for economic development (Byamugisha, 2014). This trajectory by the Bank, was taken without recourse to workable local solutions which addresses challenges confronting communal land property regimes. Bromley (2009) and Platteau (1996) argues that there are innovative and collaborative approaches that addresses the inherent weaknesses in customary land property regimes but have not being explored. This has even become achievable and cheaper with the plethora of affordable and easy to adopt technologies and innovations.

As akin to most theoretical frameworks, ETLR has come under criticism over what it purports to achieve. Works by Singirankabo and Ertsen (2020), Toulmin and Quan (2000), Ostrom et al. (1999) and Deininger et al. (2017) in sub-Saharan Africa, have shown that titling has not improved the efficiency of agricultural production systems. ETLR is widely regarded as discriminatory, harmful and does not

[3] The other two school of thoughts on property rights are the adaptation and legal.

engender the expression of basic human rights. A study in Ghana and Kenya by Migot-Adholla et al. (1991), revealed that the level of agricultural investments and productivity did not differ between individual and communal land ownership. Again in Rwanda and many other sub-Saharan Africa, soil fertility and climate conditions triggered land productivity and not individual land ownership (Mwesigye et al., 2017; Ouedraogo et al., 1996). In relation to bottom up approach of ETLR, Bromley (2009) raised doubts about the assertion that right holders and populations clamour for land title registration. Again, it is been documented that most countries enrol unto ETLR programmes to satisfy loan conditions and other incentives provided by the World Bank and IMF (Morrison et al., 2018; Yaro, 2012). Therefore ETLR can be described as an imposition of neoclassic economic theory that idealizes capitalism in shape, form and practice.

One weaknesses of the ETLR, is its failure to appreciate that land represents far more than an input in the agricultural value chain. Land is an embodiment of the soul and spirit of individuals, families and communities and has a social legitimacy. This is the reason why sacrifices and rites are performed periodically to perpetuate this relationship (Ampadu, 2013). Thus it is problematic to exclude land from the social and cultural appendages of land holding families and dependents through commercialisation and other market instruments (Bromley, 1992). Kasanga and Kotey (2001) argue that, the superimposition of foreign management practices has weakened the fundamental principles of customary land law and broken down trusteeship ethos- leading to landlessness, poverty and general insecurity for women.

Traditionally, bundle of rights have been used as a stop measure for land degradation and over exploitation of natural resources. This age old practice risks being muzzled out under land title registration. The bundle of rights describes access, use, and control over a given land among right holders and grantees (Dumenu et al., 2016; Simbizi et al., 2014) and thereby typifies collaborative natural resource management for which sustainable land use practices are encouraged. However, this significant inbuilt corrective measure under customary land governance is ignored by advocates of the property right school of thought (FAO, 2018a, 2018b). It is widely acknowledged that the concept of bundle of rights has provided women some level of security to land (FAO, 2018a, 2018b).

Notwithstanding the potential of ETLR to encourage land grabbing, elite capture and landlessness, the World Bank with it financial clout literally imposed ETLR practice on countries in sub-Saharan Africa (Barrow et al., 2016; Yngstrom, 2002). Since 1983, Ghana through the Structural Adjustment and Economic Recovery Programmes (SAP and ERP) of the World Bank and the International Monetary Fund (IMF), has used land title registration to enhance efficient use of land (Ehwi and Asante, 2016). Yaro (2012) posits that market-led land reforms create value needed for investment in the agriculture value chain. In furtherance to this, the Government of Ghana enacted the Land Title Registration Act, 1985 and the Land Act, 2020, and rolled-out the Land Administration Project in 2003 (FAO, 2020; World Bank, 2013).

Land title registration is unlikely to enhance land security for large segments of vulnerable rural populations. This is exacerbated by the bureaucratic institutional machinery, which has succeeded in keeping vital information away from such populations (Ehwi and Asante, 2016; Byamugisha, 2014). Again, the level of illiteracy has made it challenging for the vulnerable to understand the nuances and technicalities inherent in land title registration. The increasing and prohibitive cost in land registration has led to the exclusion of women and vulnerable groups in the process. In reality, ETLR obstructs and threatens women's usufruct rights to land as well as extinguish the rights of pastoralists, migrants and squatters as exist under customary governance practice (Quan and Geoffrey, 2008). Yaro (2012) suggests that the "emerging pattern of land tenure relations reinforces existing inequalities in traditional social structures and weakens the interest of social groups without enough social capital".

The focus of ETLR has mostly been on agriculture value chain and efficiency of land tenure as explained in previous paragraphs. A review of literature has shown that ETLR has sparingly been applied in the forestry and land use sector and under a broad stroke of the system approach (Barrow et al., 2016). Again, within the Community Resource Management Area (CREMA) forest subsector, to examine how ETRL is applied to improve women tenure security. This defeats current climate change efforts, which target tropical forests as sinks for emission reduction through incentive-based policy instruments such as REDD+ (Naughton-Treves and Day, 2012). REDD+ aims to protect, conserve and enhance the sequestration capacity of tropical forests.

2.2. System approach

In view of the challenges current ETRL practices pose to women tenure security, the limitations of customary land governance and the opportunities in result based payments schemes (REDD+) for ecological areas CREMAs, it is incumbent that a system approach be adopted to draw out synergies for a win-win solution for stakeholders which include rights holders, traditional authorities and women. Indeed, a number of publications such as Richardson and Gaafar (2016), Ehwi and Asante (2016), Mark Freudenberger (2013), and Deininger (2003) focused on the minimalist approach to understanding tenure security for women. This of course limits the prognosis, extent of the challenge and provides less clarity in gendered lands rights in community protected areas (Simbizi, 2019; Albrecht et al., 2014).

However, what this study attempts to do differently is to go beyond traditional surveys to incorporate experiences from a real life project (Outcome 3 of AGNRM[4]- which tried to navigate around land tenure challenges women faced) using a system approach to unearth the range of challenges in order to offer practically solutions. The system approach is generalised as a collection of procedures that are related, dependent or independent, and which are engineered to have a real life effect. The approach promotes holistic integration of human and non-human relationships for a desired effect (Reynolds and Holwell, 2010; Stowe, 1973).

The thrust of the system approach for this study is summed up as follows: land tenure practice cannot be known just by the elements (actors) but how coherently practices and behaviour are interconnected and function to achieve a positive effect. It also follows the argument that the complexities of land tenure regimes require a departure from traditional, linear and silo thinking to methods and processes that are multidimensional and interdependent. The study employed practices in customary and statutory governance, perspectives from stakeholders, review of policy documents and a practical demonstration of tenure improvement methods that can possibly change the narrative around women tenure security. Analysing the interrelationship among elements, connectivity and functionality of land tenure regimes help to construct a pathway for which each subsystem adapt to threats and opportunities (Petak, 1981). The system approach therefore provides tools to ameliorate the threats underlying women tenure regimes in protected areas.

[4] The Agriculture and Natural Resource Management Project (AgNRM) was a USAID funded project, which focused on an integrated landscape approach by leveraging on the Community Resource Management Areas (CREMA) concept to address issues of the environment and natural resource management in Northern Ghana. AgNRM sought to increase food production and security, develop value chain for natural resource products, secure tenure rights for women and vulnerable groups and promote environmental stewardship in CREMA communities. Outcome 3 of AgNRM specifically explored the signing of land use agreements between women and land rights holders for an agreed duration.

3. Research location and methods

3.1. Location

The research was conducted in the Zukpiri and Dorimon Community Resource and Management Areas (CREMAs) in the Upper West Region of Ghana. A CREMA is a landscape planning and management tool, which integrates wildlife conservation, rural development and social fencing for the benefit of resource laden communities, government and the environment (Owusu-Ansah, 2019; Blomle, 2017; Alcorn, 2014; Asare, 2013). The concept was developed by the Wildlife Division of the Forestry Commission as a collaborative, decentralised and participatory natural resource management for wildlife conservation and livelihood diversification (Owusu-Ansah, 2019; Agyare et al., 2015). The concept has evolved to address issues of climate change for which the, payment for ecosystem services (PES) and REDD+ have become enablers (Foli et al., 2018; Baruah et al., 2016).

The Zukpri CREMA is a 420-square kilometre management area located along a section of Ghana's border with Burkina Faso (Baker et al., 2018). It lies in the Guinea savannah woodland ecosystem and extends from latitude 10.00–10.20 degrees north and longitude 2.30–2.50 degrees west (Baker et al., 2018). The river is one of the last two habitats for hippopotamus populations in Ghana (UNDP, 2012). Dorimon CREMA falls within the Wa West District and lies between latitude 10.03333N and −2.68333S. The CREMA covers an area of 168 sq. km and forms part of the Black Volta Biodiversity Corridor which provides safe passage for hippopotamus and other mammals to and from Ghana (Olayide et al., 2013) (Fig. 1).

3.2. Methodology and data

Participatory and multi-actors qualitative and quantitative assessment tools were used to collect spatial and non-spatial data for the study including information on land tenure and property rights for the two CREMAs and within the two major seasons in northern Ghana. Data was collected from March, 2016 to August, 2018 from land right holders and 312 grantees.

First, an extensive document analysis was carried out of technical reports, Acts of parliament and policy documents. Information on land title registration was also gleaned from institutions such as the Lands Commission, Customary Land Secretariat (CLS) and the Office of the Administrator of Stool Lands-all based in Wa, the regional capital. The CLS is an attempt by the Government of Ghana to bridge the gap between customary and statutory land registration processes for people who are disadvantaged by the later. CLS provides opportunities for rural communities to register their land holdings legally and they are custodians to relevant information such as right holders, land boundary limitations and land use agreements. In addition, a thorough document analysis was carried out on land use agreements signed between grantors and grantees who participated in the AgNRM project.

Second, a survey of 312 land right holders and tenants from 13 communities was carried out in the Zukpiri and Dorimon CREMAs using a purposive and random technique. The technique identified land rights holders who have ceded and signed land use rights agreements with non-land title holders. The research also adopted the homogenous sample technique since the sample under consideration relates to populations with land holding rights and women farmers in CREMAs who have experienced and participated in the grant of rights (Benoot et al., 2016; Duan and Hoagwood, 2015). To capture demographic data for each land right holders and grantees and other attributes of tenure (such as plot size, tenure duration, terms for termination and benefit sharing), an open ended questionnaires was administered.

Prior to signing of the land use right agreements, separate focus group discussions were held for right holders and women farmers where they were educated on land title registration, the Intestate Succession Law and human rights. From negotiated plots, trained community volunteers used Garmin 64 Global Position System receivers to demarcate and document plot sizes. This provided data of land boundaries and sizes right holders were willing to grant. The spatial data were downloaded from the GPS devices unto an ArcMap 10.41 geodatabase and developed into plot maps after the data was cleaned, audited and digitised. These plots maps were later attached to each land use agreement and given to the grantees.

4. Results and discussion

4.1. Description of land parcels

Parcels of land with use rights agreements were fairly flat with poorly drained brownish sandy and gravel laden soils. A good number of these plots were already under cultivation and gently flowed through slopes into areas liable to flood. Most of the farmlands were either bare without cover crops or had remnant of previous year's production for soil protection. The bare land can be attributed to the perennial bushfires the CREMAs experience within the development and protected core zones. Exposure of the top soil to the vagaries of the weather has made erosion a common feature on farmlands and there were no commitments and practical measures on the side of farmers to reverse the trend. The farms are mostly interspersed with savannah trees, forming a natural agro-ecological system that is gradually being decimated through logging. It was observed in some of the farms that economic trees such as shea and dawadawa have been harvested for charcoal production and constructional activities. The protection of these tree species is important for providing economic opportunities for rural women. It is also critical for communities' conservation efforts, soil improvements and the provision of ecosystem services.

4.2. Land access

Studied land use rights agreements account for 312 women and women's groups, consisting of 269 individuals, 9 groups and 34 joint right users. The groups were not more than 10 members and were mostly Village Savings and Loans Associations[5] (VSLA). Generally, women have relative easy access to land but security of tenure is a major challenge. Quite a good number of spouses opted for the joint right use. The joint right option provides both parties equal access and use rights to the piece of land. Women in the CREMAs traditionally access and secure use rights to land from right holders as gifts and through tenancy arrangements. Tenancy arrangements are mainly contracted between women settlers[6] (who are led by their male relations or landlords hosting them) and rights holders. Though the tenancy arrangements are verbal, there are always witnesses to confirm the transfer. Ordinarily in CREMAs, the transfer of land rights is established when drinks and kola nuts are presented to the grantor in the presence of witnesses.

The practice of benefit sharing was not a common traits observed in tenancy arrangements-probably because right holders in small rural communities see it as a duty to secure livelihood opportunities for women. It may be due to the narrative that "there is enough land for all". It was also observed that some right holders granted land use rights to young widows ostensibly to have the opportunity to marry them. Within the CREMAs, women land rights are traditionally weakened when there is a divorce, separation, abandonment of farmland, or if one becomes a widow. However, joint land use agreements have proven to have a higher level of tenure security due to the bundle of rights inherent in customary land governance. It therefore makes it challenging to

[5] The village savings and loan association (VSLA) scheme is a micro-finance model with the focus of reducing poverty by financially and socially empowering poor and vulnerable people.

[6] Settlers who are single or divorced or have their husbands not being indigenes of any of the CREMA communities.

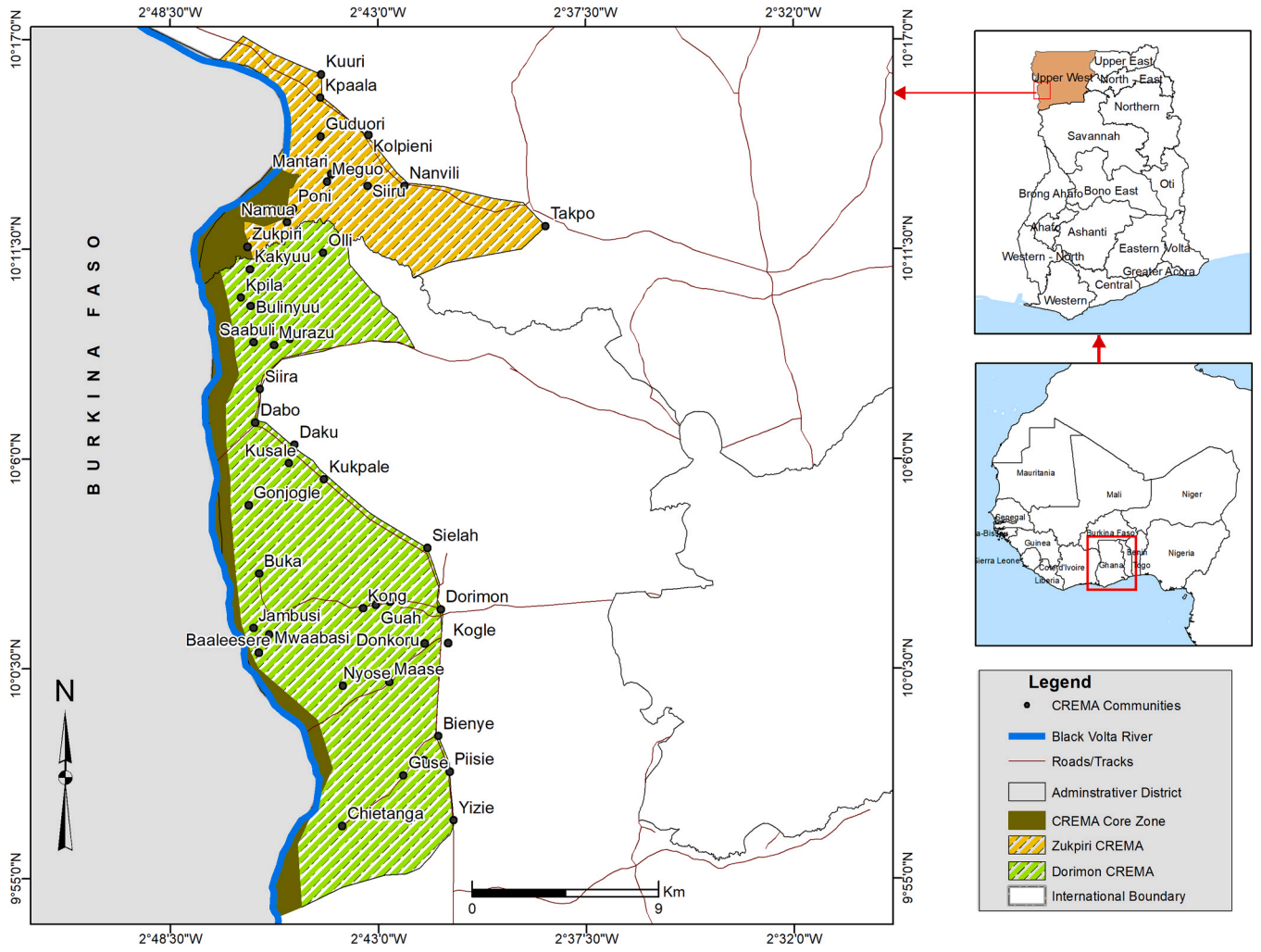

Fig. 1. Map of the study area.

override such discrete rights based on the demise of a co-right holder or through divorce. Aside strengthening tenure security, the bundle of rights has an inherent corrective measures to unsustainable land use practices.

Generally, women access land in the CREMA through reiterative engagement with traditional rulers and landlords as seen in Fig. 2. The rights to most lands in the CREMAs are held in trust by clan and family heads. Mothers, widows, sisters and wives can access land through their husbands, clan/family heads and brothers because they enjoy customary freeholds and usufruct rights. Their association with the rights holding clan/family grants them the natural rights to access and use the resource.

4.3. Farmland sizes

The common trend in the study was the small land sizes (Fig. 3) that right holders granted to women farmers. The smallest farmland demarcated was 0.11 acres and for women farmers' groups it was 20.7 acres. Well organised farmers' groups, especially those involved in Village Savings and Loans Associations (VSLAs) are better placed to secure bigger land parcels and also attract investments to support their agricultural activities. This is because of the numbers of individual members, lower risk associated with dealing with such groups and the fact that they can fall on their own contributions to support agricultural activities. Aside, the VSLAs have good ratings among local financial institutions. The average land size was 1.88 acres and it is expected to provide a household of 7 children with food and nutrition.

The farm sizes for the majority (43%) of the women were less than 0.90 acres. According to FAO (2018a, 2018b) classification, these women are considered landless because such land sizes are not economically viable. It is an indication that the majority women smallholder farmers in CREMAs are surviving on small pieces of land. Compared to men, women have 3–4 times smaller land plots. The disparity in land use size in the CREMAs is same when compared to other jurisdictions in Africa (Nolte et al., 2016). Certainly right holders understand that when they give out lands to women, they cede some form of power and authority.

Research in Africa and Asia suggests that women farmland sizes are declining at a faster rate but increasing at faster rate for men (Gollin, 2018; Lowder et al., 2016). However, Borras et al. (2009) argues that, land size is not necessarily function of productivity and suggest that small farms are fairly productive and efficient per hectare than large-scale farms. This assertion by the researchers was not observed in the CREMAs, especially when less than 5% of women access extension services (Okonya and Kroschel, 2014). A plausible reason for increase in productivity is due to women`s pliability to innovative agro-ecological practices as proven in the use of the modified "zai" pit for moringa *(oleifera spp.)* production in the two CREMAs under the AgNRM project.

The granting of rights on small sized farms to women is embedded in customary law which limits women's control to large farmlands. The

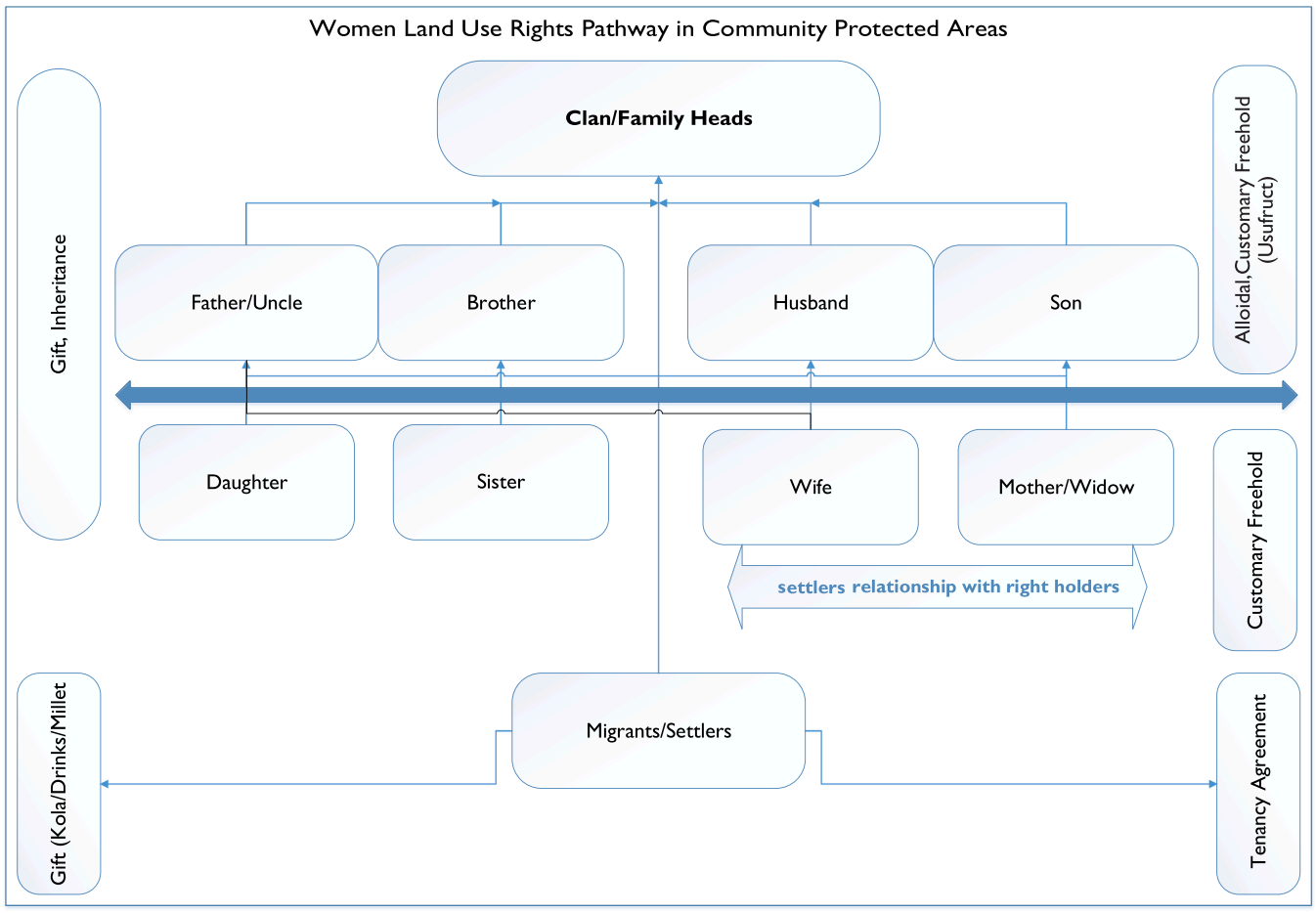

Fig. 2. Pathway for accessing and securing land by women.

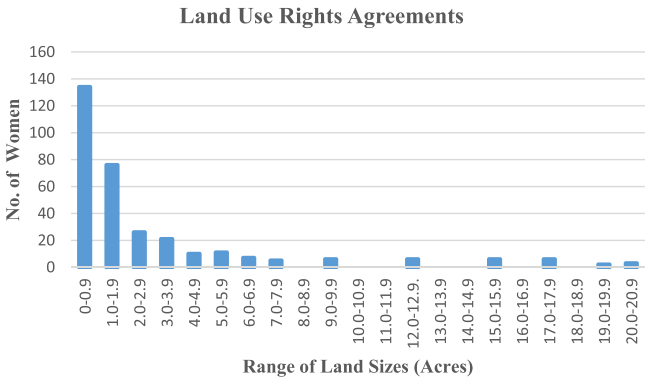

Fig. 3. Land parcel sizes and women farmers in Land Use Rights Agreements in Zukpiri and Dorimon CREMAs.

grantors argued that when women are given large parcels of land they will "misapply and waste the land" [7] and also the fact that their permanency is not guaranteed. It is also a widely accepted customary practice that women support their husbands on their farm and as a 63 year farmer puts it: *"when I give my wife a big land, she will not help me on my farm and will always complain of tiredness at night"*.

It was observed that during the dry season, sizes of farmlands granted to the women were relatively bigger and land use agreements expedited upon than in the rainy season. This is because there is little consultation with relatives in the "bush"[8] to protract negotiations on the location, size and boundaries. It is also because there is a stiffer competition for land in the rainy season for agricultural purposes than in the dry season. The competition for land has also contributed to women's farms being far from households and it takes a distance of 3–5 km to access such farmlands. The long distance of the farm leaves women exhausted before they start the day`s work.

The designation of a significant portion of the CREMA landscape as protected area has affected farm sizes and rights of farmers. Limited farmlands has led to encroachment within the delineated core zone along the Black Volta; though it is a prohibited activity under the CREMA by-laws. Again, the ability of women in the CREMAs to pull together resources to cultivate large portions of land limits their land use rights. Howbeit the challenges associated with women farming groups, it presents a better option for mobilising resources for women led large scale agricultural activities in the CREMAs.

4.4. Duration and indicators of tenure

Right holders in the case areas were granted land tenure rights of between 5 years to lifelong use rights. These rights included access to water, firewood and limited restrictions on natural resource products. Forsythes (2015) had earlier found that economic trees such as shea and locus beam have restrictive use in the CREMAs. Indeed, there were situations where families of the grantor pick shea nuts from farmlands

[7] Planting of undesirable crops, cutting down of trees and performing sacrifices.

[8] Relatives who have migrated to southern Ghana.

where use rights have been granted.

The duration of land use agreements depended on the kind of relationship the right holder has with the farmer, the number of children, land use type, status,[9] negotiation skills of the grantee and land availability. For instance, majority of married women were granted lifelong use rights by their husbands who are rights holders. Again, mothers, sisters and widows have greater tenure duration. For widows, it has been variously captured in literature that they have shorter tenure duration (Salcedo-La Viña, 2020; Hettig et al., 2016; Munk Ravnborg et al., 2013), but this study provides a parallel result. Widows in CREMAs have relatively longer and secured tenure than reported in the literature, though productivity of granted farmlands is a major concern. In the case areas, there were rare situations where father in-laws granted land use rights to their sons' wives because their husbands had no landholding rights. Women who obtained lifelong use rights had a minimum of 5 children while those with 5–10 years land tenureship had a maximum of 4 children. Information from the CREMA communities seems to suggest that the more children a woman has, the longer the duration of tenure. However, the number of children did not affect land size as the majority of women with lifelong use rights had land sizes of between 0 and 3.9 acres. It was also observed that individual farm size did not influence the duration of use rights.

In Jambuse, a CREMA community in Dorimon, the duration for majority of the land use agreements were between 5 and 10 years. This duration is probably influenced by the construction of a water treatment plant to supply Wa and its environs with portable water The construction occupied a significant portion of farmlands and displaced many farmers. Coupled with the closeness of the core zone to Jambuse, the community is left with limited land for agricultural activities and to circumvent this challenge. As a consequence, rights holders granted short duration periods even in situations where the woman involved is a wife.

There were also situations where right holders did not give a definite duration for the use of the land. This was as a result of indecision and also the fact that, right holders needed to consult other family members in the "bush" for inputs before decisions were made. Interestingly, there were right holders who initially agreed to grant land use rights to selected women farmers but later reneged. The reticence is an indicator of unspoken apprehension and the need to perpetuate and uphold the long age customary practices. Others used joint ownership in the agreement to still have control over the land. An elder in one of the CREMA communities succinctly summed up the concern of right holders when he said: *"I will not document a land in my wife's name for her to be enjoying with her family over me. She can even decide not to give me food, after all she has land"*.

One significant benefit of the land use agreement was that it offered women and settlers the opportunity to plant and invest in economic trees. Hitherto, women were not permitted to plant economic trees because it was deemed as a subtle attempt to claim ownership of the land. Trees help farmers adapt to climate change impacts, improves soil fertility and water holding capacity, provide microclimate and increase crop yields. They also supply fuelwood for domestic and commercial activities, fruits to supplement nutritional needs and opportunities to generate income. Significantly, tree tenure is an important requisite for carbon benefits and for women to have security over the resource provides a critical step in the participation of REDD+. The level of security that the agreement guaranteed, resulted in increased investments in farmlands. Areas of investments included the adoption of climate smart technologies and nature based solutions, soil fertility improvement techniques, soil water retention management, live fencing, fire belts creation and the establishment of terracing to reduce runoffs.

It was observed that for a longer land use duration, women need to show superior negotiation skills. A case in point was when during a negotiation for land, a woman leader in the community led to polemics: *"I feed you every day whiles your sons are in the "bush", and you are now refusing me the land. Let's see who will feed you!"*.

4.5. Continuum of Customary Land Tenure Security in land use agreements

Land use rights agreements are meant to strengthen tenure security and protect investments. In as much as right holders were willing to grant rights, they had clauses in the agreements that did not provide security of tenure and investments for women in the long term. An example of this, are clauses that allow the termination of land use agreement based on gossiping. Termination clauses are triggered based on repeated actions. A number of reasons or indicators advanced by right holders for terminating land use rights agreements were self-seeking, flimsy and repressive. Especially infractions that go against cultural and traditional sensitivities are considered grave. Other influences that affect termination of agreements is the type of relationship that exist between the grantor and grantee and the mechanism employed to resolve the dispute. Furthermore, a few of the terms seek to continually deepen the power and economic differential that already exist within the CREMAs. A termination reason could also be a lack of immediate financial benefits for the right holders (grantors), who did not feel incentivised enough.

Termination clauses gleaned from land use agreements and captured in Table 1 provide a framework for a Continuum of Customary Land Tenure Security (CCuLTS) in the CREMAs. The clauses demonstrate indicators for tenure security. The indicators have been categorised into themes (culture/tradition, relationships, food production, resource access and use, conservation and settlements) based on interactions with stakeholders. CCuLTS is at variance to the much touted Continuum of Land Rights (CLR) model of UN-Habitat and Global Land Tool Network (GLTN). CLR describes tenure security from a perceived tenure (customary) to registered freeholds along a scale (Barry and Augustinus, 2016; Du Plessis et al., 2016). However, it fails to measure the strengths and weight of indicators embedded in the perceived tenure (customary). CCuLTS addresses these concerns and argues that CLR prolongs processes for improving tenure security, increases costs and does not effectively ensure the participation of women and vulnerable groups. Fundamentally, CCuLTS can be used to show how tenure security can be improved when subjected to the indicators.

5. Conclusions

This study has analysed women's access and security to land under customary land governance in CREMAs in Northern Ghana and followed a co-creation process to investigate the potential for combining customary land practices with land title registration, education and the use of Voluntary Savings and Loans Associations to improve women access to land and tenure security. The study was conducted with a critical review of ETLR and customary governance practices using a system approach to understand the challenges and opportunities surrounding women's land tenure security.

Government policy on land title registration, which is a core deliverable under ETRL, has not been wholly accepted by CREMA communities. Instead, customary land governance dominates land tenure security in CREMAs, where it provides some level of protection for women and vulnerable groups. However, long term tenure security for women depends on the existing relationship with the grantor, cultural underpinnings and land use (food production, resource access, conservation and settlements) which constitute indicators of tenure in the CREMAs. These indicators are built around and informed by rights holders' mind-sets and motivations in granting land rights.

This study demonstrates that when a community co-creates a land title registration scheme that incorporates these indicators, it can provide more women with land tenure security than what the state is

[9] Indigene or settler.

Table 1
Indicators and continuum of tenure security.

Indicators of customary Land Tenure Security	Reasons for terminating land use agreements	Effect on tenure security		Context/Reason
		High	Low	
Culture/Traditions	Refusing to commiserate or celebrate with right holder in times of grief and joy respectively.		X	The close knitted society in the CREMAs does not encourage such type of behaviour and is highly frowned upon. It can happen once but not frequently.
	Performing sacrifices on the given land.	X		It is a sacrilege and a serious offence for a woman to do that.
	When she is involved in sexual activities on the land.		X	It is usually difficult to verify when there are no witnesses. However, in exceptional situations, local spiritual/traditional media are used to proclaim the innocence or otherwise of an accused person.
	When she discovers pot(s) of precious minerals without informing the husband/*Tendana*		X	In the CREMAs, discovered pot(s) of mineral resources are to be handled and kept by the husband/*Tendana*. Women are not allowed to have possession of such mineral resources.
Relationship	If she frequently disrespects the land right holder in private or in public.	X		This behaviour is common (showing disrespect in privately) but not fatal or reprehensive enough if both parties have a relationship. However, it is a serious offence for a grantee without family relationship to disrespect the right holder.
	When there is divorce and the grantee moves to the father's house for a long time as a result of a marital dispute.	X		When the woman moves out of the marital home, she loses her right to the land. The grantee leaving the marital home is not a confirmation of a divorce since customary processes have not been activated to that effect. The rate of divorce is very low and the mechanism for resolving marital issues is efficient and constantly being applied. The holding of the family as a unit is a cherished value in the CREMAs.
	If she is fond of gossiping with her colleagues at the borehole.		X	This is commonly held view of both gender in the CREMAs that women gossip when collecting water for domestic or commercial purposes. It is not a grievous infraction.
Food production	If she spends much of her time on her farm than that of her husband.	X		Knowing very well that she has documented rights to the land, she will spend significant amount of time to improve soil conditions and tender her crops. In the CREMAs, it is mandatory for women to help their husbands on their farms.
	When the grantee does not use the produce from the farm to support the household.		X	Most women use produce from their farms to feed their children and sometimes husbands. Indeed, the first produce from the farm of the woman is usually given or prepared for the husband as a sign of appreciation for the land that has been given her. Again, income generated from the sales of the produce is used to support the educational and health needs of family in the household.
Conservation	When she abandons the land for 3 years.	X		This is an indication that the grantee has no use for the land and the land must be reallocated to another person. If the land is under fallow, the grantor must be informed so there will not be any reallocation or repossession.
	Cutting down healthy economic trees such as shea and locus beam.		X	This is hardly done due to the education and economic benefits women derive from shea and locus beam. Sanctions are applied when shea or locust beam trees are felled.
Settlements	When there is the need to extend the family building.		X	Most of the lands offered to the women were far from human settlements and it will take a while before development reaches the precincts of the farms.
Access and use rights	When the grantee gives the land to another person without the consent of the grantor.	X		It is uncommon practice for women to give a piece of land out without the approval of the grantor. It is a serious infraction under customary law.
	When she prevents a member of the grantor's family from accessing shea fruits and other natural resource products.	X		This is one of the major sources of land conflicts. Shea nut picking is a profitable and a yearly communal activity which involves many women. It is common for right holders to access natural resource products on lands that they have granted rights. These sometimes lead to conflicts.

promoting through land title registration. This is also a cheaper form of land acquisition in the CREMAs for women and vulnerable groups, compared to state led land title registration. In addition, customary land practice is governed by the Commons for which terms of engagement are designed and influenced by local actors and circumstances. A benefit of the community co-creates a land title registration scheme is the level of participation and inclusivity it offers stakeholders. This has also led to a groundswell of support and enthusiasm among land rights holders to document their land holdings due to new knowledge, proximity of the process to them and reduced cost. Indeed, provides an entry point for a co-created national policy on land title registration that incorporates concerns of rural communities. The study again, revealed that the current government policy on land title registration is a disincentive to women's agricultural pursuits. This will inevitably make participation in REDD+ processes for women more difficult due to limited education, costs and bureaucracy.

Though the community co-created land title scheme, improved tenure security for women and vulnerable groups, it is still limited in key aspects. For example, an average land size of 1.88 acres (0.36 ha) granted to women is not economically viable and inadequate to enhance food security in the CREMAs. This also does not strategically position women to potentially participate and benefit from financial incentives that will be generated from the $54.3million Shea Savannah Landscape Emission Project (REDD+) funded by the Green Climate Fund.

A significant finding of this study is the identification and documentation of tenure security indicators for the CREMAs and Continuum of Customary Land Tenure Security (CCuLTS). The indicators and concept of CCuLTS provide perspectives and information that can be used to support the current debate within SDG 5, target 5a and SDG 1, target 1.4, which focus on tenure security. Further exploration of CCuLTS could be a game changer for women's tenure security as it deals with the fundamental challenges they face in land use rights.

The study clearly indicates the need to negotiate joint and group land use agreements under customary land tenure in order to increase farm sizes for women. VSLA schemes would need to be ramped up to cover potential costs associated with the land use agreements. An appreciable amount of financial resources could help women groups secure enough lands for economic purposes. This is because land right holders are motivated or have the propensity to consider and grant bigger land sizes to women groups in peri-urban CREMA communities when there are financial incentives. However, it should be acknowledged that a greater number of the lands in the CREMAs are not for sale. It is therefore

important that women's knowledge in land and natural resource legal rights and skills in interest based negotiation are improved to help them secure land on their own terms.

Most lands in Ghana are under the custody of traditional authorities and families, which to some extent, has proven challenging for the Land Administration Project to operationalise both deeds and title registrations across the country and to create tenure security for all. By tweaking the customary governance systems to incorporate land title registration in a co-creation process combined with education and VSLAs, women can significantly improve their access to land and security. However, land plot sizes still need to be further increased if women are to obtain food security and also profit from ecosystem payment schemes such as REDD+.

CRediT authorship contribution statement

Frank Akowuge Dugasseh: Preparation conceptual framework, Methodology, Data collection, Curation, Writing - review & editing. **Clement Apengnuo**: Review and editing. **Marianne Zandersen**: Theoretical framework, Review, and editing.

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