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Effects of the Systematic Cluster Approach (SCA) and Rural Land Plans (RLPs) on Land Tenure Security for Agricultural Household: Insight from Benin (West Africa)

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Abstract: Rural land plans (RLP) and the systematic cluster approach (SCA) are the two main approaches used in Benin to secure rural land tenure. However, the contributions of these approaches to land tenure security in rural communities are mixed. This paper firstly identifies the main factors to be considered in conceptualizing rural land tenure security and secondly assesses the contributions of the two approaches in achieving rural land tenure security. The study is conducted in four communes of Borgou (a district in North Benin) that have benefited from both approaches to land tenure security. The dimensions of land tenure security were identified during focus group discussions and unstructured interviews with key informants. The contribution of the approaches is assessed using individual surveys from 742 beneficiaries of the approaches randomly selected, based on actors' perceptions measured on the Likert scale. The nonparametric Friedman test was used to determine the average rank of each factor according to the RLP or SCA context. As a result, land tenure security must integrate nine factors, leading to two forms of land tenure security. Legal and institutional security includes land tenure norms, property rights, local land management institutions, and the land information system. Socioenvironmental security involves access and use rights, social peace, gender mainstreaming, and land conservation. According to stakeholders' perceptions, RLPs mainly lead to legal-institutional security, whereas SCA combines and contributes to both forms of land tenure security. Rural smallholders will enjoy high levels of land security when these elements are in dynamic balance.

Keywords: land tenure security; rural land plans; systematic cluster approach; sustainable development

1. Introduction

Over the past few decades, a wide range of research has concluded that land tenure security is an important factor in achieving sustainable agricultural investments, particularly in sub-Saharan Africa (SSA) [1–7]. The reported impacts of land tenure security vary, including access to credit [4,8], increased agricultural equipment and infrastructure [2,9,10], improved agricultural productivity [6], prevention and reduction in land conflicts [11], investment in sustainable agricultural practices [12], etc. Unfortunately, the process for achieving sustainable land tenure security regarding the specific context of SSA remains little discussed. Most SSA countries are constantly adapting their land tenure security mechanisms without achieving the objective of responsible land tenure security. This problem is explained by the difference in actors' perceptions of the conceptualization of land tenure security, particularly rural land tenure. While some have perceived land tenure security through sociocultural issues [13,14], others have explained it through the registration and administration of land rights [7,15]. For other authors, environmental factors need to be taken into account when applying rural land tenure security [16,17]. For most of these

authors, the environmental aspect must be integrated in order to achieve the objectives of sustainable development and to provide a holistic definition of rural land tenure [13,17]. For instance, [13] conclude that the rural land tenure system, as a viable pathway, has to accelerate poverty reduction through sustainable land management, particularly in low-income countries.

Finding the adapted land-securing approaches appears to be a typical problem in most SSA. There may not be much relevant literature for assessing the performance of existing approaches or mechanisms focusing on sustainable management. The rural land itself and its users are both vulnerable, putting the food sovereignty of the populations at risk. This paper argues that land tenure security is achieved when there is quietude in land use and the agricultural quality of the land is also conserved. Do the approaches to land tenure security in vogue in SSA allow for the achievement of rural land tenure security? What factors should be addressed to achieve land tenure security for all in a rural context? The aim of this research is first to understand how communities perceive rural land security. Second, the study analyzes the extent to which land security mechanisms contribute to the achievement of rural land security.

Using insights from the case study of Benin (West Africa), our results contribute to theoretical debates on the effectiveness of rural land tenure security mechanisms by showing the need to re-examine the operationalization of the concept of land tenure security. The results also facilitate decision making for development policies in SSA. Before presenting the methodology and results of the research, the article synthesizes the current literature on land tenure security by highlighting the different components of the concept. Finally, the results are discussed, leading to the perspectives and implications of the research.

2. Conceptualizing Rural Land Tenure Security in the Perspective of Sustainable Development

The concept of land tenure security (LTS) has been perceived differently by scholars according to the discipline and study context (Table 1). Most of the definitions reported in the literature, mainly in the context of SSA, focused on the legal-institutional aspects of LTS. For instance, FAO (2002) defined LTS as “the certainty that a person’s rights to land will be recognized by others and protected in cases of specific challenges. People with insecure tenure face the risk that their rights to land will be threatened by competing claims, and even lost as a result of eviction [18]”. Land security includes obtaining, protecting, and enforcing rights to access, use, or own land [19]. In the same perspectives, ref. [20] put individual ownership at the heart of their definition of land tenure security through land title holding.

Table 1. Perception of the concept of land tenure security by the authors.

Authors and Date	Definitions	Focus
FAO, 2002	Security of tenure is the certainty that a person’s rights to land will be recognized by others and protected in cases of specific challenges. People with insecure tenure face the risk that their rights to land will be threatened by competing claims and even lost as a result of eviction.	Legal-institutional land tenure security
(Ouedraogo, 2011)	Securing land for a rural producer means putting the producer in a situation of peaceful use of the land while guaranteeing the possibility of profiting from the land both in work and in money.	Social land tenure security
(Simbizi et al., 2014)	Security of tenure is considered to be full individual ownership of land supported by written evidence, commonly known as the land title.	Legal-institutional land tenure security
Delville (2017)	Security of land tenure is the assurance that the person’s rights to the land will not be contested and that if they are contested, they will be confirmed by authorities.	Legal-institutional land tenure security
(Robinson et al., 2018)	Land tenure security can be seen as the trust or belief (real or perceived) of a landowner that these agreed rights will be respected and defended by society.	Social land tenure security

Table 1. *Cont.*

Authors and Date	Definitions	Focus
(Fanadzo and Ncube, 2018)	Security of tenure is the individual's perception of his or her rights to a parcel of land on a continuing basis, free from taxation or interference from outside sources, as well as the ability to reap the benefits of labor or capital invested in that land, either in use or upon alienation.	Legal-institutional land tenure security
(Doss and Meinzen-Dick, 2020)	Land tenure security includes the completeness of the bundle of rights, duration, robustness, and individual or shared rights.	
(Keovilignavong and Suhardiman, 2020)	Land tenure security concerns not only how to secure rights to access, use, and own land but also how these access and ownership rights are protected and enforced.	Legal-institutional land tenure security
(Singirankabo et al., 2022)	LTS includes extends to the cases where there is no dispute reported; the household makes decisions on the farmland use themselves, on crops to cultivate, and access to credit	Social (peaceful use) land tenure security

These conceptualizations of LTS are focused on the formalization of the rights (property/transfer, use, or access rights). These definitions were found to have limits, mainly when the research setting aims to understand LTS in a rural context. They are driven by the capitalist orientations supporting the positive link between land rights formalization and investments [2,21,22]. Formalizing a full right for an individual or group at the expense of others may create more tenure insecurity [9]. As reported by [9], documenting ownership in the name of the male household head may make his rights more complete at the expense of his wife, inducing mistrust and destabilization of the household.

Peace within the social arena induced by the land governance system is an important dimension to consider in achieving land tenure security. The conceptualization of the LTS must strongly consider the context and must exceed the simple formalization of rights. In the current context of increasing land conflicts in all their forms, leading to social and food insecurity, land tenure governance approaches must contribute to establishing a climate of social peace. Singirankabo et al. [23] mentioned that the LTS must eliminate social tensions and improve decision making at the level of vulnerable groups. In the agricultural context, Ouedraogo [24] states securing the land means putting the farmer in a situation of peaceful land use while guaranteeing the farmer the possibility of profiting from the land both in work and money. Socioecological challenges such as climate change, increasing social inequalities, insecurity, etc., must be at the heart of land governance approaches to contribute to global changes [25].

Recent research emphasized the need to involve conservation and environmental issues in the land tenure system to achieve sustainable development. This aspect is usually overlooked in land governance systems and other contexts, or it is addressed separately. The impacts of sustainable land management programs may have more significant impacts when combined with the mechanism of land tenure security. For instance, farmers are willing to invest in sustainable land management practices when their land rights are secure [1,12,26,27].

Land conservation represents the combination of land use and management methods that prevent soil degradation by natural or human factors [28]. Continuous exploitation of the land leads, in the long term, to its degradation, with the corollary decrease in crop productivity. The decline in soil fertility is one of the major constraints on farms in terms of improving productivity in SSA, leading to strong demand for land and natural resources [29–31]. This is a source of population migration and land conflicts [32,33]. However, several studies have mentioned the lack of land tenure security as the major factor limiting the adoption of sustainable land management practices [12,27,34]. Indeed, land conservation appears to be an indispensable element to be considered in the operationalization of land tenure security.

3. Methodology

3.1. Study Area

The research is conducted in four communes in Borgou that have benefited from both land tenure security approaches evaluated: rural land plans (RLP) and systematic cluster approach (SCA). These are the communes of Bembéréké, Sinendé, Tchaourou, and Kalalé. RLPs and SCA were implemented between June 2017 and March 2021 and May 2019 and June 2022, respectively. The aim of the research is not to compare but to understand the contributions of each approach to land tenure security in its implementation zone. To this end, the communes with two villages in which each approach was implemented were identified. In total, 16 villages are involved in the data collection (Figure 1).

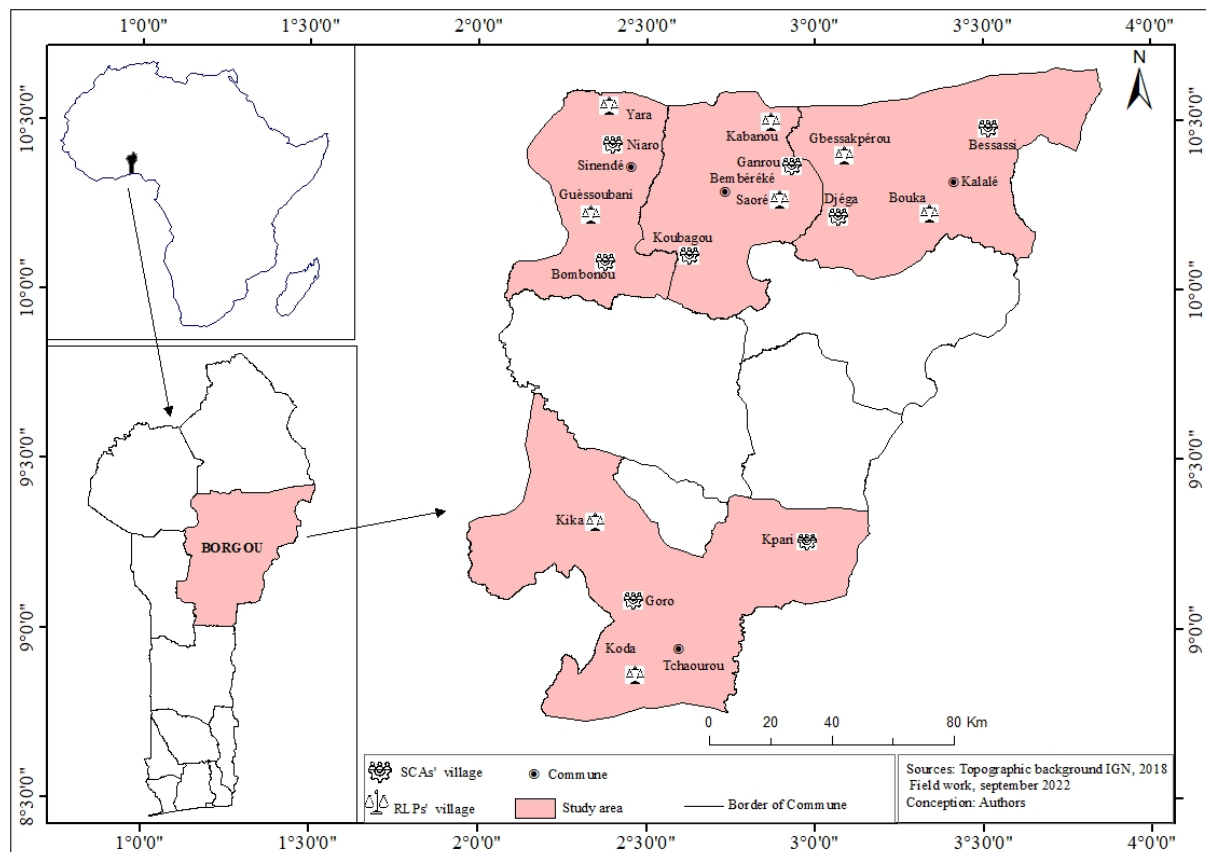


Figure 1. Presentation of research areas.

3.2. Data Collection and Observation Units

Data were collected in two phases. The first phase consisted in identifying the main factors/dimensions to be considered in rural land tenure security. The second phase allowed assessing the contributions of the two approaches regarding the different factors/dimensions identified from the perceptions of communities.

3.2.1. Identification of the Main Dimensions of Rural Land Tenure Security

This phase used focus group discussions and unstructured individual interviews with key informants. These are farm households who are the direct beneficiaries of a land tenure security approach, development agents, and members of Local Land Management Institutions (LLMI), including Conciliation Court CC (locally called Tribunal de Conciliation TC), Village Land Management Section VLMS (locally called Section Villageoise de Gestion Foncière SVGF), and Land Management Commission LMCo (locally called Commission de Gestion Foncière CoGeF).

One focus group discussion took place at the village. The average number of participants per focus group discussion was 12, and the average age was 46. The average participation rate of women was 38%.

The individual interviews included a total of 91 people in the four communes. This size is defined by the semantic saturation, which varied from one commune to another, ranging from 18 (in Bembereke) to 27 (in Kalalé). These interviews were supplemented by interviews with land experts, land lawyers, sociologists, geographers, and agronomists. Twelve individuals from this category are involved in this research. The objective is to diversify the sources of information in order to consider the most representative factors of land security as perceived by the actors. Stakeholders are asked to mention the conditions or factors they believe must be met to achieve land tenure security.

3.2.2. Assessment of the Effects of Each Approach on Land Tenure Security

This phase consisted in evaluating the contributions of the RLP and SCA to the various factors of land tenure security identified in the first phase. This assessment is conducted through individual surveys using a questionnaire. The surveys involved 742 farm households represented by their respective heads. The sample size was surveyed using survey Monkey at a 95% confidence level and a 5% error margin (Table 2).

Table 2. Survey sample size calculation.

Study Areas	Household (Population) Size	Sample Size
RLP villages	9334	370
SCA villages	11,293	372
Confidence level	95%	95%
Margin of error	5%	5%

They were selected at random from the list of beneficiaries obtained from the State and Environmental Affairs Department (SADE) of the commune and the project of Responsible Land Politics Promotion (Projet de Promotion d'une Politique Foncière Responsable, ProPFR/GIZ).

For each factor of land tenure security, the measurement items are the descriptors from the individual and group interviews conducted during the first phase (Table 2). For example, for the factor “operationalization of LLMI”, the respondent is asked what he thinks about the following statement: the implementation of the RLP/SCA allows the set up of local land management institutions. Their response is from a Likert scale: 1 = totally false, 2 = false, 3 = don't know, 4 = true, and 5 = totally true.

3.3. Data Analysis

3.3.1. Analysis of Qualitative Data

The interviews conducted during the first phase were transcribed. The transcriptions were made as the data collection process was going on to capture the different explanations of the actors and especially to follow up on the progress of ideas. The transcriptions were imported into the Atlas.ti version 22 software. The transcribed texts were analyzed to highlight the primary concepts or descriptors used by actors to describe the core factor to be addressed for securing rural land tenure. These descriptors were then codified according to their theoretical orientations, based essentially on the literature. Finally, the theoretical concepts identified were grouped into factors/dimensions that characterize rural land tenure security.

3.3.2. Analysis of Quantitative Data

Stakeholders' perceptions of land tenure security were ordinal variables and were therefore analyzed using nonparametric tests. The aim was to identify which of the effects were significantly perceived by the majority of actors in each zone. To this end, the nonparametric Friedman test was used to determine the average ranks of the factors/dimensions

in each context based on actors' perceptions ranging from 1 (totally false) to 5 (totally true) [35]. The significance of the test was assessed through the chi-2 value and p-value, which must be less than 5% [35]. The importance of positive perceptions was assessed through the values of the three quartiles Q1 (25%), Q2 (50%), and Q3 (75%). When Q1 was also 4 for a factor X, it means that at least 25% of the perceptions were below 4. In other words, 75% of the perceptions were greater than or equal to 4, which means that at least 75% of the actors have perceived the positive effect/contribution of the related approach on this specific factor X.

The reliability of the factor measurement items was assessed using Cronbach's Alpha as a prelude to Friedman's nonparametric test. Measurement items are reliable and provide a good measure of a factor when Cronbach's Alpha is close to 1 [36]. Table 3 presents the results of the measurement reliability analysis. The factors used for the Friedman test are the average of its measurement items.

Table 3. Reliability of measurement items.

Land Tenure Dimensions	Items	Cronbach's Alpha, SCA Zone	Cronbach's Alpha, RLP Zone
Property right	<ul style="list-style-type: none"> ■ Recognition of the property document by the microfinance institutions ■ Registration of land rights ■ Holding of a non-contestable document ■ Holding of document facilitating the transfer ■ Holding of a property document 	0.961	0.651
Operationalization of Local Land Management Institutions (LLMI)	<ul style="list-style-type: none"> ■ Respect for the LLMI installation norms ■ LLMI Equipment ■ Trust in LLMI ■ LLMI implementation ■ LLMI training ■ LLMI operation 	0.950	0.608
Land management norms	<ul style="list-style-type: none"> ■ Existence of laws on land tenure ■ Good dissemination of land tenure laws ■ Good knowledge of land laws 	0.960	0.569
Land Information System (LIS)	<ul style="list-style-type: none"> ■ Easy access to land information ■ Digitization of land information ■ Registration of boundary coordinates 	0.969	0.935
Social peace	<ul style="list-style-type: none"> ■ Registration and management of conflicts ■ Recognition of the social legitimacy of land ■ Consideration of socio-professional categories in FGLI ■ Consideration of customary practices of land tenure ■ Awareness-raising for conflict prevention 	0.918	0.563
Gender mainstreaming	<ul style="list-style-type: none"> ■ Gender-sensitive process ■ Promotion of gender-based access to land ■ Securing pastoral land tenure ■ Guaranteed access to vulnerable groups 	0.945	0.614
Land conservation	<ul style="list-style-type: none"> ■ Conservation of resources on the parcel ■ Maintenance of soil fertility ■ Respect for agricultural and pastoral areas ■ Development of sustainable land management practices ■ Promotion of sustainable land management practices * 	0.887	0.596
Use right	<ul style="list-style-type: none"> ■ Promotion of delegated usage rights ■ Recognition of delegated usage rights by microfinance institutions ■ Recognition of delegated usage rights by LLMI ■ Formalization of delegated usage rights 	0.649	0.887
Access right	<ul style="list-style-type: none"> ■ Regulation of land commodification ■ Combating hoarding of agricultural land ■ Regulation of large-scale foreign investment 	0.962	0.676

* Item deleted to improve Cronbach's Alpha value.

4. Results

4.1. Main Dimensions of Rural Land Tenure Security

A total of nine dimensions emerge as main elements of rural land tenure security (Figure 2). These are the existence of land tenure norms/laws, functioning of local land management institutions, ownership rights, access rights, use rights, the existence of land

information system (LIS), social peace, gender mainstreaming, and land conservation. Figure 2 shows the descriptors used by actors to characterize land tenure dimensions. Two groups of rural land tenure security emerge based on their theoretical orientations: legal-institutional security and socioenvironmental security.

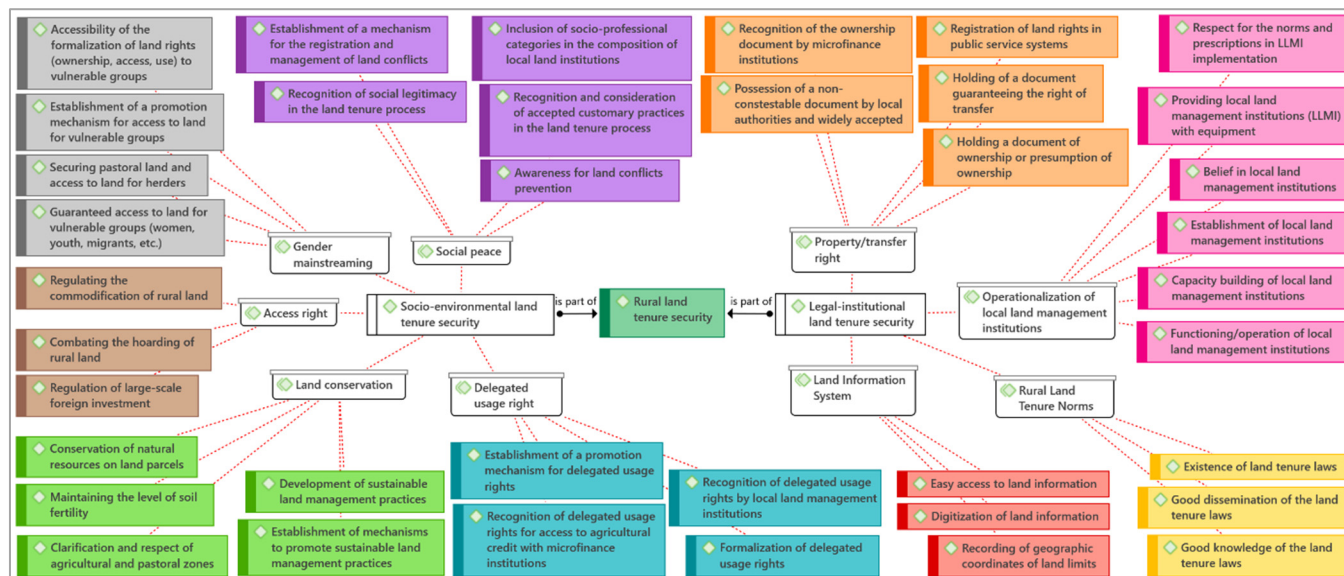


Figure 2. Main factors/dimensions of rural land tenure security according to stakeholders.

4.2. Legal-Institutional Security of Rural Land Tenure

Institutional security refers to the norms and all the legal measures that must be operationalized in order for the community to have peace of mind in the use of rural lands. Land tenure norms, ownership/property rights, local land management institutions (LLMI), and the land information system (LIS) are the main factors leading to the legal-institutional security of rural land. Land tenure norms refer to the existence of a law on rural land governance. The law content must be disseminated to promote its appropriation and recognition by the community. By knowing the land law, the community can avoid any conflict issues in order to limit the sanctions provided by the law, which leads to land security for all (Box 1). Based on this perception, there is rural land tenure security when land norms/laws exist and are appropriated by the community.

Box 1. Existence and recognition of land tenure law as a dimension of security.

There is no land tenure security when the population does not even know if there is a land tenure law. In my opinion, every agricultural household must have the key information on the land code, at least what they need to carry out their agricultural production activity and secure their investments. Any mechanism of land securitization must disseminate the land law, otherwise, the problems will always remain

Source: CoGeF President of N'Dali, February 2022.

Land tenure security requires the operationalization of local land management institutions (LLMI). The main mentioned local institutions are Conciliation Court (CC), Village Land Management Section (VLMS), and Land Management Commission (LMCo). The establishment, equipment, and training of the LLMI are fundamental to achieving rural land tenure security (Box 2). They facilitate the provision of information on land tenure, conflict prevention, and resolution. In the Beninese context, these institutions are legally prescribed but are set up in the majority of villages.

Holding land tenure rights has also emerged as a factor leading to legal and institutional security in rural land tenure. Property rights must be registered, and title deeds must be issued to owners or presumed owners. The titles issued must be recognized and

accepted by all public and private institutions. In general, the possibility of obtaining agricultural credit from banks and microfinance institutions (MFIs) is frequently mentioned by the actors interviewed.

Box 2. Property rights and the functioning of LLMI as a dimension of land tenure security.

1. You are not safe when you cannot show a piece of paper that proves the land belongs to you. Simple recognition by the community is not enough. For example, since we did the RLP (Plans Fonciers ruraux) in our village (Matchorè village), no one, at least not me, has been able to get a paper. So it's like we didn't do anything, and we are not safe.
2. I think that conflicts have decreased in our commune in recent years. But if we could establish SVGFs in all the villages and train them adequately, I think we would no longer have any cases of land conflicts. There will be land security for the whole community when all the institutions involved in land management are set up and working. At least the SVGF and the conciliation courts
Source: 1: Focus group discussion extract with key informants, Kalalé, February 2022: 2: President of CoGeF, Nikki, February 2022.

Furthermore, land tenure security is effective when a Land Information System (LIS) is available, viable, and easily accessible to community. The collection and recording of geographical coordinates of the parcel boundaries, the matriculation of parcels and related data digitization are empirical descriptive elements put forward by the actors. In particular, the LIS must reconcile land, agricultural, and pastoral information to contribute to sustainable resource management and harmonious territory. Information on the property, access, and use rights of rural land becomes easier to obtain for the population, providing a certain security of tenure to the population who can consult this source when needed (Box 3).

Box 3. Land information system as a dimension of land tenure security.

1. To get information about a parcel, you have to go to the Town Hall (Mairie in french). Sometimes they tell you that the computer is broken, the data is lost, there is no connection, etc. There is always a reason and finally you do not get the information you are looking for. Normally, all registered parcels should be recorded in a database, consultable by the population, but this is not always the case. This will reduce conflicts between actors. Sometimes the same parcel is allocated or sold to more than 5 people because the information is not systematized
2. it is necessary to digitize all the information concerning rural lands in each commune. For example, boundaries, types of resources, characteristics of the area, possible crops, crops to be avoided, grazing areas, transhumance corridors, public and collective areas, etc. All of this should be available in a file accessible to all
Source: 1. E. B. DANGUI, Land Technician at the NGO INUDE, on behalf of the ProSOL/GIZ project in Sinendé, February 2022.; 2. S. GOUNOU, Land assistant at Mairie of Kalalé, February 2022.

4.3. Socioenvironmental Rural Land Tenure Security

The socioenvironmental dimension of land tenure security aims to take into account vulnerable groups and land conservation in the process of securing land. This category of dimensions assumes that rural land users are vulnerable, as well as the rural land itself. This category includes land access rights, use rights, gender, social peace, and land conservation.

Through land access rights, stakeholders support that land tenure security should limit the hoarding of agricultural land and regulate large-scale foreign investment. These practices disadvantage vulnerable groups and landless local investors. Similarly, land tenure security must include mechanisms to facilitate, register, and formalize delegated usage rights. The key descriptors from actors include the establishment of mechanisms for the promotion of use rights, formalization of use rights, recognition of use rights by local land management institutions as a land act, and recognition of use rights for access to agricultural credit from banks and microfinance institutions.

Social peace is revealed as an important dimension of rural land tenure security according to the interviewed community. It reflects the capacity of the security process to

prevent and resolve land conflicts in rural areas. The main descriptors are raising awareness for the prevention of land conflicts, the existence of mechanisms for the registration and management of land conflicts, and the participation of socioprofessional categories in the constitution of the LLMI and decision making. This dimension also includes popular acceptance and social legitimacy in land tenure security.

The “gender” dimension of land tenure security aims to take into account vulnerable groups, in particular women, youth, migrants, transhumant herders, etc., in the process of formalizing rights (ownership, access, and use rights). It also integrates the establishment of mechanisms to promote access to land for vulnerable groups, securing pastoral land, etc. (Figure 2).

Finally, it appears that securing rural land tenure must integrate environmental issues through the conservation of agricultural potentiality of rural land. This dimension is important because the decrease in arable land, increase in food demand, and the impact of climate change results in increased pressure on rural land, which becomes more and more vulnerable. This dimension leads to the conservation of land resources on the parcels, the preservation of soil fertility levels (agricultural potentiality), and the clarification and respect of agricultural and pastoral zones. It allows for the development and promotion of sustainable land management practices. The Box 4 below presents some excerpts from actors’ comments explaining these land tenure dimensions.

Box 4. Land tenure dimensions.

Extract 1:
“Land tenure security as observed in our communes does not promote social peace. In rural areas, there is a whole social harmony around a piece of land: the presumed owner (generally an heir or the first occupant), the users who can be relatives, friends, migrants, herders, etc.). All of these people work in perfect harmony and it is sometimes difficult to identify the true presumed owner without deep immersion in the society. As soon as the presumed owner decides to take a land act/document for his or her parcel, the social harmony between the group takes a hit. The users feel threatened. They feel that the owner no longer trusts them. Psychologically, they begin to distrust each other, they no longer feel part of the group, which generally leads to the abandonment of the use. For example, if it is a farmer who feels threatened, he might also revolt. You will just find that the parcel is regularly devastated by without knowing the real reason and the authors.”
Extract 2:
“Before starting the land registration procedure, the presumed owner must inform the users of his land and register them as well. For the others, he lets you use his land to help them keep it. Since the user is there, no one can take the land from you. But the day the alleged owner gets his land deed/document, he either pushes you away or starts setting conditions that are hard to meet. If there was a way to secure the land tenants, it would be a great relief for us. Because of this, there are investments that tenants cannot make, in order to reduce the risks.”
Source: 1. F. Bossou, land expert, Cotonou, May 2022; 2. Issifou TCHANASSI, from Ouaké, a landless farmer in the commune of N’dali, February 2022.

4.4. Contributions of SCA and RLP to Rural Land Tenure Security

Table 4 presents the means, quartiles, and average ranks of rural households’ perceptions of the contribution of SCA and RLP approaches to the rural land tenure dimension security.

Table 4. Contributions of SCA and RLP approach to rural land tenure security.

Dimensions of Rural Land Tenure Security	Rural Land Plan (RLP) Area					Systematic Cluster Approach (SCA) Area				
	Mean	Q1	Q2	Q3	Rank Mean	Mean	Q1	Q2	Q3	Rank Mean
Ownership/Property right	3.0	3	3	3	5.7	3.9	3	4	5	5.4
Operationalization of LLMI	2.7	2	3	3	4.0	3.8	3	4	5	5.4
Land norms/law	4.1	4	4	4	8.8	3.9	3	4	5	5.9
Land Information System (LIS)	3.4	3	3	4	6.3	3.4	3	3	4	3.6
Social Peace	2.7	2	3	3	4.1	3.8	3	4	4	5.4
Gender	2.9	3	3	3	4.9	3.5	3	3	4	4.2
Land conservation	2.4	2	2	3	3.0	3.5	3	3	4	4.2
Delegate usage right	2.5	2	3	3	3.8	4.4	4	4	5	7.1
Access right	2.6	2	3	3	4.2	3.4	3	3	4	3.8
Khi-square			771.754					476.002		
Ddl			8					8		
P			0.000					0.000		

In the RLP area, the first quartile for the “land tenure norms” dimension is 4. This means that 25% of stakeholders’ perceptions of the contribution of RLP to this dimension are below 4 (4 = true), or 75% of responses are at least 4. Therefore, at least 75% of households have positive perceptions of the contributions of the RLP approach to the “land tenure norms”. As a result, the main effect of the RLP approach implementation perceived by the population is the operationalization of land law (locally called Code Foncier et Domanial). This law stated in article 193 the necessity to register all the rural land. Then, the implementation of the RLP approach contributes mainly to the legal-institutional rural land security (mean rank is 8.8). In addition, 25% of households highlighted the contribution of the RLP approach on the “land information system” dimension (Q3 = 4 and mean rank = 6.3; cf. Table 4).

In the SCA zone, a diversity of contributions to rural land security emerges according to stakeholders’ perceptions. Q1 = 4 for the “delegate usage right” dimension (Table 2), meaning that at least 75% of households perceived that the SCA contributed to improving the delegate usage rights. This is the most perceived effect by households from the implementation of the SCA. In addition, Q2 = 4 respectively for the “Ownership/Property rights”, “LLMI operationalization”, “Land tenure norms” and “Social peace” dimensions, meaning that at least 50% of households perceived the positive effects of the implementation of SCA on these dimensions.

It appears that the implementation of SCA contributes to the achievement of the two categories of land tenure security: the legal-institutional rural land security and the socioenvironmental land security (Figure 3). The legal-institutional rural land security is achieved through three dimensions of land tenure norms, ownership/property rights, and the operationalization of LLMI. The socioenvironmental rural land security is achieved through the promotion of “social peace” and “delegate usage right” dimensions.

The implementation of the GSA has also led to the improvement of property rights, the operationalization of FGLI, land tenure standards, and the establishment of social peace through the prevention and resolution of land conflicts.

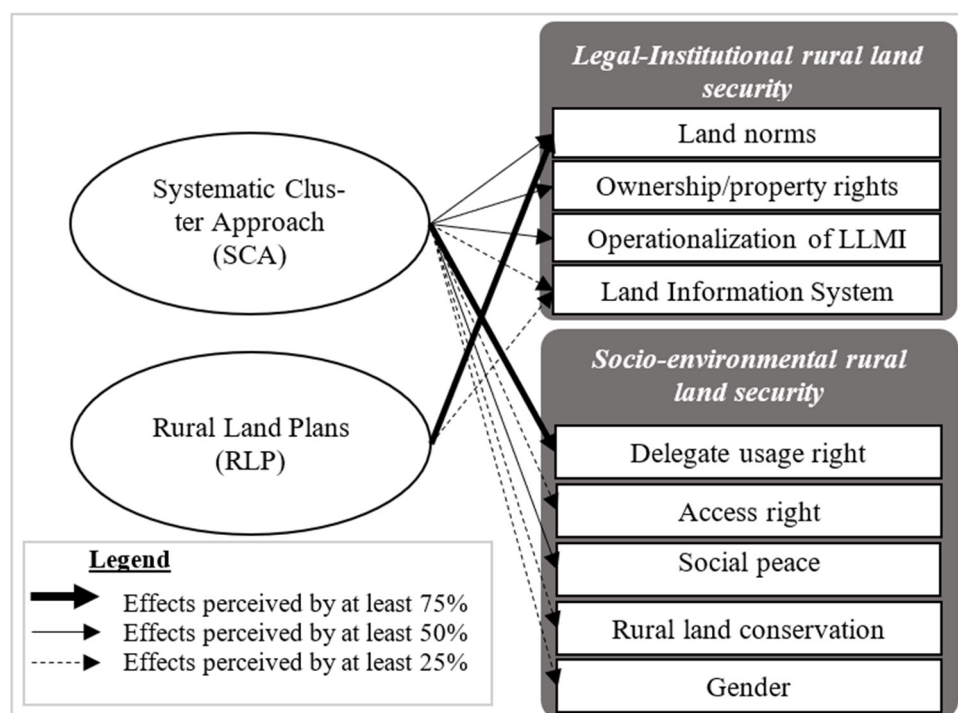


Figure 3. Contributions of the SCA and RLP approach to land tenure security.

5. Discussion

Our findings argue that land tenure security is holistic, including nine interconnected factors: land tenure norms, property, use, and access rights, land information system, operationalization of FGLI, social peace, land conservation, and gender mainstreaming. The literature on land governance has so far been focused mainly on property, access, and use rights to understand land security. Land tenure security generally focuses on ownership/transfer, access, and use rights [24,37–40]. Despite the consideration of access and use rights, there is a strong simplification of land security in favor of private property, which facilitates land markets development, land grabbing, conflicts, and overexploitation of land [15,41,42]. Land tenure security oriented towards the generalization of private property constitutes a threat to the survival of traditional livestock farming. For instance, ref. [43] reported that the concentration and privatization of land through the formalization of individual land rights for the benefit of farmers constitutes a risk for herders because some farmers developed a logic of land capture in pastoral areas. Therefore, land security does not affect the rights of herders over land resources but rather strengthens the appropriation rights of farmers and makes herders more insecure, a source of social insecurity. For sustainable land governance, land tenure has to move forward with a local self-administration by considering the local context. Current land policies in West Africa are similar to land colonization because they focus on Western ideologies fostering private property.

In this sense, ref. [44] argues that land tenure security is generally perceived in relation to an individual (a land owner) but not in relation to the security of the resource itself and its users. Land tenure security can be conceived and assessed in relation to a specific natural resource or resource ecosystem, a person, or a social group [12,30,44–46]. This puts socioenvironmental issues at the heart of land tenure security. This is what our findings revealed by showing that land tenure security must consider both socioenvironmental security (social peace, access, and use rights, gender, and conservation) and legal-institutional security (land tenure norms, property rights, local land management institutions, and land information systems).

The findings also showed that the implementation of land tenure security mechanisms is mainly focused on legal-institutional security through the registration of property rights.

In a rural context, this does not contribute to land tenure security for vulnerable groups, particularly women, migrants, herders, and youth. Thus, ref. [44] has clarified that the best approach that contributes to land tenure security is one that privileges the sociocultural realities of communities. It is in this respect that Benin's 2013 land and property code (revised in 2017) was innovated by recognizing the so-called customary rights. Ref. [20] also recommended a more inclusive model of land tenure security for vulnerable groups in sub-Saharan Africa. In the Beninese context, the strong focus of RLP on legal-institutional security constitutes its failure [47]. From a sustainable development perspective, land tenure management systems need to focus on both categories of land security dimensions (legal-institutional and socioenvironmental securities) in order to achieve more responsible land tenure governance. Rural smallholders will enjoy high levels of land security when these elements are in dynamic balance [12,20].

6. Conclusions and Perspectives

Two main research questions motivated this research. First, how do actors perceive rural land tenure security? Second, what are the effects of the main approaches to land tenure security as perceived by the communities?

It appears that land tenure security is achieved when it combines legal-institutional security and socioenvironmental security. The main dimension of legal-institutional security are land tenure norms, property rights, local land management institutions, and the land information system. Socioenvironmental security includes access and use rights, social peace, gender, and conservation.

The evaluation of the two land tenure security mechanisms used in Benin has shown that their contributions to land tenure security are still mixed. The RLPs were found to be a legal-institutional oriented approach through the operationalization of land tenure norms and the land information system. This is the main reason for the low appropriation of this approach at the community level. The systematic cluster approach takes into account several dimensions of each form of land tenure security. Legal-institutional security is observed through land tenure norms, property rights, and the operationalization of land tenure institutions. Socioenvironmental security is achieved through use rights and social peace induced by the reduction in land conflicts.

The results of this research contribute to the theoretical knowledge on the conceptualization of land tenure security and the determinants of the efficiency of rural land tenure security approaches. It emerges that rural land tenure security, in addition to access, use, and ownership rights, must include the conservation of land itself, which is perceived as an increasingly scarce and threatened resource. The efficiency of land tenure mechanisms is significantly determined by the simultaneous consideration of legal-institutional and socioenvironmental security.

Although both aspects of land tenure security are addressed by the systemic cluster approach, efforts are still needed in its implementation to help integrate all dimensions of land tenure security as perceived by the community. Future research can assess the contribution of this approach to pastoral land tenure security more specifically. Finally, more research can address the community or lineage lands, which are increasingly being individualized and privatized as a result of certain land tenure security approaches.

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