



Diagnosing the Urban Expansion-Land Conflict Nexus in Bamenda II, Cameroon

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

Urban growth in the context of sub-Saharan Africa generally introduces attendant effects. Some of these include land use conflicts, pressure on municipal services and the challenges of urban poverty. While these issues have received significant attention, an issue which seemed to have eluded geographical literature, at least in the context of Bamenda, centres on the extent to which urban expansion triggers land conflicts. This paper analyses the trend of urban expansion in Bamenda II, and explores the relationship between urban expansion and land conflicts. A total of 80 households were randomly sampled, complemented by participant observation and focus group discussions. The Pearson's Correlation Coefficient revealed a positive correlation between urban expansion and land conflicts. It is therefore necessary for policy interventions to regulate the pace of urban expansion with a view to preserving the last vestiges of natural and agricultural space. Further conflicts could be avoided through a clear demarcation of boundaries, including the facilitation of the process of acquiring land titles. This will reduce the cases of land conflict and haphazard urban expansion.

Keywords: Land; space; competition; boundary demarcation; land use; Bamenda.

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1. INTRODUCTION

Land is a natural resource, which is indispensable to man's survival and development. This resource has witnessed increased scarcity, with increasing human population especially in urban areas [1]. Population increase has resulted in serious competition for land, particularly in urban and peri-urban areas where there is an ever growing population [2]. Scholars argue that the wealth of most countries is mainly concentrated in urban areas. This attracts the rural population and causes an imbalance in the spatial growth between the urban and the rural areas. This results in the intensification of socio-economic activities, increases the rate of energy consumption and the exploitation of natural resources. Conflicts related to land and claims on land are common, with potentially negative effects for both urban authorities and residents. This is particularly true for low income communities which remain vulnerable in the current dispensation [3,4]. In some cases, land conflicts might escalate to violence and urban insecurity. For example, in Uganda, Burundi and many African countries, conflicts are triggered by land scarcity Deininger and Castagnini, [5]. Land remains a key resource in Cameroon just like other African countries. Rapid and uncontrolled urban growth, which extends at the peri-urban fringes, makes the acquisition of land a necessity. From 1976 to 1988, the country experienced a rate of urbanization, which grew from 28.5% to 40.4% [6]. Current estimates stand at around 45%. The most significant rates of urban growth are witnessed in the cosmopolitan towns of Yaoundé and Douala; Here, disputes over access to land in these towns are relatively common. Conflicts manifests through claims and clashes over land, boundary demarcation issues among others. Bamenda II has witnessed a series of land conflicts – the extent to which this is triggered by urban expansion still needs to be ascertained.

1.1 Statement of the Problem

Population growth and rapid urbanization remains a daunting challenge in the 21st Century. As indicated in several UN-Habitat reports [7,8], we are living in an urban century. The pace of rapid urban growth has been phenomenal as cities gain an average of 5 million residents per year. Urban expansion – triggered by population growth has introduced several challenges, some of which include housing problems, land use

change, the colonisation of wetlands, poor waste disposal facilities and the rise in urban poverty. These problems have received sufficient attention. However, an issue which seemed to have eluded geographical literature, at least in the context of Bamenda, centres on the extent to which land conflicts are linked to urban expansion. Put succinctly, there are growing land conflicts in Bamenda II, but the extent to which such conflicts are triggered by urban expansion remains unknown. To clarify this nuance this paper analyses the trend of urban expansion in Bamenda II, and explores the relationship between urban expansion and land conflicts. Urban expansion has seemingly witnessed an upward trend, by about 5% compared to the situation in 2000. Expansion is mirrored through population growth and the expansion of settlements. Urban expansion has therefore colonised patches of lands which were products of leap-frogging development, thereby reducing the available land for diverse activities. In the face of these, the scarcity of land has now triggered conflicts which manifest through the number of complaints on land issues at the quarter level, the traditional council and the courts. In this regard, land use plans have been elaborated and implemented in order to effectively plan the urban areas. Despite the establishment of these different entities to handle land disputes, the balance sheet regarding how effective and efficient these measures are remains unclear. This study seeks to examine the trend of urban expansion, the relationship between urban expansion and urban land conflicts in Bamenda II. The central hypothesis is that with growing urban expansion, land conflicts have been triggered in Bamenda II.

1.2 The Theoretical Framework

Theory of Environmental Scarcity by Thomas Homer Dixon [9] explains how environmental scarcity will have profound social consequences contributing to conflicts. The author defines environmental scarcity as the declining availability of renewable natural resources such as land, forest and water. This scarcity arises because of three main causes: Demand-induced scarcity (is caused by an increase in population resulting in an increase in consumption levels. Supply-induced scarcity (triggered by environmental degradation decreasing the overall amount available to each individual), and Structural scarcity (caused by an unequal access or an unequal distribution of resources in a given society). In some cases, the three sources of

environmental scarcity often interact giving rise to resource depletion and or ecological marginalisation. Population growth and the expansion of urban areas tend to trigger land scarcity issues leading to conflicts, which manifest in several forms. This represents the crux of the paper.

2. RESEARCH METHODS

2.1 Location of the Study Area

Bamenda II subdivision is one of the municipalities of the Bamenda primate city in the North West region of Cameroon (Fig. 1). Bamenda II subdivision is located between longitude 10°08' to 10°20' East and latitude 5°55' to 6°10' North of the equator, it covers a surface area of about 165.605km², it covers a surface

area of about 165.605km². Bamenda II shares boundaries with the following villages; to the north by Nkwen, to the south East by Bamendakwe, to the south by Akum, Bali to the Southwest. The layout of this area is made up of a series of road networks linking other administrative areas in the region [10]. The carrying capacity was estimated at 140 persons per hectare of land suitable for development. The surface area was also estimated to be about 165.605. About 49% of the population consist of male and 51% represents the female population. Bamenda II is made up of both urban and rural communities. The urban population covers constitutes 85% while rural is estimated at close to 15% of the population. On this surface of land is a population composed four main Fondoms; Chomba, Mankon, Nsongwa and Mbatu (Table 1) with 128 quarters.

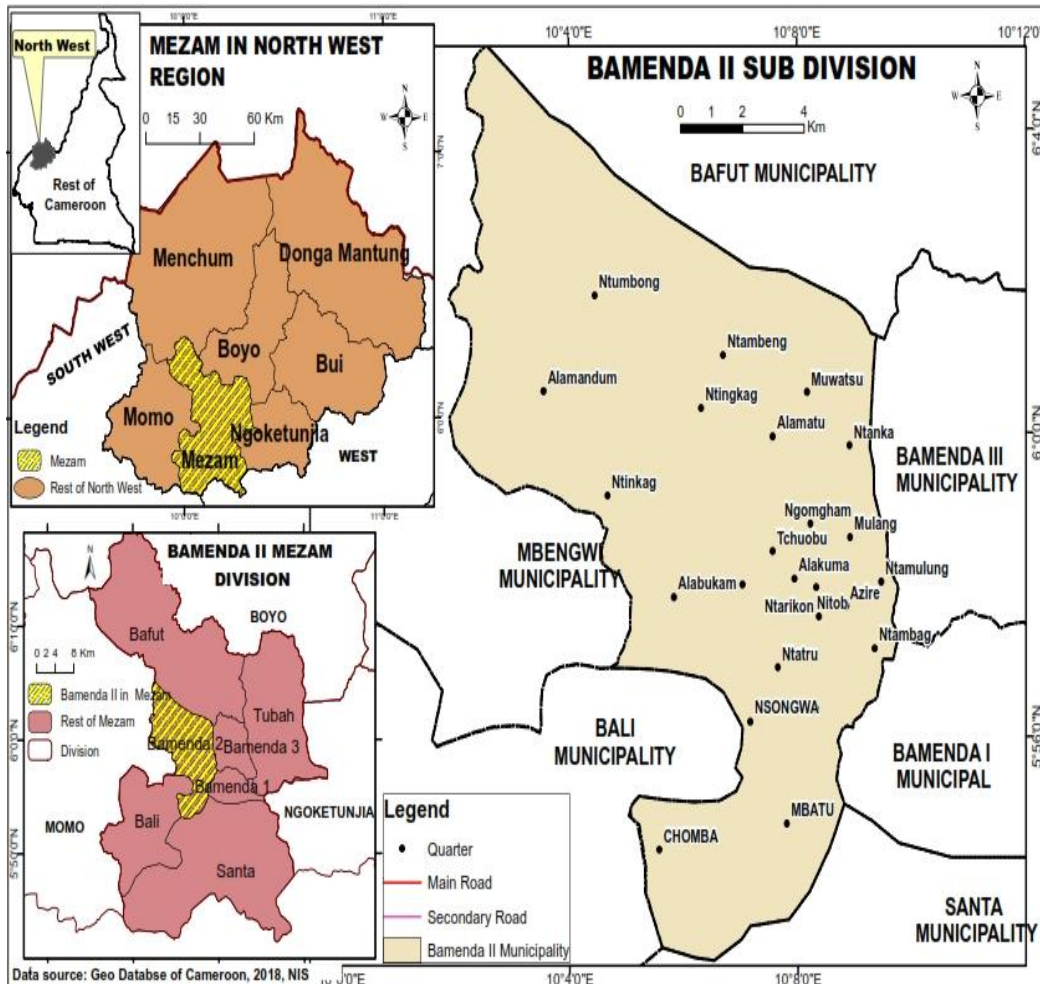


Fig. 1. Location map of Bamenda II
(Source: National Institute of Cartography, 2018)

Table 1. Population statistics of Bamenda II sampled villages

Village	Total Population
Mankon	195041
Nsongwa	3964
Mbatu	7000
Chomba	5551

Source: Bamenda II CDP, [10]

Mankon Fandom carries the highest population in the subdivision followed by Nsongwa, Mbatu and Chomba. Moreover, the population is not evenly distributed as the urban areas are more populated than the rural areas. Thus, three distinct population pattern can be identified as follows; densely, moderately and sparsely populated area. The subdivision of Bamenda II is one most densely populated municipality. This is as a result of the concentration of administrative, economic health and educational activities.

A series of methods were adopted for this study. The design for this research is a cross sectional study. It applied both quantitative and qualitative methods to establish the trend of urban expansion and its association with urban land conflicts. Also, instruments used in collecting data involved questionnaires, interview guides, focus group discussions (for primary data) and consultation of existing literature (for secondary data). The questionnaires were structured into 4 sections A, B, C and D based on the objectives of the study. Section A demanded the identification of respondent's demographic characteristics. Also, this section provided the respondents, social and economic characteristics that is their level of education, level of income and quality of homes. Section B of the questionnaire based on investigating the changing trends of urbanisation in Bamenda II urban area and the manifestation of urban land conflicts. This was done in order to meet the objective two of the study. Section C of the questionnaire focused on assessing or examining land conflict management and urban control measures. The target group for the study-involved quarters that were experiencing rapid expansion. This is because the study focuses on the trend of urban expansion and how it affects urban land conflicts. A random sample of 80 households was conducted. This was complemented by field observations.

Interviews were also used to obtain information from the Bamenda II Council and to the customary councils. The essence of the

interviews was to allow participants to provide rich, contextual description and information on issues related to urban expansion and land conflicts. The interviews enabled the respondents to express their views on the impacts of population with this area as well as the recommendations to reduce land conflicts and control urban expansion. Data collected from the field was summarized using descriptive and inferential statistics. Spatial analysis was performed with the aid of Arc GIS software. The descriptive statistics is presented in the form of tables, charts, frequencies, percentages, graphs and maps for clarity. The Pearson's correlation coefficient was used since it gives the possibility of comparing the relationship between two variables. It was used to show the relationship between urban expansion and land conflicts the degree of relationship between the two sets too variables is denoted by r which is the measure of strength of the linear relationship between the two variables denoted by X and Y. The Pearson's Correlation Coefficient formula is given as

$$r = \frac{N\sum XY - \sum X \sum Y}{\sqrt{N\sum X^2 - (\sum X)^2} \sqrt{N\sum Y^2 - (\sum Y)^2}}$$

- r= Pearson r
- $\sum X$ = the sum of the X-distribution
- $\sum Y$ = the sum of Y-distribution
- $\sum XY$ =the sum of the products of paired X and Y scores
- $\sum X^2$ = the sum of the squared score in X
- $\sum Y^2$ = Sum of the squared score in Y
- N = the number of paired X and Y scores.

The significance was tested at 0.5 to establish if there is a direct and significant relationship between the two variables, the independent variable (urban expansion) and dependent variable (land conflicts). The interpretations were made from the results gotten after calculation of obtained data. Content analysis was equally used to report the qualitative data. From the numbered responses, a frequency table was derived which was further represented in the form of charts and percentages.

3. RESULTS

3.1 Changes in Population and the Urban Space of Bamenda II

Bamenda II has experienced dramatic growth in its population and built up area in the last 20 years. The growth of this municipality comes

from the influence of infrastructural development and the presence of all the needed social amenities provided by the local government. The fact that Bamenda II is linked through tarred roads and secondary roads makes the subdivision accessible. People from the interior parts of Mbengwi, Chomba, Mbatu and Nsongwa migrate to add to the urban population. The diverse functions and services offered by the town attract not only traders, job seekers but equally people who acquire land for settlement. All these factors have gone a long way to increase the population of the subdivision as illustrated in Fig. 2. The town has recorded a rapid growth rate of 1.9% to 2.9% from 1985 to 2005.

This growth further translates to the spatial expansion of the municipality. The spatial extension of the city stretches over the four fondoms: Mankon, Chomba, Nsongwa and Mbatu (Fig. 3). From the Fig. 3, it is observed that in the year 1990, the built-up area of Bamenda II occupied just 8.77%, of the total surface area. The farmland covered 96.40% and grassland areas covered 11.91%. Gallery woodland (forest) occupied just 20.27 of the surface area and water course stood at 0.15.

However, between 1990 and 2000, significant changes were witnessed in terms of the expansion of the town. The expansion followed major entry and exit points, which are; Bali road, Mbengwi road and Bafut road. As urban expansion increased, land that was initially used for non-urban purposes such as agriculture and forestry, is transformed into residential, commercial and educational land uses. By 2000, the built-up area increased to 14.15% followed

by a corresponding reduction in agricultural land. During this period, the population growth rate stood at 2.5%. New quarters like Akumalam, Ntarikon, Ngomaham Nchobou were incorporated into the urban fabric. The provision of services and infrastructural facilities in the peri-urban areas has facilitated the transformation process. Facilities such as schools, daily market, electricity, municipal council, police post and health centres modified the landscape and extended the built-up area.

By 2020, the built-up area increased to 22.87%, while agricultural space further reduced (Fig. 5). The spatial pattern of the town is more of, the core-periphery pattern whereby the high and middle-income groups are concentrated in the central areas of the town while low-income groups live on the outskirts. With the rapid expansion of Bamenda II, several conflicts linked to land access and use were ushered in, as discussed below.

3.2 Urban Land Conflicts

Urban land conflicts here relate to the manifestation of multiple claims of land rights by two or more individuals on a particular area found either in the urban area or in the suburban area. In the case of Bamenda II, land conflicts between stakeholders usually manifest through court cases, boundary disputes and conflicting claims over access to land. Urban land conflicts occur in different form such as, boundary disputes, disputes arising from the multiple sale of land, inheritance disputes and land grabbing. Fig. 6 shows the different forms of urban land conflicts in Bamenda II.

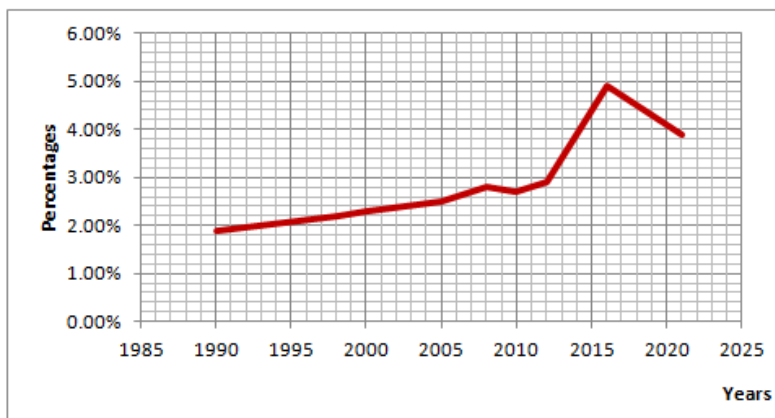


Fig. 2. Population growth from 1989 to 2020 in Bamenda II

Source: Fieldwork, 2021

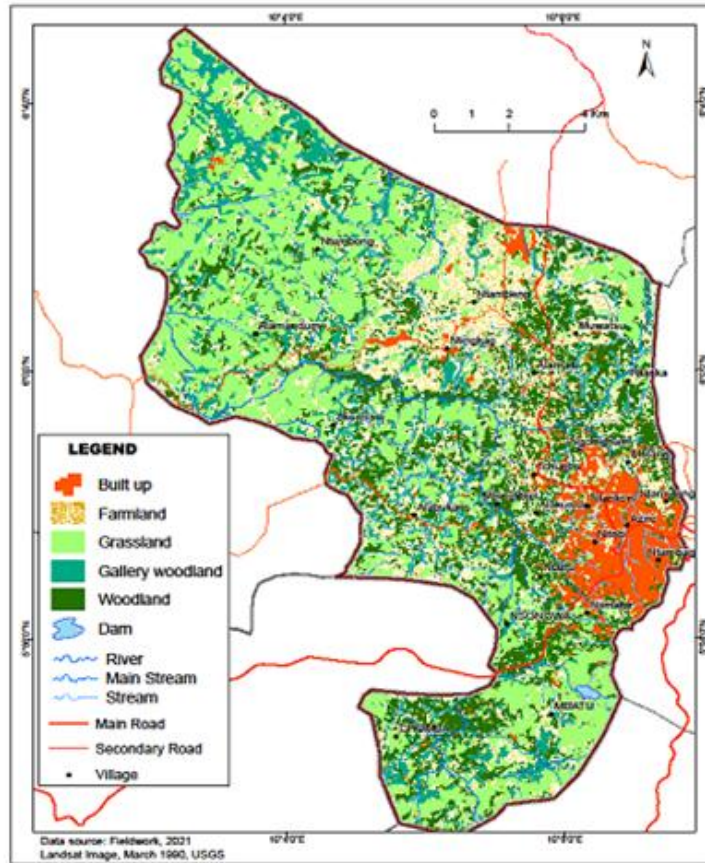


Fig. 3. Urban space of Bamenda II in 1990
(Source: National Institute of Cartography, 2018)

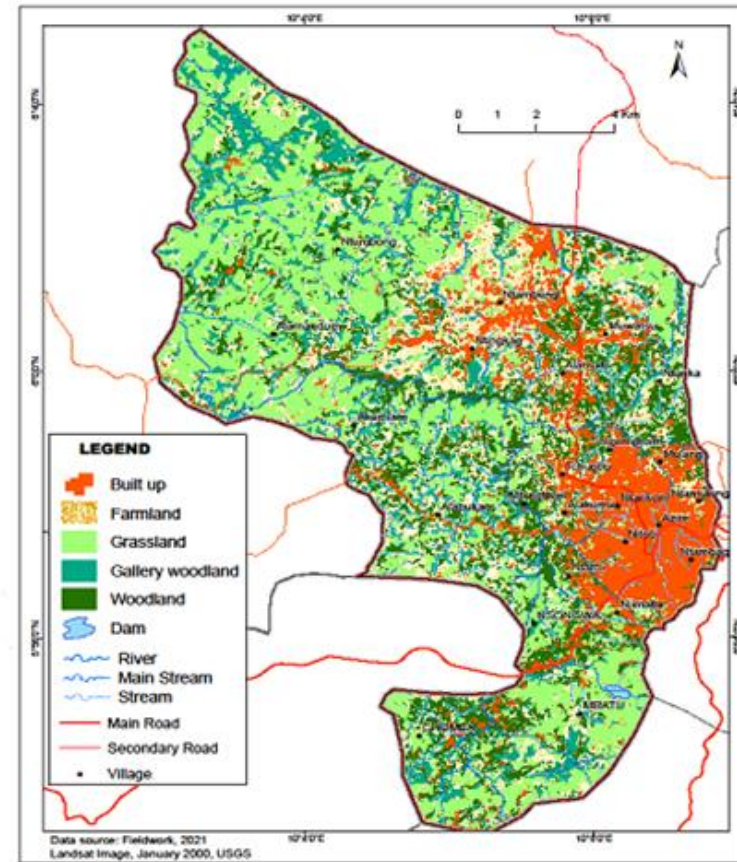


Fig. 4. Changes in urban space from 1990 to 2000
(Source: National Institute of Cartography, 2018)

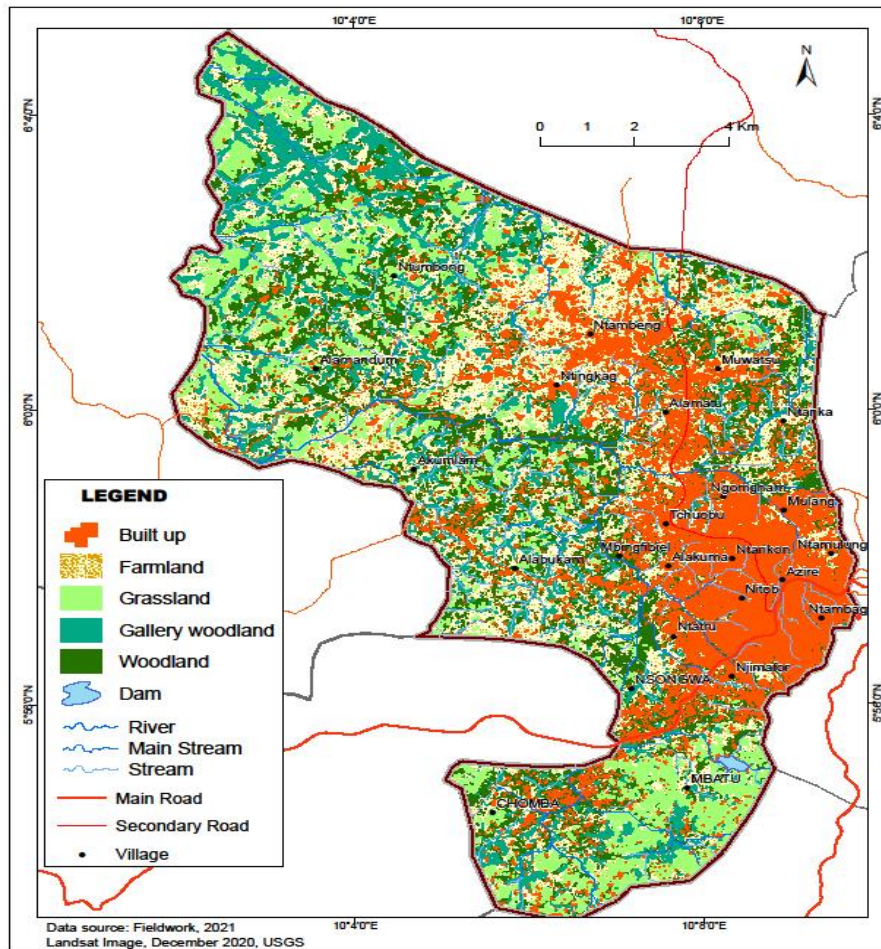


Fig. 5. Changes in urban space from 2000 to 2020

In Bamenda II, disputes over boundaries and inheritance accounts for 80% of land related conflicts while land grabbing and multiple sales dispute represent 20% of such conflicts. From Fig. 6, it can be deduced that cases of multiple or double sales of land is common in the suburban areas like Alakmatu and Muwatsu. Meanwhile few cases of double selling occur in the urban centre in the quarter of Mbingfibieh and Akumalam. The frequent occurrence of double sales of land in the suburban area is caused by the rapid urban expansion into quarters that were considered vacant. Boundary disputes is the most common form of urban expansion in the urban centres. This can be explained by the fact that the increasing population has created a condition where by the urban areas have exceeded their carrying capacities. In other words, the available land is not enough for the growing population as such people are forced to

encroach on other peoples' land. Boundary disputes are common in Atuaugh Nandang I and II, Atuafor, Alabukom, Alakuma and Akumalam. Inherited land is another major form of urban land conflicts although very common in the suburban areas, quarters like Atuaikom, Alatah experience this form of land conflict. Furthermore, land grabbing is also frequent in the suburban areas of Alabukam and Alabukom and few in the urban centre. However, it is important to note that as years pass by, the land conflicts do not only change in number but equally in form. Initially, urban land conflicts will often take the form of inheritance disputes and less boundary disputes and a complete absence of multiple sales dispute. Nowadays the boundary disputes are the most frequent. Quarters like Alakmandum, Atuafor and Milonbon record the highest number of cases of boundary disputes.

3.3 Manifestation of Urban Land Conflicts

Based on field evidence, urban land conflicts in Bamenda II can be classified into four forms namely; boundary conflicts, conflict over inherited land, multiple sales and land grabbing (Fig. 7).

3.4 Boundary Conflicts

Field evidence suggests that 46% of the responses indicated boundary dispute as the most dominant type of land conflict in their area. From the responses, it is observed that different forms of boundary disputes arise especially when there is a situation of encroachment on nearby lands. Moreover, boundary disputes do not limit itself to individuals but occur even between villages. For example, Mankon and Bali have had

recurrent boundary disputes. More so, inherited land in most cases is shared with no precise demarcation. This is aggravated by the lack of land titles. Multiple sales refer to a situation where a single plot is sold to more than one person leading to multiple claims and ownership disputes. Multiple sales of land accounts for 15% of land conflicts in Bamenda II. This emanates from the unscrupulous landowners selling the same piece of land to different buyers. Moreover, the absence of a formal market and a land secretariat office to keep records of land transactions results to more land conflicts. Field evidence also revealed that the lack of land certificates is also a major contributing factor to the multiple sales of a plot of land as just 35.26% of the population have acquired land certificates.

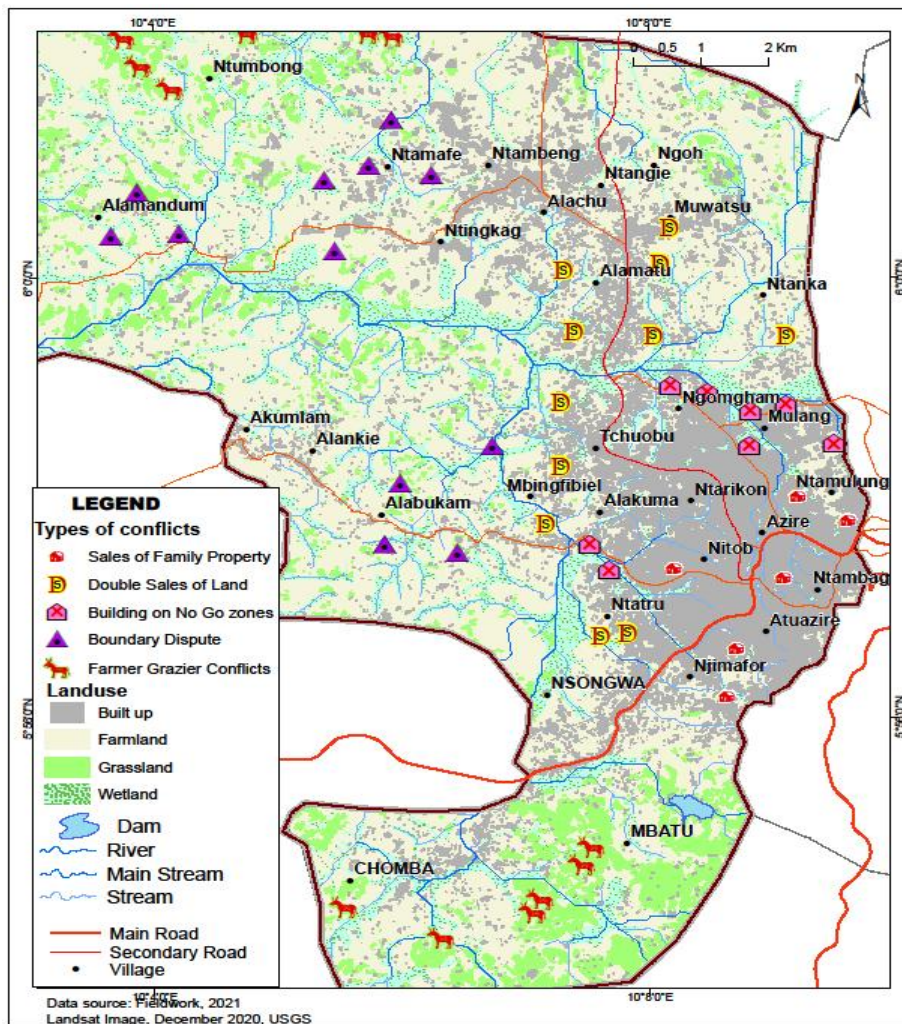


Fig. 6. Forms of land conflict in Bamenda II subdivision

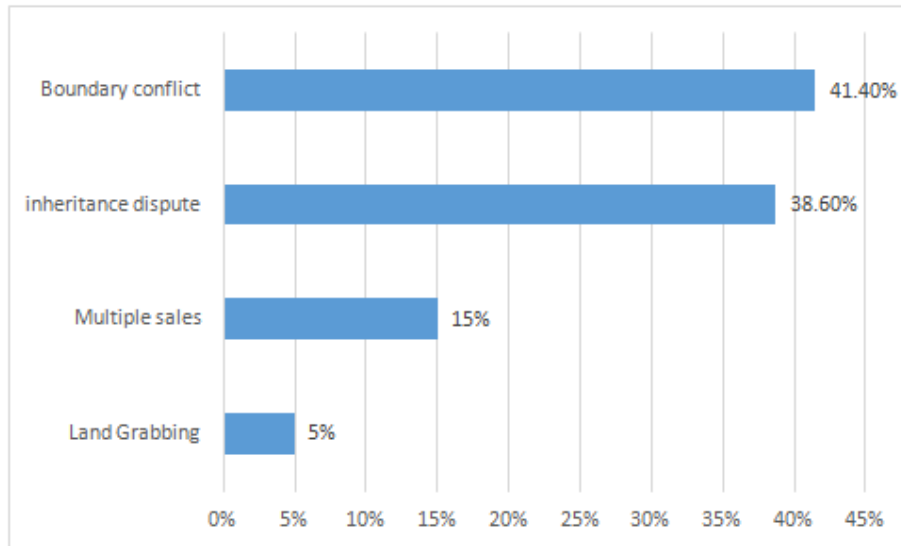


Fig. 7. Forms of land conflict

Source: Fieldwork 2021

3.5 Inheritance Disputes

Conflicts manifest through intra-family disputes over land ownership as reported by 42% of the respondents. Intra-family disputes over land are very common in the North West region and Bamenda II in particular. It takes place between close relatives with equal chances of inheriting or having access to family land. Most of these disputes were related to disputes over the inheritance of land occurring between deceased persons' nephews and their children. Intra-family dispute was common amongst elders and younger family members (elders versus youth).

3.6 Land Grabbing

Land conflict also manifests through land grabbing (5%) by authorities' especially traditional leaders. The community members never disputed against such communal decisions

in using their lands for developmental projects. However, the compensations given by the traditional authorities are often small to cover their lost land. Moreover, with the rapid expansion of the urban centres landowners are forced to convert their land into residential use or give it up for community projects. The inferential analysis was performed using Pearson's Product Moment Correlation Coefficient. The analysis sought to establish if there is a significant relationship between urban expansion and land conflicts in Bamenda II (Table 2).

The computed Pearson correlation was 0.423, significance (.001) and N (number of cases)= 68. There is there for a positive correlation between urban expansion and land conflict in Bamenda II where $n(68) = 0.423, p < .001$, two tailed. This permits us to conclude that there is a positive relationship between urban expansion and land conflict in Bamenda II.

Table 2. Relationship between urban expansion and land conflict in Bamenda II

Correlations		Urban Expansion	Land Conflict
Urban Expansion	Pearson Correlation	1	.423**
	Sig. (2-tailed)		.000
	N	68	68
Land Conflict	Pearson Correlation	.423**	1
	Sig. (2-tailed)	.000	
	N	68	68

** . Correlation is significant at the 0.01 level (2-tailed).

4. DISCUSSION

This paper explores the links between urban expansion and land conflicts in Bamenda. The analysis revealed that the trend of urban expansion has increased over the years. Indicators of urban expansion such as population growth showed an increase from 159,210 inhabitants in 2005 to 212,715 inhabitants in 2020. This falls in line with Block [11] who points out that population growth is the major driver of urban expansion. Moreover, this has resulted to a rapid expansion and an increase in built-up areas from 8.77% in the 1990s, to 14.15 in 2000 and 22.85% in the year 2020. This indicates a 5.38% increase during the first 10 years and 8.7% during the succeeding 20 years. The results agree with Fombe and Acha [12] who reported that the North West region of Cameroon is experiencing a considerable change in land cover due to population increase. This was further reported for Bamenda with regards to land use change [13,14] and urban green development planning [15].

Again, results showed that the municipality of Bamenda II has witnessed a decrease in agricultural space from 96.40% in 1990 to 95.56% in 2000 and 93.23% in 2020. This represents a percentage reduction of 0.84% in first 10 years and 2.23% in the succeeding 20 years. This reduction has been accompanied by a change in the agricultural farming techniques, from the initial widely used bush fallowing techniques to an intensive farming system where more fertilizer and pesticides are used to obtain high yields on small farm sizes. This result agrees with Kimengsi et al. [14] who reported the reduction in agricultural land in favour of residential space in the Bamenda III municipality. As the urban environment expands, it incorporates isolated settlements in the peri-urban area. Quarters like Alakuma, Mbingfibieh, Ntaturu were initially isolated settlements. However, with the expansion of the town, these areas have been incorporated into the urban fabric. The latter is accompanied by infrastructural development like schools, roads, hospitals, and administrative infrastructures.

Field evidence reveals that land conflicts assume the following forms; boundary disputes, land grabbing and multiple sales of land, among others. Boundary disputes was the most recurrent (46%), followed by disputes over inherited land (42%). The multiple sale and land

grabbing respectively have 15% and 5%. This result indicates that boundary disputes and conflicts are very common. This result resonates the findings of Kimengsi [16] who aligned with the environmental scarcity theory of Homer-Dixon to argue that land scarcity in the North West Region precipitates land conflicts. Boundary disputes emanate from an increase in the demand of land mostly by immigrants. Such conflicts have equally been reported in parts of Latin America, including Mexico [17]. Land conflict cases are handled by the court, the traditional and quarter councils. Field evidence suggests an increase in the number of land conflict cases.

5. CONCLUSION

Population growth continues to mount pressure on natural resources, including land. When such pressures are poorly managed, they result in conflicts. This paper provides evidence from Bamenda II, on the links between urban expansion and land conflicts, based on the analysis, the following conclusions are drawn: (1) significant urban expansion has been witnessed in Bamenda II. This manifests through the continued colonization of agricultural space by the built-up area. Land use maps for the periods 1990, 2000 and 2020 provide ample evidence to substantiate this claim. (2) a positive correlation has been established between urban expansion and land conflicts. In other words, the rise in land conflicts could be attributed to urban expansion – mirrored through population growth and the expansion of the built-up area. (3) land conflicts manifest through boundary disputes, land grabbing and multiple sales of land, among others, with boundary disputes being the most recurrent. It is therefore necessary for policy interventions to regulate the pace of urban expansion with a view to preserving the last vestiges of natural and agricultural space. Further conflicts could be avoided through a clear demarcation of boundaries, including the facilitation of the process of acquiring land titles. Individuals should ensure they demarcate land boundaries and obtain their land certificate. Building permits should be obtained from the council before construction in order to reduce urban sprawl.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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