Assessing the challenges facing small-hold farming systems in Kabba/Bunu L.G.A. of Kogi State

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Abstract

Agricultural activities in Nigeria contributes immensely to the Gross Domestic Product (GDP) and small-hold farming is significant to these contributions. Despite this, the sector faces many challenges that inhibits her potential. Basic social infrastructure has been found to be one of the problems facing agriculture particularly availability of good roads. However, accessibility to farms in the rural areas by road is still one of the challenges facing small-hold farming. Despite the numerous policies on rural development to address the ugly condition of small-hold farmers in order to sustain agricultural development in Nigeria, the small-hold farmers still face the challenge of poor road infrastructure, resulting to low agricultural yield and causing incessant inflation of food prices. To this end, the study examined the current challenges that are impeding the opportunities available for the sustainability of small-hold farming in Kabba and its environs. Using a systematic random sampling, copies of structured questionnaire were used to collect data from a total of 338 small-hold farmers across the selected 18 villages in the study area. The descriptive statistics (percentages, tables and bar chart) were used for the result presentation while the stepwise regression was used to test the stated hypothesis. Findings revealed that the invasion of farm plots by cattle and poor road condition have hindered effective small-hold farming activities. The results of the stepwise multiple regression showed that cattle invasion of farm plots and poor road condition have significant effect on farming activities. ($F = 28796.728$, $p<0.05$). The study particularly recommended that urgent steps must be taking to address the issue of incessant invasion of farm plots by cattle in order to create an enabling environment for small-hold farming to thrive.

Keywords: Small-hold farming, farmers, agricultural development, rural farming, Kabba/Bunu

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1. Introduction

Small-holder farming is the type of farm that operates on 2 hectares or less (World Bank, 2003; UNCTAD, 2015). Small-hold farming is a common practice in most African rural areas which is largely made up of poor people and by low educational standard. These rural areas in Africa have potentials to transform the African continent via adequate agricultural production that is supported with adequate infrastructure such as transportation (Olorunfemi and Adenigbo, 2017). The main reason why agriculture represents a large contributor to Nigeria's GDP is because over 80% of Nigeria's farmers are small-hold farmers (Akinsuyi, 2011). This suggests that Nigeria have a lot to benefit if required infrastructure is provided to the small-hold farmers in a conducive environment to operate. Small-hold farmers are the main source of food for the Nigeria's populace going by the report indicating that more than 80% of the total farmers, are small-hold farmers including those operating at medium and large-scale levels (Akinsuyi, 2011).

Farming activities at all levels require a functional transport system which is about movement of people or goods for a particular purpose from a point of origin to a point of destination (Okoko, 2006; Olorunfemi and Basorun, 2013; Orakwue et al., 2015). As stated by Olamigoke and Emmanuel (2013), that efficient transportation system is an important criterion to the development of the local economy. The study further posited that a functional transport infrastructure will provide a suitable access for the community and bring about an efficient operation of other human activities. Also, Olamigoke and Emmanuel, (2013) argued that a good transport system is an essential infrastructure that could aid agricultural activities in the rural areas for the benefit of national development, this is the main reason Okakunori (2006) called it the engine of the economy. This means that if transportation is taken out of the other infrastructural systems of any region, the entire economy of such region may remain stagnant because the transportation could serve as the bridge to fill the gap between producers/supplier and consumers (industrialists and individual consumers (Olorunfemi and Basorun, 2013). In another vein, studies have shown that government efforts in assisting farmers do not yield any positive result in some cases. According to Shikur (2020), it was found that increasing governmental support over the years especially land tenure policy and financial and price support schemes are described as being insufficient or ineffective. Stewart et al., (2020) therefore advocated for a holistic approach for appropriate future strategies towards sustainable agriculture practices in the sub-Saharan Africa. Furthermore, Berhanu et al., (2021) suggested that mixed smallholder farming involving livestock

and crop production within the same farm unit does not only help to boost the income of smallholder farmers, but also a source of manure to provide fertilizer and other important purposes. Also, Yang et al., (2020) suggested that an appropriate agronomic management practices and suitable technology are needed to increase the productivity of small-scale agriculture in a sustainable way.

Road transportation have been identified as capable of opening up new areas for massive development of the areas' economic activities, increase in agricultural and trading activities as well as impacting positively on the urbanization process of the rural areas (Olamigoke and Emmanuel, 2013). Despite this obvious reason, most roads at the local government level in Nigeria are still not motorable. A study by Buhari (2000) stated that the Central Bank of Nigeria in 2002 conducted a nationwide survey which showed that majority of estimated 194,000 kilometers of roads in Nigeria were in bad condition. These bad roads are mainly found in the rural areas as there is concentration of good roads in most urban centres in Nigeria. And this inadequacy explains the basis for the incidence of poverty across the country. This scenario is minimal in urban area compared to the situation in the rural areas of the country. A study by Nyagba (2009) posited that rural areas are very critical to the sustainability of Nigerian population. This position was further corroborated by Ugwuanyi and Chukwuemeka (2013) where they stated that the rural sector is the major source of capital formation for the country and a principal market for domestic manufactured goods. It is a known fact that in sub-Saharan Africa, rural areas largely engage in primary/extractive economic activities that is the bedrock Nigeria's economic base (Abah, 2010). Considering the huge importance of agricultural activities in the rural areas, they still face serious challenge of poor road condition which makes it difficult for the small-hold farmers to commute to their various farms and to bring their harvests to the market. Some studies (Ogbuu 2008; Olorunfemi and Basorun, 2013; Ugwuanyi and Chukwuemeka, 2013) showed that lack of basic infrastructural facilities such as neglect of transport sector have subjected people to poor quality, poor access of rural dwellers to basic social and economic amenities. In addition, inadequate road transport infrastructure in rural areas of developing economy has been identified as a key restraint in their poverty reduction programmes goals (Gbadamosi and Olorunfemi, 2016).

The issue of security is another dimension to this study. This issue of security which is wearing a new face and threatening agricultural activities and production in the rural areas

particularly Kabba/Bunu LGA is fast over-riding other existing problems facing agricultural activities. The threat to security to the farmers is coming from the resistance by some of the farmers to the incessant invasion of farm plots by cattles. Several of these resistant moves have led to many fatalities which have made many small-hold farmers in those areas insecure. The perception of the enormity of this problem needed to be known in order to address the problems. As cited by Ismail (2014), cattle rearing involves feeding of animals with forages, remnants from crops and leaves dropping from trees by moving the cattle from one point to the other. The cattle-herders have shared the land resources with the farmers for centuries, with established reciprocity of trade relationship. However, these ancient practices and many generations of coexistence have been threatened by many modern factors such as; population growth, technological advancement, increased commercialized agricultural output and climate change (Fratkin, 1997; International Regional Information Network, 2009). These factors have contributed to the expansion of agricultural activities on formerly shared grazing lands, and have increased tension and conflicts between farmers and cattle herders in some part of sub-Saharan Africa. The ceaseless conflicts between farmers and herders witnessed in sub-Saharan Africa, had led to deaths, destruction of properties and poor environmental condition (Niemella, Young, Alard, Askasibar, Henle, Johnson, Kuttila, Larsson, Matouch, Nowicki, Paiva, Portoghesi, Smulders, Stevenson, Tartes, and Watt, 2005).

Also, according to International Regional Information Network (2009), over the previous decades, there had been series of clashes between farmers and herders in several parts of central Nigeria including in Kogi State which had recorded numerous cases of conflict particularly, in Kabba/Bunu LGA. From 1996 to 2002, about forty-nine cases of farmers – Fulani conflicts were reported. Ajuwon, (2014) reported that crops worth over ₦1,000, 000 were estimated to have been damaged. It is to this extent that Kehinde (2014) sought to identify the management strategies employed to resolve farmers-Fulani conflicts by communities. The security threat is in form of the incessant clashes between farmers and herders. This has drastically affected the level of participation in farming activities in this area. Aside the problem of poor road condition and that of insecurity caused by the invasion of farm plots by the cattle, other problems identified include poor funding, inadequate government's support, and high cost of transportation. In order to understand the extent and or prevalence of these problems, this study focused on ascertaining their prevalence and the effects on productivity. Although, it is yet unknown the level of impact this is

having on the agricultural practice in this area, but it is very important to find out the extent at which it is affecting agricultural activities. Much of the existing literature has focused on understanding the cause of the farmer-herder conflict, the role of state and non-state actors in conflict resolution, the extent of success or lack of previous intervention.

Other studies by Gebeyanesh, Debela, Dong-Gill and Bettina (2021) focused on other issues such as opportunities and challenges of climate-smart agriculture to smallholder farming, while Shikur (2020) focused on the effect of agricultural policies on the welfare of rural farmers. However, not a lot has been done to understand other components of the conflict, such as its consequences on the people and their main occupation – farming. Needless to say, there is a need for increased research on the farmer-herders conflict in Nigeria. It is the opinion of this paper that it is only through comprehensive understanding and knowledge of the conflict and its attendant impact that we can begin a journey to identifying the best course of actions towards resolution. However, the main purpose of this study is to identify the major challenges facing the small-hold farmers in Kabba/Bunu Local Government Area (LGA). While the objectives are to: identify and examines the major challenges facing the small-hold farmers in the area; and the effects of the problems on small-hold farming. In addition, the study hypothesized that cattle invasion of farm plots, poor funding, inadequate government's support, poor road condition and high cost of transportation will significantly affect small-hold farming activities in the study area.

2. Study Area

Kabba/Bunu is one of the twenty-one Local Government Areas of Kogi State, Nigeria. It is located in the Kogi-west axis of the state. The headquarter of Kabba/Bunu LGA is Kabba located along A123 highway in the southwest of the area at 7°49′43″N 6°04′23″E. It has an area of 2,706 km^2 and a population of 145,446 at the national population census conducted in 2006. The people of Kabba/Bunu generally speak Okun which is the language of the Yoruba-speaking community in Kogi State. However, there is a little difference in the way the language is spoken within the Local Government Area. Kabba/Bunu comprises two districts (Kabba and Bunu). The Kabba district is a native speaker of the Owé dialect while those from Bunu district speaks Abinu.

The study was conducted in 8 selected communities in Kabba-Bunu Local Government Area. The selected communities were drawn from the two districts of the LGA namely Kabba and

Bunu. In Kabba district, 4 villages (Kakun, Otu-Egunbe, Egbeda and Okedayo villages) were purposively selected while in Bunu division, 4 villages (Oke-Offin, Olle, Okebukun, and Odo-Ape villages) were also purposively selected. The main purpose behind their selection was based on the fact that they are communities largely populated by small-hold farmers. The main ethnic groups include Owes in Kabba/Bunu LGA while other residents include other tribes from within Kogi state and other parts of Nigeria (Nigeria Year Book, 2000). Kabba-Bunu Local Government Area falls in the rain forest zone with an average temperature ranging between 22.8ºC to 33.2ºC. It is located on latitude 7º 49'N and longitude 6º 03'E of the prime meridian. The rainfall season is from March to September (Nigeria Year Book, 2000). The rainfall enjoyed in most part of the year made the area attractive to cattle herders. The projected population size of Kabba/Bunu LGA for 2022 was put at 194,900 (City Population, 2022). The people of Kabba/Bunu LGA are predominantly farmers, traders and civil servants, while others engage in other forms of livelihood.

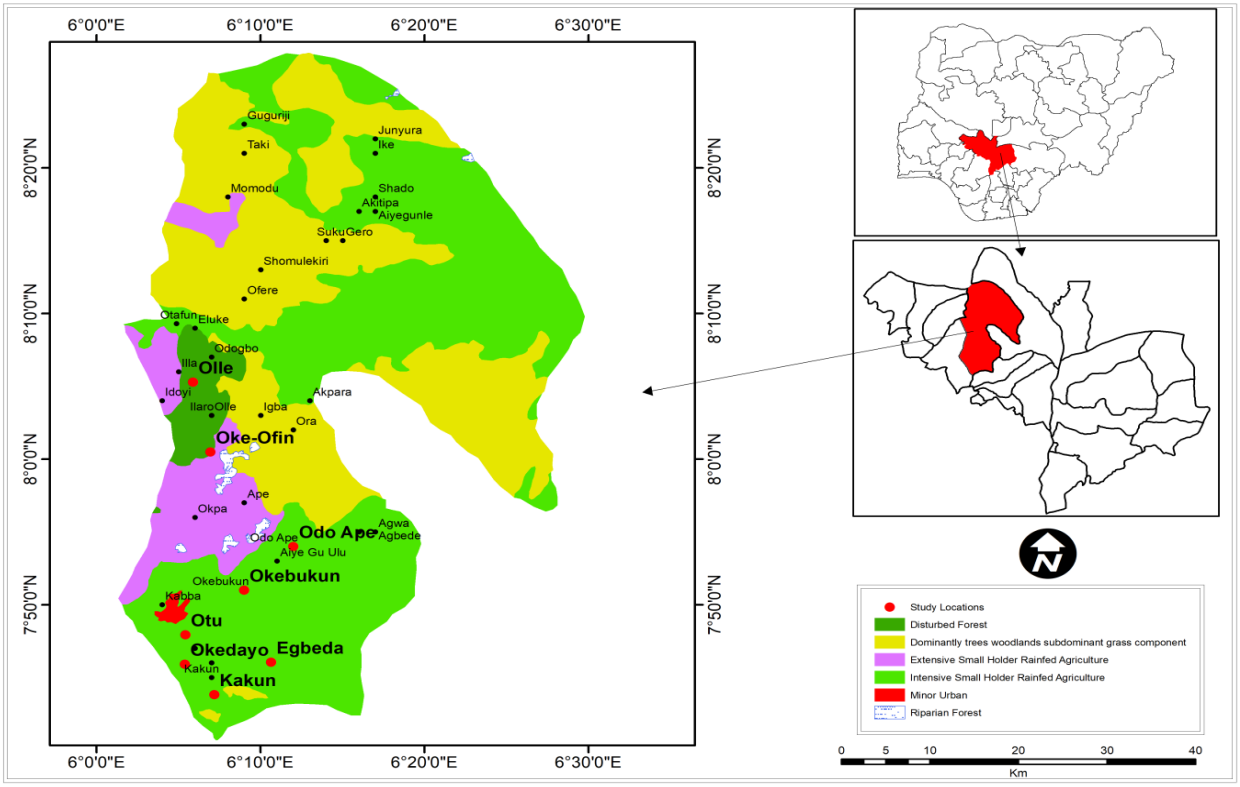

Figure 1: Map of Kabba/Bunu LGA (study area), Kogi State of Nigeria
Source: Author's Analysis

3. Materials and Methods

3.1 Data collection

The study adopted the use of primary data collected through the use of structured questionnaire administered to local farmers who are the respondents. The study also adopted some observatory measures in order to corroborate the information obtained through questionnaire. A total of 282 respondents were randomly selected from 8 communities covering 8 wards out of the 15 wards in Kabba/Bunu LGA. The 8 communities are found in the rural part of the LGA. Using a systematic random sampling procedure, farmers were selected within the community for the questionnaire administration. The farmers were sampled in their respective houses on Sundays in the afternoon. This sampling exercise was conducted within 3 months to cover all the 8 selected villages. The selected villages (8) were also purposively selected due to the notable presence cattle herders and farming activities in the areas. A list of 1,150 farmers was obtained from the Agriculture Development Programme (ADP) office in Kabba which is headquarter of Kabba/Bunu LGA and from which Taro Yamen's formula was used to determine the sample size of 385 farmers. Structured questionnaire forms were administered on the 385 farmers and out of this, 338 questionnaire forms were retrieved from the sampled farmers giving 87.8% response rate. The data obtained was analyzed using descriptive and inferential statistics. The descriptive statistics such as percentages, bar charts and tables were used to explained the objective while the study employed the stepwise multiple regression analysis to analyze the hypothesis. The Yamane's technique is given as:

$$n = \frac{N}{1+N(e)^2}$$

Where, n= sample size, N=sampled population and (e) = significant level or level of precision 0.05^2

Total number of Farmers obtained from ADP = 1,150

LUTH: 1+1,150 x 0.0025 = 66.0025

1,150 ÷ 2.875 = 400

N= 400

Approximately, a total of 400 Farmers were therefore sampled in Kabba/Bunu LGA. Overall, a total of 385 Farmers were sampled. However, 338 Farmers completed and returned the structured questionnaire forms. This therefore gives a response rate of 87.8%.

3.2 Data Analysis

The data analysis was carried out using descriptive tables, figure and the step-wise multiple regression models. The hypothesis that cattle invasion of farm plots, poor funding, inadequate government's support, poor road condition and high cost of transportation will significantly affect small-hold farming activities in the study area was analyzed using step-wise regression model. The model is in form of: $Y = a + b_1 X_1 + b_2X_2 + b_3X_3$……eqn. (i).

Where Y = the dependent variable is: small-hold farming activities;

a = Y-intercept; b_1 - b3 = regression coefficients. The independent variables are: X_1 = cattle invasion of farm plots; X_2 = poor funding; X_3 = inadequate government's support; X_4 = poor road condition; and X_5 = high cost of transportation.

4. Results

4.1 Socioeconomic characteristics of small-hold Farming

The results in Table 1 revealed that the most of the farmers 237 (70.1%) interviewed are between 40-59 years, middle aged group. Above 60 were 61 (18.1%). Those between 20-39 years regarded to be in their youthful age were 40 (11.8%). This data strongly suggests younger people in the community are not interested in farming. This could probably be linked to the fact that youth of nowadays prefer white collar jobs over any tedious work like farming. Despite the government's effort at providing free education at both primary and secondary level, there is very low enrolment at the secondary level which is more advanced than the primary education. Table 1 shows that majority of the farmers 207 (61.3%) had Primary education while only 26.9% had secondary education. farmland ownership in the area is either personal or family ownership. The data shows that 241 (71.3%) still use family lands for their farming activities while 97 (28.7%) use their personal for the same purpose.

Table 1: Socio-economic characteristics of Small-hold Farming (n = 338)

Variables	Frequency	Percentage
Age		
20-39	40	11.8
40-59	237	70.1

60 and above	61	18.1
Total	**338**	**100.0**
Education		
Illiterate	15	4.4
Primary	207	61.3
Secondary	91	26.9
Tertiary	25	7.4
Total	**338**	**100.0**
Ownership of farmland		
Family land	241	71.3
Personal land	97	28.7
Total	**338**	**100.0**

Source: Author's analysis

4.2 Challenges facing small-hold farming and its effect

Table 2 discusses those factors that constitute great challenge to small-hold farming in the study area. Some of the factors identified included poor funding, poor road condition, herdsmen attack, high cost of transportation and inadequate support from government. The Table showed that 268 (79.3%) small-hold farmers admitted invasion of farm by cattle constitute a major problem to their farming activities. Although they opined that invasion is not frequent, but just one of such invasion could destroy the whole farm for the season. Another major challenge identified is inadequate government's support. A total of 251 (74.3%) of the farmers acknowledged inadequate government's support is one of the challenges facing them. The government supports identified by the farmers are access to loan facilities, adequate supply fertilizer, pesticides and adequate security, farm implements among others. Furthermore, poor road condition 250 (74.0%) and high cost of transportation 248 (73.4%) were also identified as part of the challenges confronting their farming activities. Surprisingly, poor funding 190 (56.2%) was identified by the farmers as the least problem threatening their small-hold farming.

As shown in Figure 1, the effects of these problems on small-hold farming majorly includes low farm yield, high cost of farm produce, low participation in farming activities and decrease in variety of crops. A total of 274 (81%) of the farmers agreed that the myriad of problems facing them have resulted to low farm yield and 261 (78%) for low participation in farming activities. Whereas, 210 (62%) and 186 (55%) identified high cost of farm produce and decrease in variety of crops respectively, as major effects of the problems.

Table 2: Challenges facing small-hold farmers in the study areas N=338

Variables	Item	Frequency	%
Cattle invasion of farms	Identified as a challenge	268	79.3
	Not identified as a challenge	70	20.7
	Total	**338**	**100.0**
Poor funding	Identified as a challenge	190	56.2
	Not identified as a challenge	148	43.8
	Total	**338**	**100.0**
Poor road condition	Identified as a challenge	250	74.0
	Not identified as a challenge	88	26.0
	Total	**338**	**100.0**
High cost of transportation	Identified as a challenge	248	73.4
	Not identified as a challenge	90	26.6
	Total	**338**	**100.0**

Source: Author's analysis

5. Findings and discussion

The findings in Table 3 on the hypothesis that cattle invasion of farm plots, poor funding, inadequate government's support, poor road condition and high cost of transportation will significantly affect small-hold farming activities in the study area was analysed using the step-wise multiple regression model. Table 3 revealed that cattle invasion of farm plots was identified as the main predictor variable that affects small-hold farming activities in the area. Thus, cattle invasion of farm plots was responsible for 81.2% of the problems facing the small-hold farmers. The stepwise multiple regression results further indicated that cattle invasion of farm plots and poor road condition have significant effect on farming activities. ($F = 28796.728$**,** $p<0.05$). The signs of the regression coefficients revealed that cattle invasion of farm plots and poor road condition affect farming activities, while poor funding, inadequate government's support, and high cost of transportation did not significantly affect farming activities. The negative sign implies that poor funding, inadequate government's support, and high cost of transportation does affect farming activities, while the positive sign suggests a negative effect on farming activities. However, based on the standardized regression coefficients of the predictors, cattle invasion of farm plots has the strongest weight in the model followed by poor road condition. The t-value results showed that among the five set of predictor variables, cattle invasion of farm plots exerted significant effect on farming activities.

Going by the analysis, it could be inferred that cattle invasion of farm plots is the foremost problem affecting small-hold farmers because of the huge threat to their farming activities. This explains the strong weight in the model. The equation for estimating small-hold farming activities is in form of:

$Y = 0.016 + 0.896CIF + 0.087PRC$……. Eqn. (ii)

Where: Y = predicted effect on small-hold farming activities

CIF = cattle Invasion of Farm plots

PRC = Poor Road Condition

Table 3: Small-hold farming activities

Predictor variables	b coef.	Std. Error of b	Multiple R	Level of explanation	Increase in level of explanation	t-value for variables
Cattle Invasion of Farm Plots	0.896	0.015	0.861	81.2	81.2	44.944*
Poor Road Condition	0.087	0.023	0.128	2.1	79.3	3.434*
Intercept: 0.016; F = 28796.728*						

*Significant at 0.01 significance level; *Significant at 0.05 significance level; N=338

Source: Author's Analysis, 2021

6. Conclusions

The study considered the challenges facing small-hold farmers in selected villages in Kabba/Bunu LGA of Kogi with particular reference to Kakun, Otu-Egunbe, Egbeda, Okedayo, Oke-Offin, Olle, Okebukun, and Odo-Ape villages. The study findings indicated that cattle invasion of farm plots and poor road condition were identified as the major challenges facing small-hold farmers in the study area, Kabba/Bunu LGA of Kogi State. This finding complements the findings of Kehinde (2014) where it was found that farmers and cattle herders are in recent times becoming more frequently involved in conflict over land resource usage. This frequent conflict between farmers and cattle herders have grown to a point that many small-hold farmers have lost courage to continue with their farming activities which has led to untold hardship in the economic life of the

farmers and the residents of these communities. Additionally, this study revealed that poor road condition also contributes to the major problem facing small-hold farmers, there is a serious need for the government at all levels to improve the road infrastructure. It is only by doing this that the overall national growth and development could be achieved. However, it is rather unfortunate, that the development strategies and efforts in Nigeria has been largely concentrated in the urban centres while neglecting the rural areas as evidenced in the obvious lack of basic infrastructural facilities such as good roads, electricity, security, basic health centre etc. that could help in sustaining the activities of rural areas (Abah, 2010). In addition, Gbadamosi and Olorunfemi (2016) found that poor road condition is not only threatening farming activities in the region, rather, it is also affecting healthcare service delivery within the area. However, it is pertinent to note that for the sustainability of farming activities in these areas to be achieved, there must be serious attention geared towards addressing these major problems identified by small-hold farmers in the areas. Urgent steps and measures must be taking to address the issue of incessant invasion of farm plots by cattle. Once this is brought under control, the enabling environment for small-hold farming will be created.

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