

# Effects of Road Transportation Infrastructural Facilities on the Development of Poultry Farming in Remoland, Ogun State, Nigeria.

**CHAPTER****4**

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## Introduction

Agricultural production has become a favourable option for economic diversification in Nigeria, and it has since been part of the socio-economic functions and principal occupation of rural dwellers in Nigeria (Ajiboye, 2011; Ajiboye & Ayantoyinbo, 2009). These have made agriculture very important to Nigeria's economy, and the farmers are engaged in various agricultural activities such as cash crops, livestock, fruit, and food crop farming. These activities have produced various agricultural products such as cassava, citrus trees, cocoa, cocoyam, kola-nut, maize, piggery, poultry, rice, rubber, and yam. These products provide food for humans, raw materials for agro-allied industries, a source of farmer revenue and foreign exchange earnings to the governments (Afolabi et al., 2016).

As such, agricultural production possesses a vast economic potential for the country. However, there is an apparent need for transportation for a thriving agricultural production process. Ojekunle et al. (2020) state that there is no separation between agriculture and transportation, as agricultural products must be transported from their production points to where they can be consumed. Therefore, it is necessary to have a sound transportation system to cater to the transportation needs of agricultural production. While Ojekunle et al. (2020) noted that insufficient supply and high cost of agro-food products could result from inefficient transportation and distribution systems, Yusuf (2020) identified transportation among the main factors affecting agricultural production and growth in Nigeria.

The role of transportation infrastructures is critical to developing agricultural production. The efficiency and effectiveness of transportation result in increased accessibility; thus, the availability of

transportation infrastructure is a dire investment factor that fuels the economic growth of a nation (Tunde & Adeniyi, 2012; Afolabi et al., 2018). Hence, the level of available road transport infrastructure is a significant factor affecting the growth of agricultural production and poultry farms. Furthermore, the availability of road transport infrastructures makes accessibility to farm sites possible; it also ensures the movement of all needed materials, personnel, and products to such sites and other essential locations within the production process (Oyesiku et al., 2019). Therefore, based on this background, this paper examines how road transport infrastructure affects agricultural development, emphasising poultry production.

### **Research Questions**

- i. What is the current position of road transportation infrastructure in Remoland?
- ii. How do the road transport systems affect the movement of poultry products?
- iii. What are the major factors affecting the adequate transportation of poultry products in Remoland?
- iv. How does improving road transport infrastructure benefit poultry farmers in the study area?

### **Hypothesis**

H<sub>0</sub>: There is no significant statistical correlation between improved road transport infrastructure and the development of poultry farming in Remoland.

### **Literature Review**

Several works exist on transportation, agricultural activities, production, distribution and marketing worldwide. Among them are Hine and Ellis (2001), Ajiboye and Afolayan (2009), Iman et al. (2014), Kojo and Gilbert (2015), and Afolabi et al. (2018). Oyesiku, et al (2019) and Yusuf (2020). Hine and Ellis (2001) described road transportation's function in maintaining rural transformation and food security. Their work examines the correlation between accessibility, marketing, and agricultural development using a comparative research method. Transportation infrastructure is vital in identifying the relationship between accessibility and agricultural development. According to their research, replacing footpaths with a motorable road will benefit the farmers than just changing the earth track to gravel roads. Therefore, it

is essential to develop primary vehicle access to areas with high agricultural potential and increase the quality of access to areas with vehicle access.

Ajiboye and Afolayan (2009) discussed the influence of road transport on Kolanut production in Remoland, Ogun State, Nigeria. One hundred respondents were randomly selected and interviewed from the registered Kolanut farmers, traders and transporters in the study area. Descriptive statistics, such as the frequencies and percentage distribution tables, were used to analyse the collected data. This study concluded that an improvement in transportation infrastructure would bring development to agricultural production, reduce wastage and spoilage, enhance their products, increase their productivity, increase farmers' income and decrease poverty in the rural areas as it will move agro-workers and inputs as well as the agro-food products to the markets and industry.

Iman et al. (2014) studied the channels of agricultural product distribution in Nigeria. They examined the gaps between farmers and consumers of farm products that uphold the use of distribution channels, the various steps involved in choosing agricultural distribution channels and the functions of agricultural product distribution channels in Nigeria. However, this study identified direct and indirect channels which are used for the distribution of farm produce. These channels make goods available to end-users, while some farmers, considering the perishability of farm produce, are compelled to use direct distribution channels. Others use indirect channels to reach out to their customers, who mostly live in rural areas and are often separated from their customers. Conclusively, because of the high risks involved in agricultural production in Nigeria, there is a need for sufficient channels to accommodate the effective distribution of farm produce to ensure profits for all actors.

According to Kojo and Gilbert (2015), the larger share of agricultural production in Ghana is done by rural farmers remotely within their communities distant from urban areas. This necessitates developing a well-organised means of transportation and infrastructure to convey agricultural produce from the production points to the market for sales. They ascertained that increased accessibility to transport services has significantly reduced waste levels in agricultural production.

Furthermore, they confirmed that farmers' losses through destruction by animals, physical damages, and thefts were reduced by 78% due to the transportation of produce to appropriate storage or market areas immediately after harvest. Therefore, it is recommended that transportation facilities and services be deliberately improved in all farming communities across the country, considering a reasonable cost for farmers. Improvement in transportation in Ghana has the propensity to develop agricultural production there.

Okpeke and Ellah (2017), in their study on the operational performance of poultry egg marketing in purposively selected five villages in Delta State, Nigeria. The villages in Ika South LGA, Delta State, are popularly known for poultry farming. Randomly selected were sixty respondents of twelve (12) respondents from each of the five selected villages. This study showed that the main challenges affecting the marketing of poultry eggs in Delta State are poor transportation, price fluctuations, inadequate capital, and the exorbitant price of poultry eggs. Poor transportation ranked second, indicating transportation's importance in the effectiveness of poultry egg production growth in the area. Therefore, their study recommended that good road networks and an effective transportation system be implemented in the study area for the farmers and their products to move quickly. Furthermore, a price control system should be implemented to evade price fluctuation within the egg marketing system.

Afolabi et al. (2018) analysed transport factors in agricultural product distribution in Ogun State, and 100 questionnaires were randomly and purposefully distributed to transporters in Ijebu North LGA. It was observed that various means of transportation are utilised for the movement of agricultural products in the LGA. They include buses, station wagons, pick-up vans, and saloon cars. Findings show that agricultural products such as cash crops, food crops, fruits, poultry, tubers, cassava, coco-yams, yams, and vegetables dominate Ijebu North LGA. Also, road conditions in the study area are deplorable, making transporting and moving farm produce difficult. Therefore, their study concluded that there is an urgent need to improve the road transport system in the area in order to ensure the growth and development of agriculture in Ijebu North LGA.



Udoeye et al. (2019) aim to ascertain the view of actors on the poultry value chain approach embarked on by the Commercial Agricultural Development Project (CADP) in Enugu State, Nigeria. A survey design was employed in the study in which seventy-one (71) actors in the poultry value chain (PVC) were used to make up the study sample. The various data collected were analysed using descriptive statistics. Results showed that actors generally viewed the poultry value chain approach of CADP as satisfactory. However, the main constraints affecting the operational performance of PVC, as identified by the actors, are a lack of trust in communication, the high cost of accessing information from the web, and the low level of literacy among the actors. Hence, it is therefore recommended that donor agencies and governments ensure a well-timed supply of input materials through efficient transportation for actors at different value chain segments.

Oyesiku et al. (2019) evaluated rural transportation technology using bicycle and motorcycle trailers as the case study. They observed the utilisation of bicycle and motorcycle trailers being increasingly studied by several researchers. However, this technology has not been fully adopted, and government agencies have issued no evaluation reports. Their study undertook the performance evaluation of different types of bicycle and motorcycle trailer designs. Five trailer designs were developed in the study. They include convertible plate design (CPD), fixed plate design (FPD), wire mesh design (WMD), Fixed Plates Design (CPD) and Convertible Plates Design (CPD). These designs were used to perform four (4) performance evaluation tests. Mainly pull and haulage tests, forward speed, a computer-based stress/strain analysis simulation, and laden mass. The results of this study show that the transportation of agricultural products in rural communities is one of the major constraints facing rural dwellers. The results also show that bicycle and motorcycle trailers are suitable transportation options for small-scale goods conveyance, and they are the best fit for narrow rural access roads, making them suitable for rural communities. Hence, farmers and traders must consider bicycle and motorcycle trailers to transport farm produce within rural environments.

Yusuf (2020) looks at the influence of transportation networks on tomato production and marketing in Nigeria. Objectively, the study tries to ascertain the significant role of road transport in the production and marketing of tomatoes. The study critically reviewed existing literature

as a secondary data source to understand transportation conditions and their effect on the production and marketing of tomatoes. In contrast, primary data were mainly sourced using key informant interviews (KII) and focus group discussions (FGD). The study result indicates that transportation is vital in producing and marketing tomatoes in Nigeria. It also shows that improving transportation systems will ensure the continual development and growth of tomato and agricultural production globally by encouraging farmers and marketers to increase production and marketing while reducing damage and waste. The study concludes by urging all the tiers of government to supply adequate and effective transportation systems that will help convey agricultural produce from their places of production to consumption ends.

From the literature review above, it is evident that transportation is crucial in producing, distributing, and consumption of agricultural produce in both developing and developed nations. Hence, transportation improvement is a headway to improve agriculture's productivity and increase economic development.

### **Study Area**

Remoland, which constitutes the whole Remo Division of Ogun State, comprises three local government areas: Remo North, Ikenne, and Sagamu, with about thirty-five (35) towns and villages. The study area, covering an area extent of 161,298.34 hectares, is bounded in the South by Lagos State, in the North by Oyo State, in the West by Obafemi-Owode and Ifo Local Government Areas and in the east by Ijebu-North Local Government Areas. It has a total population of about 427,058, according to the Federal Government of Nigeria Gazette (2007).

One of the most important commercial and industrial hubs in Ogun State is Remoland. Aside from the commercial and trading, agriculture is the predominant economic activity of people in the area, with poultry farming not an exception. The area also has many infrastructural facilities ranging from electricity, pipe-borne water, postal services, road networks, and telephones, which help in the industrial and general growth of the land.



Figure 1: Ogun State in Nigeria

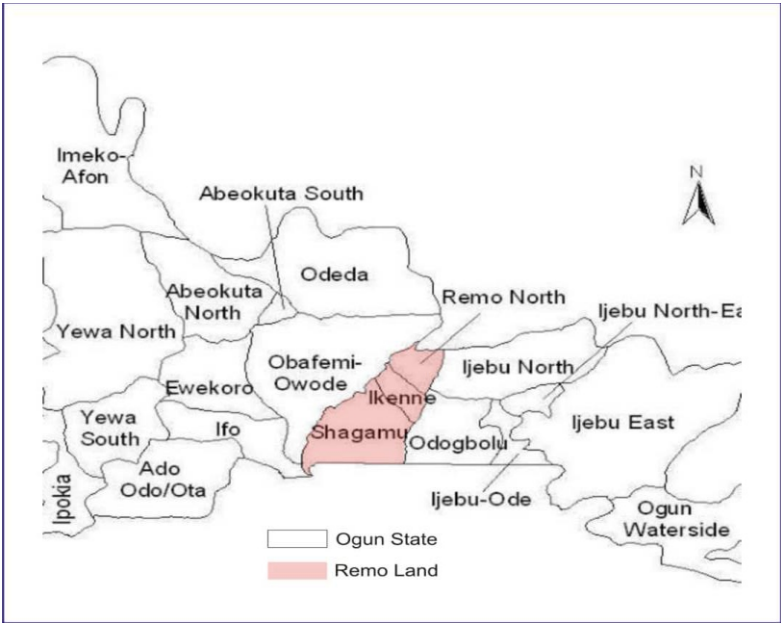


Figure 2: Remoland in Ogun State

Road Transport Infrastructure in Remoland

Field survey shows that road transportation is the most common mode of transport in Remoland. Therefore, an attempt was made to determine the types and the number of roads available in the area. Using Google Earth Maps, the road transportation map of Remoland was extracted and used to this effect. The result shows five (5) major types of road networks in the study area and 136 roads. From the result shown in Table 1, footpaths take the lion's share of the road transport network in the area at 35.3%. This is followed by the Trunk A road with 22.8%, then the Trunk B road with 21.3%. Finally, Trunk C road is the fourth largest in the road network with a coverage of 19.1%, leaving the Expressways with just 1.5%, making it the least in the road network.

Table 1: Numbers of Roads in the Study Area

S/n	Roads	Number	Percentage (%)
1.	Expressways	2	1.5
2.	Trunk A	31	22.8
3.	Trunk B	29	21.3
4.	Trunk C	26	19.1
5.	Foot Paths	48	35.3
	<b>TOTAL</b>	<b>136</b>	<b>100</b>

Source: Authors' Survey

Table 1 also shows that five (5) major road transport networks were recognised as being available; namely the expressways, trunk A roads, trunk B roads, trunk C or secondary roads and the rural roads. Two main expressways pass through the study area: the Lagos-Ibadan and the Sagamu-Benin expressways. They are built, owned and maintained by the Federal Government of Nigeria. The former is a four-lane dual-carriage-way linking the Southwestern part of the country to the North and covers about 35 km of the study area, while the latter is a four-lane dual carriage-way linking the west to the east. Furthermore, six (6) bridges were built on the Lagos-Ibadan expressway, while seven (7) bridges were observed on the Sagamu-Benin expressway. The primary materials used for constructing these bridges are steel and concrete.

The Trunk A roads are built, maintained and owned by the Federal Government. These are tarred with bituminous concrete and well-aligned but with some bends along the roads. They were designed to be

motorable in all seasons. The bridges along these roads are mostly in good condition and are made of steel and concrete. A good example of these roads is Ikorodu-Sagamu, Sagamu-Idi Ayunre, Sagamu-Okunowa, and Ode-Remo-Ishara.

Ogun State Government constructed, owned and maintained the Trunk B roads within Remoland. These also have the same attribute as Trunk A roads but more in kilometres coverage while they are often linked with the main towns. Examples of this type of road are Ilishan-Irolu-Remo-Ago-Iwoye and Ogere-Iperu-Ilishan-Odogbolu.

Trunk C or secondary roads comprise local government roads divided into tarred and un-tarred roads. These are relatively wide, about 10m right of way. The tarred secondary roads have asphalt surfacing, while the untarred ones have ordinary laterite covering. These are all poorly aligned and poorly drained; their shoulders are overgrown with weeds and are characterised by potholes. However, these are motorable throughout the year.

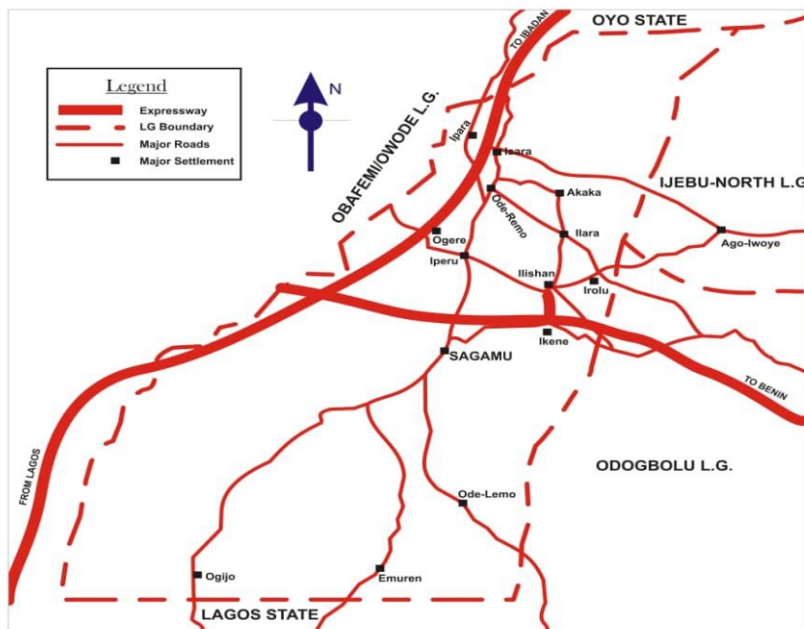
The Trunk C roads act as feeder roads to the various poultry farms in the study area. They open up these farms to the Trunk B and Trunk A roads to transport the poultry farm products to their consumption centres easily. The other types of roads identified under the category of rural roads in the study area are access roads or footpaths. These are barely wide enough to contain one or, at most, two vehicles. The management of the poultry farms mainly provides these roads, and they are meant to provide entry or access to the farm from the Trunk C road. Therefore, these are not tarred, just like most Trunk C roads.

### Attributes of Road Transport Infrastructure in Remoland

On the features of the roads in Remoland, as shown in Table 2, 39% of them are tarred, 19% of the roads are tarred with bituminous concrete surfacing, and 20% are tarred with asphaltic concrete, while the remaining 61% are laterite surface. Within the rural areas of the study area, 12.6% of the roads are four-lane expressways, 32.5% are two lanes, and the other major roads that are majorly rural in the area are lane type (54.9%).

Furthermore, only 40.9% of the roads are seasonal motorable, 23.2% are partially seasonal motorable, and the remaining 35.8% are slightly seasonal motorable because of their terrible state condition and

inaccessibility due mainly to inadequate drainage facilities and poorly constructed bridges. Among the tarred roads, the Federal Government of Nigeria owns 43.1%, the Ogun State Government owns 31.2%, and the remaining 25.7% are local government roads.



**Figure 3: Road transport network in Remoland, Ogun State, Nigeria**

### Methodology

The study adopted both descriptive and analytical methods. The data were obtained through questionnaires, interview methods with respondents, and observation. The respondents are poultry farmers, traders and transporters. From the sample survey, 30 respondents were interviewed among the poultry farmers, 120 traders and 30 transporters. Data was collected on the socio-economic characteristics of respondents and the aspects of their accessibility to transport infrastructure and their conditions, distance covered, and challenges affecting poultry products transportation in the study area. The data collected were analysed using descriptive statistics such as tables and percentages. In addition, the Chi-square was utilised to test the study hypothesis.

**Table 2: Attributes of the Road Transport Infrastructure in Remoland**

<b>Variables</b>	<b>Kilometres</b>	<b>Percentage</b>
<b>Condition of the surfaced</b>		
Tarred	260	39.0
Un-tarred	407	61.0
<b>Total</b>	<b>667</b>	<b>100</b>
<b>Type of surface</b>		
Bitumen	125	19.0
Asphalt	135	20.0
Laterite	407	61.0
<b>Total</b>	<b>667</b>	<b>100</b>
<b>Number of lanes</b>		
Four lanes	84	12.6
Two lanes	217	32.5
One lane	366	54.9
<b>Total</b>	<b>667</b>	<b>100</b>
<b>Motorable</b>		
All-season	273	40.9
Partially seasonal	155	23.2
Slightly seasonal	239	35.8
<b>Total</b>	<b>667</b>	<b>100</b>
<b>Ownership of Tarred Roads</b>		
Federal Govt.	112	43.1
State Govt.	81	31.2
Local Govt.	67	25.7
<b>Total</b>	<b>260</b>	<b>100</b>

Source: Authors' Survey

## Results and Discussion

From the study survey, 42.2% are females, and 57.8% are males. This perhaps shows an equal involvement of both males and females in poultry farming in the study area. However, while the males dominate the production and transportation, females dominate the trading of poultry products in Remoland.



From Table 3, 2.2%, 15.6%, 27.2%, 45%, and 10% are within the age groups below 21, 21-30, 31-40, 41-50 and above 50, respectively. The age groups between 19 and 30 recorded 17.8% and 10% for above 50 years. This is attributed to the low involvement of young and older adults in the poultry business in the study area. The productive age of the people in Remoland is between 31 and 50.

The marital status of all respondents shows that 8%, 70%, 3%, 8%, and 11% are not married, married, separated, divorced and widowed, respectively, as shown in Table 3. On the analysis of the level of education attained by respondents, 5% had no formal education. In comparison, 10%, 30%, 30%, and 25% passed out of primary school, secondary school/teachers/technical training colleges, polytechnic/college of education/school of agriculture, and polytechnics/university, respectively.

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**Table 3: Socio-Economic Characteristics of Respondents**

S/N	Variables	Respondents	Percentage
1.	<b>Gender</b>		
	female	76	42.2
	Male	104	57.8
	<b>Total</b>	<b>180</b>	<b>100</b>
2.	<b>Age</b>		
	Below 21years	4	2.2
	21-30 years	28	15.6
	31-40 years	49	27.2
	41-50 years	81	45.0
	Above 50 years	18	10.0

	<b>Total</b>	<b>180</b>	<b>100</b>
<b>3.</b>	<b>Marital status</b>		
	Not married	13	7.2
	Married	128	71.1
	Separated	6	3.3
	Divorce	13	7.2
	Widow/widower	20	11.1
	<b>Total</b>	<b>180</b>	<b>100</b>
<b>4.</b>	<b>Educational Qualification</b>		
	Non-Formal	9	5.0
	Primary School	18	10.0
	Secondary School	54	30.0
	OND/NCE	54	30.0
	HND/University	45	25.0
	<b>Total</b>	<b>180</b>	<b>100</b>
<b>5.</b>	<b>Origination</b>		
	Remo land	144	80.0
	Other parts of the state	27	15.0
	Outside the state	9	5.0
	<b>Total</b>	<b>180</b>	<b>100</b>

Source: Authors' Survey

2, 18 and 03 university graduates are involved as transporters, farmers and traders respectively. This simply shows that poultry farming requires a high level of education for anybody wishing to practice it. This is, however, not the case for people wishing to be traders or transporters of poultry products.

All respondents are Nigerians who come from different parts of the country. Remoland has the highest number of respondents, with 80%, followed by respondents from other parts of Ogun State (15%), and the remaining 5% are respondents from another part of Nigeria. This analysis shows that an investment in the poultry industry is mainly in the hands of the indigenes of the study area.

### Production Pattern

All respondents admitted they are either part-time or full-time poultry farmers, producing mainly table eggs from layer birds for commercial purposes. Other types of birds produced by the farmers include Broilers and Cockerels. However, both are only table meats, constituting just 10% of farmers' output.

Table 4: Length of Years in Poultry Engagement

Length of period	Respondent	Percentage (%)
Less than five years	41	22.7
5-10 years	64	35.5
11-15 years	45	25.0
16-20 years	20	12.2
Above 20 years	10	5.6
Total	180	100

Source: Authors’ Survey

Trip Generation Pattern in Poultry Farming

Regarding the years the farmers have been practising poultry farming, their answers were classified into these groups: less than 5, 5-10, 11-15, 16-20, and above 20 years. From Table 4, 22.7%, 35.5%, 25%, 12.2% and 5.6% of respondents are in the classifications mentioned above, respectively, and the last recorded year was one, while the maximum recorded year was twenty-two (22).

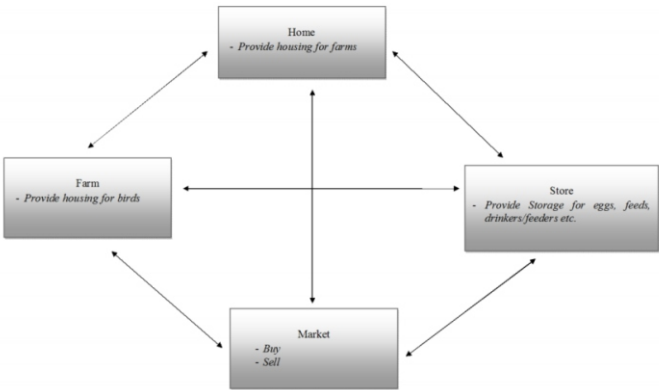


Figure 4: Point-To-Point Transportation of poultry farmers

Source: Authors' Survey

The trip patterns generated by poultry farms in the study area were analysed. This involves analysing the point-to-point movement of farmers within the farming process. Four significant points for trip generation and six movement patterns were identified. In Figure 4, the point-to-point movements of the farmers are shown. Four major trip generation points were identified: farmers' homes, farm sites, storehouses, and the market. Daily, farmers move from their homes in the morning to their farms, stores or the market. Respondents can also

shuttle between farm to store, farm to market, store to market, and vice versa.

While homes provide shelter for them and their family, farms are production sites where the birds are housed and fed and produce eggs for sale and consumption. On the other hand, the farmers use storehouses to store eggs from the farm, feeds bought in the market, and other materials such as drinkers/feeders and medications. From the study survey, only about 30% of farmers have storehouses a few distances from the farm site. However, most (i.e., the remaining 70%) of farmers have storehouses within the farm sites.

Finally, market areas are where farmers carry out business transactions. Farmers buy materials (feeds, chicks, feeders/drinkers, medications) from the market and transport them to the farm or storehouse. Farmers also sell their farm produce (Eggs and chickens) in the market.

**Table 5: Distances Covered by the Farmers on Point-To-Point Transportation**

Distance	F↔H		F↔S		F↔M		H↔M		H↔S		S↔M	
	x	%	x	%	x	%	x	%	x	%	x	%
Less than 5km	5	6.7	21	70.0	5	16.7	5	16.7	3	10.0	4	13.3
5 – 10km	4	16.7	4	13.3	7	23.3	11	36.7	5	16.7	5	16.7
11 – 20km	13	46.7	3	10.0	12	40.0	9	30.0	14	46.7	13	43.3
Above 20km	8	30.0	2	6.7	6	20.0	5	16.7	8	26.7	8	26.7
<b>Total</b>	<b>30</b>	<b>100</b>	<b>30</b>	<b>100</b>	<b>30</b>	<b>100</b>	<b>30</b>	<b>100</b>	<b>30</b>	<b>100</b>	<b>30</b>	<b>100</b>

Source: Authors' Survey

Table 5 shows the daily journey distance covered by farmers from various houses to farms, stores, and markets. Only 6.7% of farmers have their poultry farms within a radius of 5kms. The remaining 93.3% of farmers travel over 5km daily to get to their farms. This situation is different for the journey between farms and stores. 70% of farmers have their stores within a 5km radius of the farm site, and the remaining 30% have a storehouse over 5km away from the farm site. The majority of farmers' farms and stores are considerably far from the market as about

80% of farmers indicate a distance of over 5km to markets from their farms, leaving just about 20% with farms within 5km distance to the nearest market while the condition for the distance linking farmers homes and stores is similar to that of home and farms.

A large percentage of farmers have their poultry farms far away from their respective homes. This is because of the size of the farm, which makes it challenging to acquire such extensive farmlands within residential areas. Also, due to the environmental laws enforced by the government, farmers cannot situate their farm sites within residential areas for easier access. However, those who can situate their farms closer to their homes for easy access and security monitor their staff. In the case of farm sites and stores, most farms have their stores within the farm sites, which means minimum transportation and handling activities are required to move the produce to the stores.

Nevertheless, a few other farmers have their storehouses away from the farm site. In this case, most of these farmers have more than one store. Since most farmers' farms and stores are located on the same sites, relatively far from the markets where farmers need to access business transactions to buy farming materials or sell farm produce. Therefore, accessibility has become paramount for farmers to achieve all these trip demands to ensure their farming activities.

Accessibility

Ease of mobility and accessibility are some variables in determining the growth stage in an environment (Yusuf, 2020). These led to assessing the level of accessibility and mobility to access roads by the poultry farmers in Remoland.

Table 6: Farmer’s Distance to Motorable Roads

Distance	Home		Farm		Store		Market	
	x	%	x	%	x	%	x	%
Less than 500m	20	66.7	21	70	21	70	27	90
500m – 1km	5	16.7	4	13.3	4	13.3	3	10
1 – 2km	3	10	3	10	3	10	0	0
Above 2km	2	6.7	2	6.7	2	6.7	0	0
Total	30	100	30	100	30	100	30	100

Source: Authors’ Survey

The analysis in Table 6 indicates that the accessibility of farmers from their trip generation points to the access road is high. For example, 66.7%, 16.7%, 10% and 6.7% of farmers have access to motorable roads within less than 500m, 500m – 1km, 1km – 2km and above 2km, respectively. This result indicates that access roads are close to farmers' farming facilities, making it easier for them to carry out transportation activities.

Road Condition in Remoland

Table 7: Condition of roads in Remoland

Road condition	Respondents	Percentage
Very good	11	6.1%
Fairly good	36	20.0%
Poor	103	57.2%
Very poor	30	16.7%
Total	180	100.0%

Source: Authors' Survey

Table 7 shows the condition of road infrastructure in the study area. 6.1%, 20.0%, 57.2% and 16.7% of respondents indicate that the condition of roads in the study is very good, fairly good, poor and very poor. This result shows that the class of poor roads carried the highest share, and we can conclude that the physical condition of most roads in Remoland is generally poor.

Factors Affecting Transportation in Poultry Farming

The respondents gave the factors affecting the transportation need in poultry farming in the study area as follows: Poor roads condition (Mean=4.91, Std. D=0.293) was identified as the most affecting factor for respondents, followed by inadequate availability of transport services (Mean=4.86, Std. D=0.437), then Insufficient access roads (Mean=4.82, Std. D=0.501); Poor roads connections to villages and towns (Mean=4.74, Std. D=0.508), followed by the high cost of transport services (Mean=4.72, Std. D=0.695); High fuel price (Mean=4.72, Std. D=0.619) and Road safety and security (Mean=4.38, Std. D=0.785).

**Table 8: Factors Affecting Transportation in Poultry Farming**

Factors	N	Min	Max	Mean	Std. D
Poor roads condition	180	4	5	4.91	.293
Inadequate availability of transport services	180	3	5	4.86	.437
Insufficient access roads	180	3	5	4.82	.501
Poor road connections to villages and towns	180	3	5	4.74	.508
High cost of transport services	180	3	5	4.72	.695
High fuel price	180	3	5	4.72	.619
Road safety and security	180	3	5	4.38	.785
Valid N(listwise)	180				

Source: Authors' Survey

As shown in Table 8, the respondents’ greatest concern is the poor road conditions in the study area, limiting their ability to have seamless transportation activities for the effectiveness of their farming business. Likewise, insufficient transport services, inadequate roads, and limited access to neighbouring villages and towns significantly affect transportation for farmers and traders in Remoland. It is also observed that respondents are less concerned with transportation and high fuel costs compared to their concerns about the available road infrastructure conditions. Respondents are even less concerned about the security and safety of the roads, stating that if road conditions are improved, overall safety will also improve.

**Accessibility and Condition of Transportation Infrastructural Facilities**

An attempt was made to determine whether or not the accessibility and condition of transportation infrastructural facilities in Remoland correlate with the growth and development of poultry farming in Remoland. Chi-square was used to test the hypothesis, and the results are shown in Table 9.



Table 9: Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	38.542 <sup>a</sup>	4	.000
Likelihood Ratio	33.063	4	.000
Linear-by-Linear Association	15.818	1	.000
N of Valid Cases	180		

a. 0 cells (0.0%) have an expected count of less than 5. The minimum expected count is 5.40.

Source: Authors' Survey

From the results in Table 9, a correlation between transportation infrastructural facilities and poultry farm development was observed,  $X^2(4)=38.542$ ,  $p=0.000$ . With an Asymptotic Significance ( $p=0.000$ ) less than 0.05, we reject the null hypothesis that our variables are not significantly correlated. Therefore, these imply that if the transport infrastructural facilities are poor or not available, the poultry farmers would not be able to produce many eggs and birds since they would be worried about how to transport their products (eggs, meats and birds) from their poultry farms without much damage and loss while the price of the little products they can transport would be extremely high, and many of the consumers may not be able to afford the price. This scenario may affect their future decision to continue farming or not.

**Benefits to farmers**

The respondents' views on improving road transport infrastructural facilities in the study area can benefit those most were also analysed. From Table 10, it is observed that 30.6% of poultry farmers recognised that a change of state in the road transportation infrastructures condition would give them easy accessibility to domestic and international markets, 13.9% of the respondents agreed that it would make agricultural products to draw higher prices due to final condition of the products at the markets. Furthermore, 10% of the farmers believed it would help them have easy access to their respective farms, and 19.4% trusted that the improvement would reduce spoilage and damage to their farm products before reaching markets. Finally, the remaining 26.1% of the respondents believed that improving road transportation would benefit them in all the areas mentioned above and help reduce the challenges confronting them as poultry farmers on their farms.

**Table 10: Some ways that improvement on the condition of road transport infrastructure can be of benefit to farmers**

Benefits	Respondents	Percentage (%)
Easy accessibility to farm	18	10
Easy accessibility to the market	55	30.6
Attraction of higher price	25	13.9
Reduction in spoilage and damage to farm produce	35	19.4
All of the above points	47	26.1
<b>Total</b>	<b>180</b>	<b>100</b>

Source: Authors’ Survey.

**Conclusion and Recommendations**

This study investigates the influence of road transportation infrastructural facilities on the development of poultry farming in Remoland. This study adopted a Survey research design with a well-structured questionnaire and field observation, while descriptive and inferential statistics were adopted. The study results show that several types of roads and road infrastructures exist in the study area. However, these road transport infrastructures are in lousy condition where available, affecting the effectiveness of poultry farming, poultry product distribution, and marketing. The results thereby reveal that improvement in road transportation infrastructure facilities will significantly enhance the development of agriculture, including poultry farming, in the study area by attracting more buyers to the farms and markets and improving the socio-economic conditions of the poultry farmers and marketers. This research, therefore, recommends, among other things, the supply of an excellent road transport system and infrastructures through massive road rehabilitation and the provision of new ones. The provision of modern public transport services will assist in enhancing the effective and efficient movement of poultry products in Remoland, Ogun State in particular and Nigeria in general.

**References**

Afolabi, O. J., Ademiluyi, I. A. & Oyetubo, A. O. (2016). Analysis of rural transportation of agricultural produce in Ijebu North Local Government Area of Ogun State Nigeria. *International Journal of Economics & Management Sciences*, 6(1), 394-400.

- Afolabi, O. J., Oluwaji, O. A. & Onifade, T. A. (2018). Transportation factors in the distribution of agricultural produce to urban centres in Nigeria. *LOGI – Scientific Journal on Transport and Logistics*, 9(1), 1-10.
- Ajiboye, A. O. (2011). The effects of transportation systems on food marketing and security in Nigeria. *Journal of Logistics and Transport*, 4(1):57-72
- Ajiboye, A. O. & Afolayan, O. (2009). The impact of transportation on agricultural production in a developing country: A case of Kolanut production in Nigeria. *International Journal of Agricultural Economics and Rural Development*, 2(2), 49-57.
- Ajiboye, A. O. & Ayantoyinbo, B. B. (2009). Analysis of transportation and distributional problems of agricultural products marketing in Sub-Saharan Region: An application to Kolanut. *Journal of Technology, Entrepreneurship & Rural Development*. 4(1), 188–200.
- Hine, J. L. & Ellis, S. D. (2001). Agricultural marketing and access to transport services. Rural transport knowledge base. Rural Travel and Transport Program, pp. 1–11. SSATP, World Bank.
- Iman, Y. B., Chibok, B. M. & Gamamam, Y. (2014). Channels of distribution of agricultural produce in Nigeria. *Journal of Biology, Agriculture and Healthcare*, 4(22), 62-66.
- Kojo, A. A. & Gilbert, S. A. (2015). The impact of motor tricycles on transportation of agricultural produce in the Pru District of Ghana. *Global Journal of Biology, Agriculture & Health Sciences (GJBAHS)*, 4(3), 22–26.
- Ojekunle, J. A., Tsaku, D. O., Oluwole, S. M., Ajiboye, O. & Owoeeye, A. S. (2020). Analysis of transportation and distribution of yam produce in Nasarawa-Eggon Local Government Area of Nasarawa State, Nigeria. *LASU Journal of Transport*, 2(1), 33-47.
- Okpeke, M. Y. & Ellah, G. O. (2017). Analysis of poultry eggs marketing in south-south part of Nigeria: A case study of Ika South Local Government Area, Delta State, Nigeria. *Global Journal of Agricultural Research*, 6(3), 1-15.
- Oyesiku, O. O., Akinyemi, O. O., Giwa, S. O., Lawal, S. N. and Adetifa, B. O. (2019). Evaluation of rural transportation technology: A bicycle and motorcycle trailers case study. *Jurnal Kejuruteraan*, 31(1), 11-18.

- Tunde, A. M. & Adeniyi, E. E. (2012). Impact of road transport on agricultural development: A Nigerian example. *Ethiopian Journal of Environmental Studies and Management*, 5(3), 232-238.
- Udoye, C. E., Dimelu, M. U., Anugwa, I. Q., Ozioko, R. I. & Azubuike, F. C. (2019). Actors' satisfaction with the poultry value chain approach of the commercial agricultural development project in Enugu State, Nigeria. *Journal of Agricultural Extension*, 23(4), 157-174.
- Yusuf, I. E. (2020). The impact of road transport on tomato production and marketing in Nigeria. *Journal of Nigeria Transport History (JNTH)*, 2020:1-23.