

## **The Impact of Transportation on the Marketing of Agricultural Produce in Ndokwa East Local Government Area, Delta State, Nigeria**

Onah, Henry Heelas

Department of Geography and Environmental Management, University of Delta, Agbor, Nigeria

Email: [henry.onah@unidel.edu.ng](mailto:henry.onah@unidel.edu.ng).

### **Abstract**

The study examined the movement and distribution of agricultural produce in Ndokwa East Local Government Area of Delta State, Nigeria. The concept of spatial interaction which involved the principles of complementarity, intervening opportunities and transferability underpinned this study. One hundred (100) respondents made up of farmers, drivers and traders were purposively sampled and served with structured questionnaires. Focused Group Discussion and in-depth interview were also used to elicit information from different seller associations. Findings indicated that 82% of respondents do not have more than primary education while only 6% of them earn more than ₦50,000 monthly income. Deteriorating road condition, insecurity on the route ways (both the waterways and roads), fuel scarcity and the influence of road transport union were identified as problems militating against free flow of agricultural produce in the study area. The study concluded that an improvement in the transport network in the rural areas will enhance increased productivity and self-reliance. This will further improve employment opportunities, improved income, reduction in poverty level and improvement in the standard of living in rural communities. Based on the findings, the study suggested that there is urgent need for efficient road maintenance through participatory approach. The State Government, multinational oil companies, the Niger Delta Development Commission as well as the Ministry of Niger Delta should develop appropriate rural transport policy to address the chronic problems of transportation in the study area.

**Keywords:** agricultural produce, rural transport policy, sellers association, transport operators, waterways.

### **Introduction**

Transportation is that part of economic activity which is concerned with increasing the mobility of people, goods and services. Mobility of people and goods is an essential part of all social and economic activities, and transportation plays an important role in the movement and distribution of goods and services. Filani (2000) posited that transport links people to local and international environment, and act as key to the development of industries, agriculture, settlement, commerce, among others. Omiunu (2007) contended that transportation as facilitative link enhances general economic development, aids production and distribution, and above all, is a direct contributor to Gross Domestic Product (GDP), and thus enhancing high standard of living. It is an essential ingredient of development since there is always a need to collect, assemble, move, transfer and distribute goods and services from spatially differentiated origins and destinations (Ipingbemi, Omirin & Adesoye, 2011).

Transport is a key element in the social and economic development of any nation. At the social level, a well-organized and functional transport system provides access to employment, health centres and educational institutions to citizens. From the economic point of view, an adequate and

efficient transport system transform local markets into regional, national and international hubs. It holds the key to the development of urban centres as well as rural areas of the world.

Rural transport is crucial in developing countries because the rural areas remain home to majority of the population. In Nigeria, for example, rural areas house over 60% of the population and agriculture employs more than 80 percent of the rural inhabitants (National Bureau of Statistics [NBS], 2011). In spite of the significance of rural transport infrastructure and services to rural development and particularly food production and overall agricultural development, the rural areas still suffer mobility constraints and transport difficulties (Iweka, 2013).

Poor accessibility in rural areas of developing countries perpetuates the deprivation trap by denying communities access to their most basic needs of water, power, food, health services, education and employment (Lasisi & Makinde, 2020). Rural dwellers rely on these poorly maintained roads to transport crops, raw materials and food stuff that are meant to be consumed in the urban areas.

Ndokwa East Local Government Area has very poor network of roads as most communities are not linked with access roads. Worst still, the swampy terrain make the few roads constructed washed off or flooded during wet season, thereby posing serious challenge in the movement of these agricultural produce from the farms to the markets for sale.

As rural dwellers face severe difficulties in marketing their agricultural produce, this in turn limit sales of such produce. Rural transport system is poor which leads to the high cost of transportation, inefficient distribution and delay in reaching the final market. This scenario results in high crop rot which affects farmers' income and subsequently their level of investment leading also to vicious cycle of low production.

It is imperative to ascertain to what extent does rural transportation affect the distribution and marketing of agricultural produce in Ndokwa East Local Government Area of Delta State in Nigeria. This paper addresses this and other related issues in the study area. The study examined the impact of transportation on the marketing of agricultural produce in Ndokwa East Local Government Area of Delta State in Nigeria. This will be achieved through the following objectives: examine the socio-economic characteristics of the farmers, mode of transportation of agricultural produce to the towns and markets, effects of transportation cost on the farmers' income and problems in the movements of agricultural produce to the towns and markets.

### **Conceptual Framework**

The concept underpinning this study is the spatial interaction model illustrated by the three basic concepts of complementarity, intervening opportunities and transferability by Edward Ullman (1956) otherwise referred to as "Ullman Triad". Transport development and improvement foster increased spatial interaction (Omionu & Onokerhoraye, 1995). The concept of complementarity implies that interaction between two or more places is a function of specific interdependence. Resources have both quantitative and qualitative variation over space. There are places of surplus resources while there are also places of deficit. Hence this areal differentiation give rise to spatial exchange. For two or more places to interact, there must be an interchangeable factor of supply and demand. Complementarity in demand and supply between regions will foster spatial interaction. Intervening opportunities explains the emergence of new alternative sources of supply

which in essence can substitute the initial area of supply and subsequently reduce the friction of transportation. Omiunu and Onokerhoraye (1995) opined that intervening opportunity is not always a limiting factor to long distance interaction. Omiunu and Onokerhoraye observed that an intermediate transport link can make interaction more economically rewarding thereby soaking up the potential interaction between complementary places.

The concept of transferability focuses on the friction of distance as measured by time, cost and convenience or discomfort. The longer the distance, the higher the cost of transportation. This is why transport planners attempt to provide means of improving transport systems between areas or regions by improving or upgrading existing modes and networks.

Ndokwa East comprises of one hundred and twenty-seven villages and towns most of which are poorly linked by roads (NPC, 2006). This concept is relevant to this study as yams which are produced in large quantities in Onuaboh and Utchi are needed in the market in Ashaka. Thus, this demand in one area and supply in another area explains the complementarity concept. However, the markets in Kwale could even provide option for the marketers and transporters thereby intervening in the opportunity for the buyers in Ashaka. Similarly, distance in terms of cost could also limit this exchange in demand and supply.

### **Review of literature**

The importance of road transportation in agricultural development and marketing has been stressed by several researchers. Ogunsanya (1988) using a clockwise binary regression analysis, concluded that the most important factors contributing to high cost of foodstuff were high cost of labour and transportation problems and these had severe consequences on farmers in the rural areas. Ajiboye (1994) in his study on rural accessibility and transportation in Ijebu North Local Government Area of Ogun State established a positive correlation between agricultural production and transport. Ajiboye observed that inadequate and poor transportation network was the most significant constraint associated with agricultural development.

Ajiboye and Afolayan (2009) opined that inadequate transport facilities have a negative effect on the production and prices charged on agricultural produce. The study concluded that an improved transportation will encourage farmers to work harder in the rural areas. This will ultimately add value to the products, reduce spoilage and wastage, empower farmers, reduce poverty levels and increase income and employment levels. Aderamo and Magaji (2010) observed that the development of rural transportation has suffered neglect in comparison with urban road networks in Nigeria. Using the regression analysis, the study concluded that there was a strong positive relationship between road network development and distribution of public facilities. The study recommended the Federal and State governments' intervention in road network development as well as the provision of more facilities to make life better for the people.

Tunde and Adeniyi (2012) contended that road transport has both positive and negative impact on agricultural development in Ilorin East Local Government Area of Kwara State. The study advocated for community participation in the construction and maintenance of rural roads. The African Development Bank (2013) highlighted three areas of rural transport constraints as lack of access roads for a large numbers of rural communities, poor mobility due to lack of organized and efficient public transport and a low vehicle ownership rate in rural areas in developing countries.

Iweka (2013) in his study, actualizing vision 20:20:20 goals through Rural Transport Infrastructure Development, observed that there was a significant difference between transport infrastructure linking the farms and the volume of yam production in Ika region of Delta State. The study concluded that improved road transport will lead to increased agricultural production. Adeniyi, Akinrinmade and Abiodun (2018) opined that rural transport is a significant channel of ensuring effective movement of rural people and the collection and exchange of goods and services to enhance rural economy and development in Nigeria. The study recommended that local government councils should be equipped with finance, personnel and facilities to manage and maintain rural roads to ensure effective movement. The Federal and State governments should also embark on policies like upgrading and maintenance of rural roads and rural infrastructure towards rural development in Nigeria. Okolo (2021) considered the challenges of physical distribution on agricultural produce in Nigeria. He concluded that poor transportation network and inadequate storage facilities have a significant negative influence on efficient and effective distribution of agricultural produce in rural areas. The study recommended that government can encourage local and international supply of agricultural produce by building good road network as well as producing adequate storage facilities for farmers.

### **Description of Study Area**

The study area is Ndokwa East Local Government Area of Delta State. It is geographically located between latitude 5° 15'N to 6° 00'N and longitude 6° 14' E to 6° 40' East. Ndokwa East LGA is bounded on the West by Ndokwa West, Isoko North and Isoko South; on the North by Aniocha South and Oshimili South Local Government Areas; on the South by Bayelsa State; and on the East by River Niger which separates her from Anambra, Imo and Rivers States (figure 1 and figure 2).

Ndokwa East Local Government Area extends for about 30 kilometres from Ude-Ossissa in the West to Abala-Oshimili in the East on the bank of River Niger; and for about 84 kilometres from Abala-Uno in the North to Asaba-Ase in the South-East. It has an area of 1,617 square kilometres. (Ministry of Lands and Survey, Asaba). The area has a population of 103,224 comprising of 52,306 males and 50,918 females (NPC, 2006). Using the Nigerian annual growth rate of 2.67% as stipulated by the United Nations Department of Economic and Social Affairs (UNDESA) (2019), the population of Ndokwa East Local Government Area is projected to 162,515 in 2023, consisting of 82,350 males and 80,165 females. The population density of Ndokwa East is put at 87.671 square kilometres (NBS, 2018). The distribution of age groups with this population projection to 2023 shows that 61,918 people were 14 years and below representing 38.1%, 15-64 years were 91,821 representing 56.5%, while 65 years and above were 8,776 people representing 5.4%.

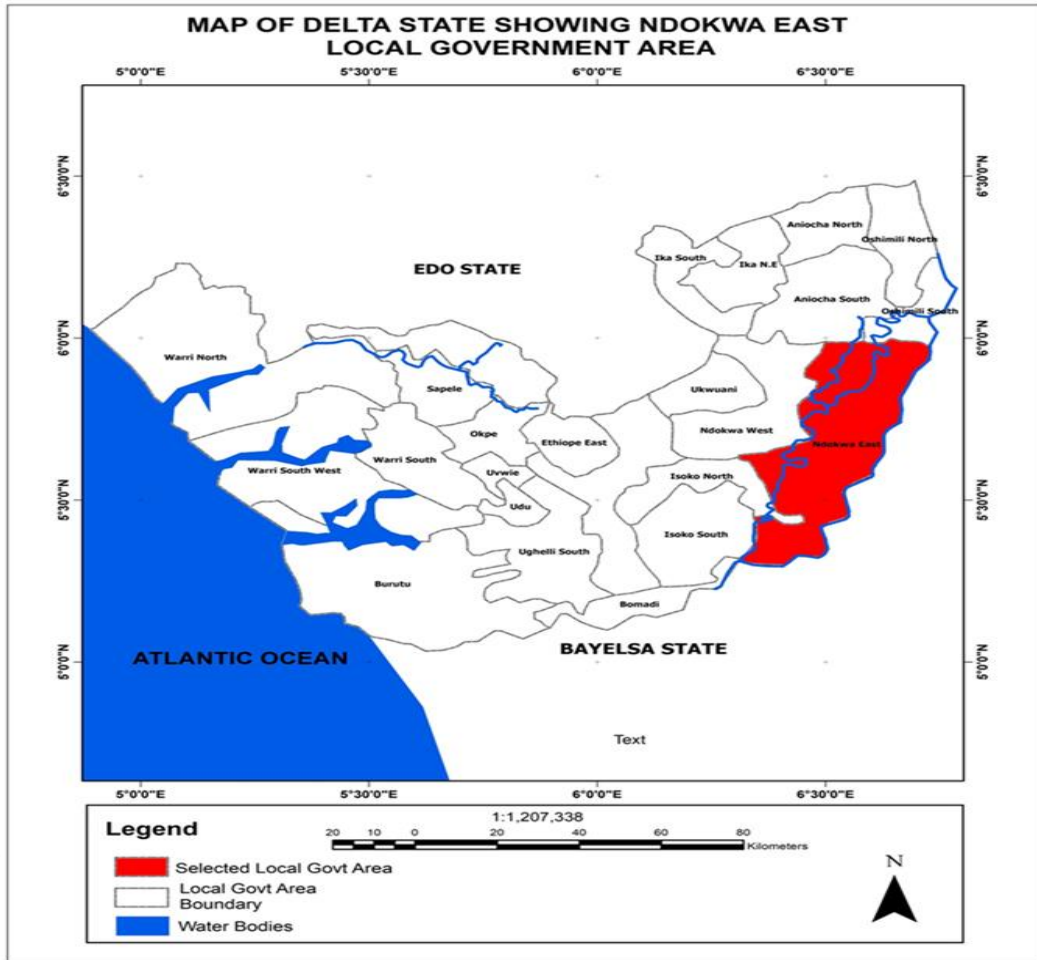


Figure 1: Map of Delta showing Ndokwa East Local Government Area

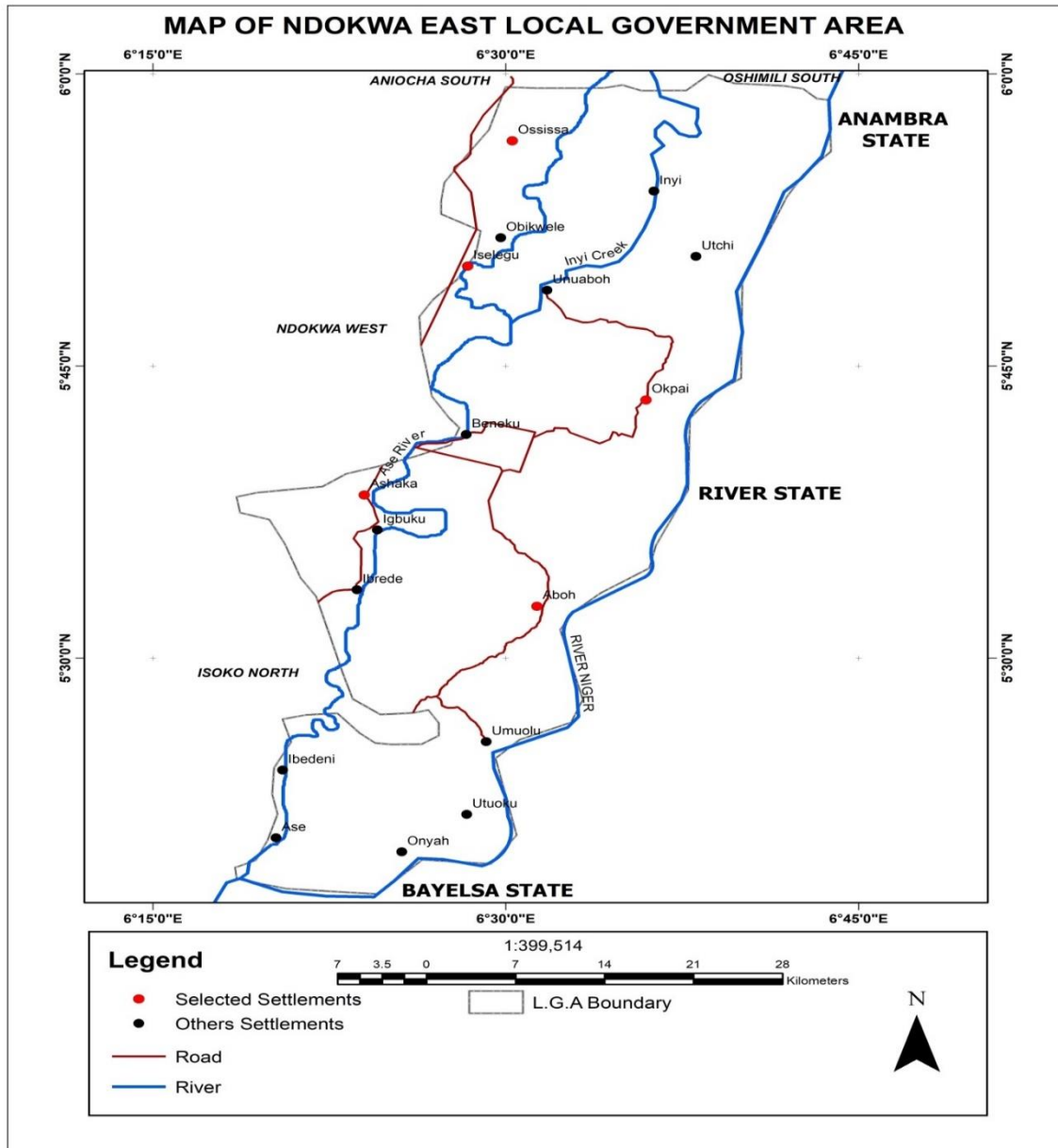


Figure 2: Map of Ndokwa East Local Government Area, Delta State.

The study area consists of one hundred and forty six localities from twenty-two clans and are mostly rural communities and hamlets except for Aboh, the local government headquarters and Ashaka. The study area is mostly swampy characterized by annual flooding during the wet season with poor network of roads which are impassable for most parts of the year. However, the people are purely farmers and travel to markets to sell their produce. The major markets are located in Ashaka, Aboh, Iselegu and Ossia which are mainly periodic markets.

## **Material and Methods**

The method of investigation is descriptive in nature. One hundred respondents were randomly selected from the five major settlements of Aboh, Ashaka, Ossissa, Abala and Ibrede using a purposive sampling method. In each settlement, a total of twenty copies of questionnaires were randomly administered, fifteen copies to farm families and five copies to transporters.

The questionnaire sought information on the socio-economic characteristics of the respondents, farm income, cost of transportation, type and output of agricultural production, and frequency of modes of transportation used and the effect of transportation on agricultural production. Interviews and discussions were also conducted with the transporters and farmers. Data collected was analyzed using descriptive statistics such as tables, frequencies and percentages. The respondents were crop farmers (yam and cassava), fishermen and women, traders on these goods as well as transporters.

## **Result of the findings**

### **Socio-economic characteristics of respondents**

The socio-economic characteristics of the respondents shown in Table 1 indicated that there were more males (60%) than females (40%) engaged in farming in the study area. Similarly, 80% of the farmers were within the economically active age of 20 to 59 years, while 63% of the farmers were married. Meanwhile, 58% of the farmers do not have formal education, 24% had only primary education, 13% had up to secondary education and 5% had tertiary education.

On the average monthly income of the farmers, 31% made less than ₦25,000, 63% were between ₦25,000 and ₦50,000 income bracket, while only 6% made between ₦50,000 and ₦75,000. However, none of the respondents agreed that they made over ₦75,000 and above, particularly for fear of being taxed or for reasons best known to them. This low income was partly due to the problem of transportation and distribution, and also the fact that some farmers were at the subsistence level mainly to cater for their family needs only.

**Table 1: Demographic and Socio-Economic Characteristics of Respondents.**

<b>Variables</b>	<b>Percentage (%)</b>
<b>Sex</b>	
Male	60
Female	40
<b>Age (Years)</b>	
Less than 20	-
20 – 29	5
30 – 39	20
40 – 49	35
50 – 59	20
60 and above	20
<b>Marital status</b>	
Single	13
Married	63
Separated	-
Divorced	8
Widow(er)	16
<b>Educational attainment</b>	
No formal education	58
Primary education	24
Secondary education	13
Tertiary education	5
<b>Monthly income</b>	
Less than 25,000 Naira	31
25,001 – 50,000 Naira	63
50,001 – 75,000 Naira	6
75,001 – 100,000 Naira	-
Above 100,000 Naira	-

*Source: Field Survey, 2022.*

### **Mode of Transportation of the respondents**

The means of transportation were mainly head portorage, bicycles, motor cycles, public transport (pick-up van and buses), lorries on the road; and canoe or boat along the river courses as illustrated in Table 2.

**Table 2: Types of Vehicles used for transportation of agricultural produce.**

<b>Types of Vehicles used in conveying Produce</b>	<b>Percentage (%)</b>
Boats and Canoes	20
Head Porterage	25
Bicycle	15
Motor cycle	20
Bus/ Pick-up van	10
Truck/ Lorry	10
Total	100

*Source: Field Survey, 2022*

The use of canoes/boats accounted 20% of the total vehicles used in the movement of agricultural produce, due mainly to the riverine nature of the local government area. Head porter age was very common as farmers use it to move their products from their farms to the house due to insufficient motor vehicles in those areas, this accounted for 25%. Bicycle and motor cycle made up 15% and 20% respectively. Public transport in form of buses and pick-up vans as well as lorries or trucks contributed 10% each to the haulage of agricultural produce.



## Types of agricultural produce transported

Investigation on the type of agricultural products moved by the transporters as illustrated in Table 3 revealed that 51% of the goods consisted mainly of foodstuff especially yam, cassava products and fish.

**Table 3: Types of Agricultural products transported.**

Agricultural products transported	Percentage (%)
Foodstuffs (yam, cassava flakes)	51
Fruits (banana, oranges, pineapples, pawpaw)	15
Other products	34
<b>Total</b>	<b>100</b>

Source: Field survey, 2022.

Another 15% were fruits such as banana, plantains, oranges, pineapples, pawpaw among others, while 34% carried any products available for distribution, be it foodstuff, fruits, livestock and the rest.

## Transportation cost of agricultural produce on farmers' income

Transport cost of agricultural produce from the farm to the town or the markets affect the level of production and the income of the farmers as fares were determined by distance of the farms, nature of the roads and the type of produce. Table 4 illustrated the average amount farmers spend to convey their goods to the market.

**Table 4: Transport cost of agricultural produce to markets.**

Average amount spent by farmers to markets (Monthly/ Per annum)	Percentage (%)
Less than ₦5000 monthly / ₦60,000 annually.	11
₦5000 – ₦10,000 monthly / ₦60,000 – ₦120,000 annually.	37
More than ₦10,000 monthly / ₦120,000 annually.	52

Source: Field Survey, 2022.

The result of the study reveal that 11% of the respondents spent less than ₦5,000 monthly or ₦60,000 annually in moving their goods to the market, 37% spent between ₦5,000 and ₦10,000 monthly or ₦60,000 to ₦120,000 per annum, while a whopping 52% spent more than ₦10,000 monthly or ₦120,000 per annum to move their produce to various markets where they were in high demand. This increasing cost of moving farm produce to the markets where they were needed further depletes the income of the farmers who resorted to selling to middlemen who came to the interiors to buy up the produce from the real farmers. The interview with transporters revealed their preference of plying settlements well connected to good roads as bad roads affected the lifespan of their vehicles.

## Transportation problems in the movement of agricultural produce

The problems encountered in the movement and distribution of agricultural produce by both the transporters and the farmers were also investigated. Figure 2 revealed that 55% of the respondents attributed the problem to poor roads, 30% associated it to insecurity especially armed robbery attacks and kidnapping, 10% to fuel scarcity while 5% were due to activities of transport unions like the national union of road transport workers, motorcycle rider's union and so on.

There was the problem of poor state of the roads in such rural environment coupled with poor road connectivity. Most communities were not interconnected by roads or even by rivers. This was due to long years of total neglect by both the federal and state government especially towards developing rural roads. Similarly, the high rate of insecurity due to the activities of armed robbers and kidnappers on those roads resulted in scarcity of vehicles in conveying agricultural produce to the markets. In-depth interviews revealed that the poor state of the roads was responsible for the frequent breakdown of vehicles on such roads. The respondents complained that vehicles breakdown leads to wastage or spoilage of perishable products due to the inability of sellers to get such products to markets on time.

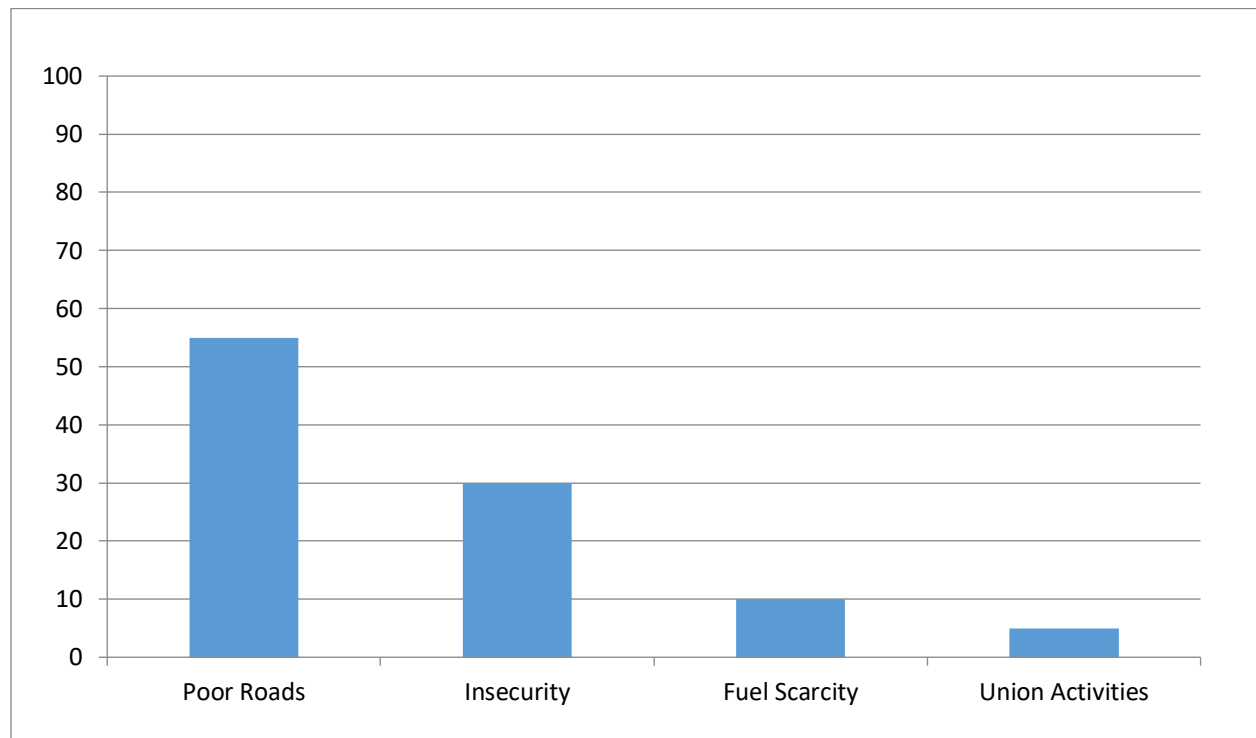


Fig. 2: Transportation Problems in the study area

In most cases, the roads become impassable due to flooding during wet season. The general consensus among the drivers and traders was that poor government attitude to road maintenance, negligence and lack of institutional framework for rural roads programs were cited as reasons for poor road condition in the study area.

### **Conclusion**

This study has examined the impact of transportation on the marketing of agricultural produce in Ndokwa East Local Government Area of Delta State Nigeria. The findings of the study revealed that transport play important roles in food production, distribution and marketing, hence efficient transportation strengthens rural economy. An improvement in transport network in the rural areas will enhance increased productivity and self-reliance. This will further improve employment opportunities, improved income, added value to farm produce, reduction in wastage of products and reduction in poverty level and improvement in the standard of living in rural communities.

## Recommendations

Based on the findings of the study, the recommendations were made;

- i. Community participation approach should be encouraged as this has worked in some rural road development programmes in other parts of the world.
- ii. Local government councils should speed up the maintenance of rural roads through the labour-Based Technology (LBT) approach.
- iii. The local government council should liaise with the police and various community vigilante groups to offer community policing on the various roads to check the menace of armed robbery attacks and kidnappings.
- iv. While it is important to belong to a union because of its associated advantages, the government should also be regulating their activities so that they do not become problems to motorists and commuters alike.
- v. It is equally essential that government provides storage facilities in some of the rural communities so that both farmers and sellers can make use of them especially when there is a breakdown of vehicles lasting for more than one day.
- vi. The local government council can liaise with the National Inland Water Transport Authority (NIWA) to operate ferry services within the area so as to reduce the transport bottlenecks in the riverine parts of the study area.

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