

Analysis Of Road Transport Impact On Rural Development In Nigeria : A Study On Akure North Local Government Area, Ondo State

ADENIYI Joshua Olu, AKINRINMADE Yomi , ABIODUN Ayodeji L.

Abstract— Rural transportation 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. This study was aimed at assessing road transportation impact on rural development, with a view to determine the contributions of road transport to rural development. Eight settlements were selected randomly in the study area with total population of 2,651 (1991 population census). This was projected to year 2015 and amounted to 4,794 at which 5% was taken as sample size. This translated to 240. Therefore, 240 questionnaires were administered in the study area. Systematic Sampling technique was used for the questionnaire administration. Findings from the study revealed that the rural roads are in poor condition which has influence on the cost of transporting farm produce and economy of the area. Recommendations were made to improve the existing road condition of the study area; Local Government Council should be equipped with finance, personnel and equipment to manage and maintain rural roads to ensure effective movement and Federal and State Governments should embark on various policies such as upgrading and maintenance of rural road, rural empowerment and development, rural infrastructure improvement and development towards enhancing rural development in Nigeria.

Index Terms— Rural transportation, rural infrastructure.

I. INTRODUCTION

Riverson et. al (2009) defined transportation as the safe and efficient movement of people and goods. Transportation system can be considered as fixed facilities, which permit people and goods to effectively overcome the friction of distance over a particular geographical space, so as to participate in some desired activities. Transportation provides the connectivity in which people and socio economic activities are actualized. Its role in the daily activities of all mankind cannot be overemphasized both in rural and urban areas. Without transportation, the necessities of life in rural and urban areas would be difficult to achieve.

The word 'rural' can be defined using different criteria, depending on their developmental level. What developed countries regarded as rural area may be different in the developing countries like Nigeria. Aderamo et al, (2010), described rural settlement as a settlement with less than 20,000 people and predominantly engaged in primary

activities and production. A rural area was also described by (Weir and McCabe, 2012) as areas with relatively low development densities and low population.

Rural development is the way of improving the quality of life and well-being of people in the rural areas, as well as provision of infrastructure, improving economic activities and agricultural production of the area. Rural development is a comprehensive concept that encompasses the development of agriculture, village and cottage industries and crafts, socio-economic infrastructure, community services and facilities and, human resources in rural areas (Ale, 2013). In view of the above, rural development is the final result of interactions between various physical, technological, economic, social, cultural and institutional factors to improve the well-being of the rural people. Rural areas are engines of industrial and economic development in most cities, as result of its dependant on agricultural produces. Rural development as a strategy, it is designed to improve the economic and social well-being of the people. The major objective of rural development encompasses improved productivity, increased employment and high income for target group as well as improved qualities in the basic needs of life which include food, shelter, job opportunities, health services and education.

Ademiluyi and Solanke (2002) stated that adequate and efficient rural feeder road network serves as one of the channels for the collection and exchange of goods and services, movement of people and dissemination of information. Therefore, rural roads help in enhancing rural productivity as well as strengthening the socio-economic, cultural, and political activities of the rural communities.

Rural transportation comprises the transport activities which take place at the local government area, community and household levels. It includes the rural transport services for passengers and freight by motorized and non-motorized means of transport and rural transport infrastructure. These are mainly rural road, tracks, trails, paths, and in some cases waterways. The shortcoming of infrastructure development in over 90,000 rural communities in Nigeria is either inadequate provision or outright neglect (Adesanya, 1991).

Rural areas serve as the base for the production of food and raw materials, the major sources of capital formation for a country, and a principal market for domestic manufactures (Olayiwola and Adeleye, 2005). Rural areas engaged in primary activities which form the foundation for any economic development. Despite this level of contribution to economic development, rural areas have been neglected in terms of development which has made it non-attractive to live in and also increase poverty level in the rural areas. This is justified by the high correlation that exists between rural

ADENIYI Joshua Olu, Department Of Urban And Regional Planning, Rufus Giwa Polytechnic, Owo, Ondo State

AKINRINMADE Yomi , Department Of Urban And Regional Planning, Rufus Giwa Polytechnic, Owo, Ondo State

ABIODUN Ayodeji L., Department Of Urban And Regional Planning, Rufus Giwa Polytechnic, Owo, Ondo State.

living and poverty with this situation particularly prominent in developing countries (World Bank, 1994).

Sustainable rural development is a function of a number of factors in which transportation is of utmost importance. Efficient and effective rural transportation serves as one of the channels for the collection and exchange of goods and services, movement of people, dissemination of information and the promotion of rural economy. According to Akinola (2007), most of the rural roads are in poor condition, and this has imposed significant cost on the national economy especially to the agricultural activities due to increased vehicle operating costs and travel times.

As a matter of fact rural settlements harbors more than 60 percent of the overall Nigeria population (Baker, 2000) and is the source of food and raw materials to the Nigerian urban centers. However, urban centers enjoy comparatively better transport facilities than the larger rural communities. In view of the above, the research is focusing on assessing rural transportation and its role in rural development, with special emphasis on Akure North Local Government Area of Ondo State.

II. STATEMENT OF THE RESEARCH PROBLEM

Ale (2013) attempted to relate rural transportation to food crop production. He stated that poor road condition and high cost of transport of both farm output and input formed repellent factor that discourage farmers from improving their farming system. Csaki and Tuck (2000) asserted that rural transport contribute to improving rural well-being and increase rural businesses as well as farm activities which have overriding objective of poverty reduction and economic growth. Titilola (1999) also attempted to relate transport provision to the well-being of the people in various settlements. Asian Development Bank (ADB, 2007) addressed the issue of rural roads in relation to poverty reduction. Aloba (1983) also carried out research on evolution of rural transport network in South Western Nigeria and concluded that the increase in rural settlements in South Western part of Nigeria led to an increase in rural transport network. Similar study was carried out on the problem of rural urban spatial inefficiency in the provision of transport facilities (Ogunsanya, 1987). The author discovered that out that inadequacy of rural transportation facilities was a serious constraint in rural development.

Akinola (2007) noted that rural areas' condition in the country is poor, since they are deprived of social and infrastructural facilities, compared to the urban areas. Oni and Okanlawon(2006) stated that the neglect of roads in Nigeria increases the cost of maintenance at the end of rainy season. Similarly, Aderamo and Omolaran (2006) noted that rural transportation in the country remain difficult due to poor condition of transportation services.

From the foregoing, this study attempt to assess the impact of road transport on rural development, with a view to recommend policy measures to improve the present situation

of road transportation, in order to enhance development in the study area.

III. AIM

The aim of this study is to assess road transport impact on rural development with a view to determining the contribution of road transport to rural development in Akure North Local Government Area of Ondo State, Nigeria, and suggesting appropriate planning measures for sustainable rural development.

IV. OBJECTIVES

In order to fulfill the aim of this study, the following are the specific objectives of the study:

1. To identify and examine the socio-economic characteristics of people in Akure North Local Government Area;
2. To examine the existing condition of road transport in the study area;
3. To examine government contribution to rural transportation development in the study area; and
4. To identify the various transport challenges in the study area.

The study area

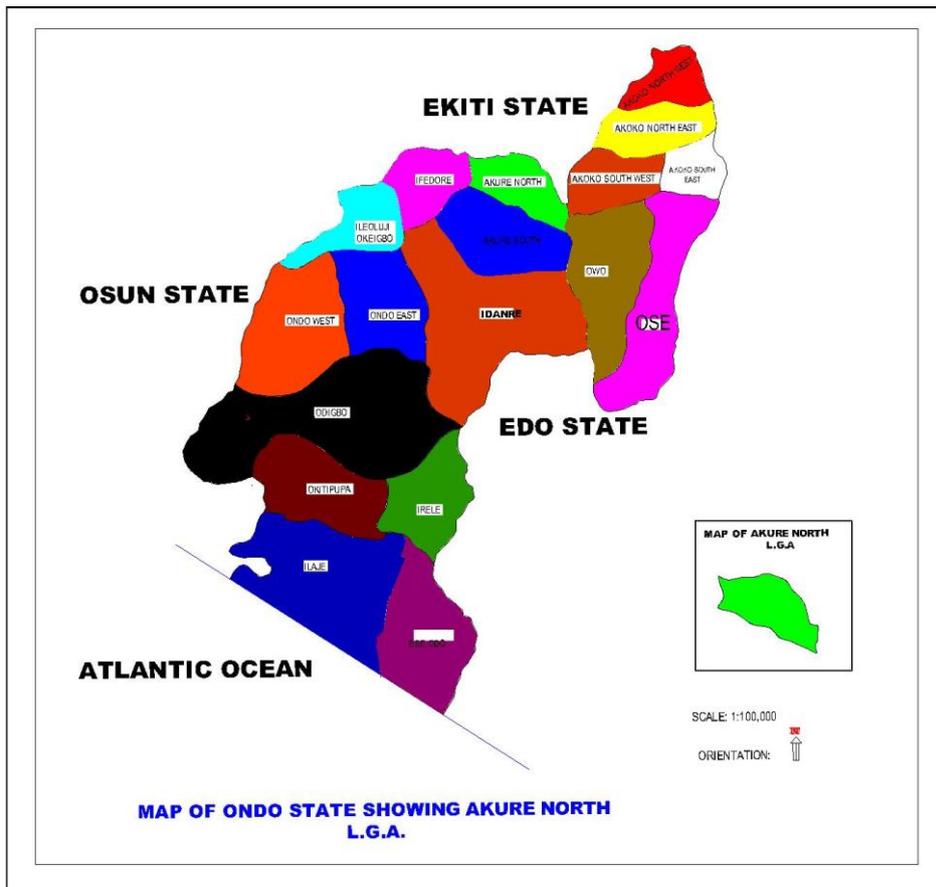
History revealed that Ile-Ife in Osun State is the origin of Yoruba. All the towns and villages that constitute Akure North Local Government Claimed that they hailed from Ile-Ife. Akure North Local Government was created in 1977 after the Local Government reform of 1976 during General Olusegun Obasanjo Military regime. Iju/Itaogbolu is the Local Government headquarters of Akure North which is 18 kilometers from Akure the state capital. It has a total land area of 676.7kilometresquare (Facts & Figures on Ondo State, 2010). Akure North local government is bounded in the north by Ekiti State, south by Akure South Local Government, East by Akoko South West Local Government and in the West by Ifedore Local Government respectively.

According to 2006 population census figure, Akure North Local Government has a total population of 130,765. The projected population for the region at a growth rate of 2.5 per cent for 2015 is 163,325.

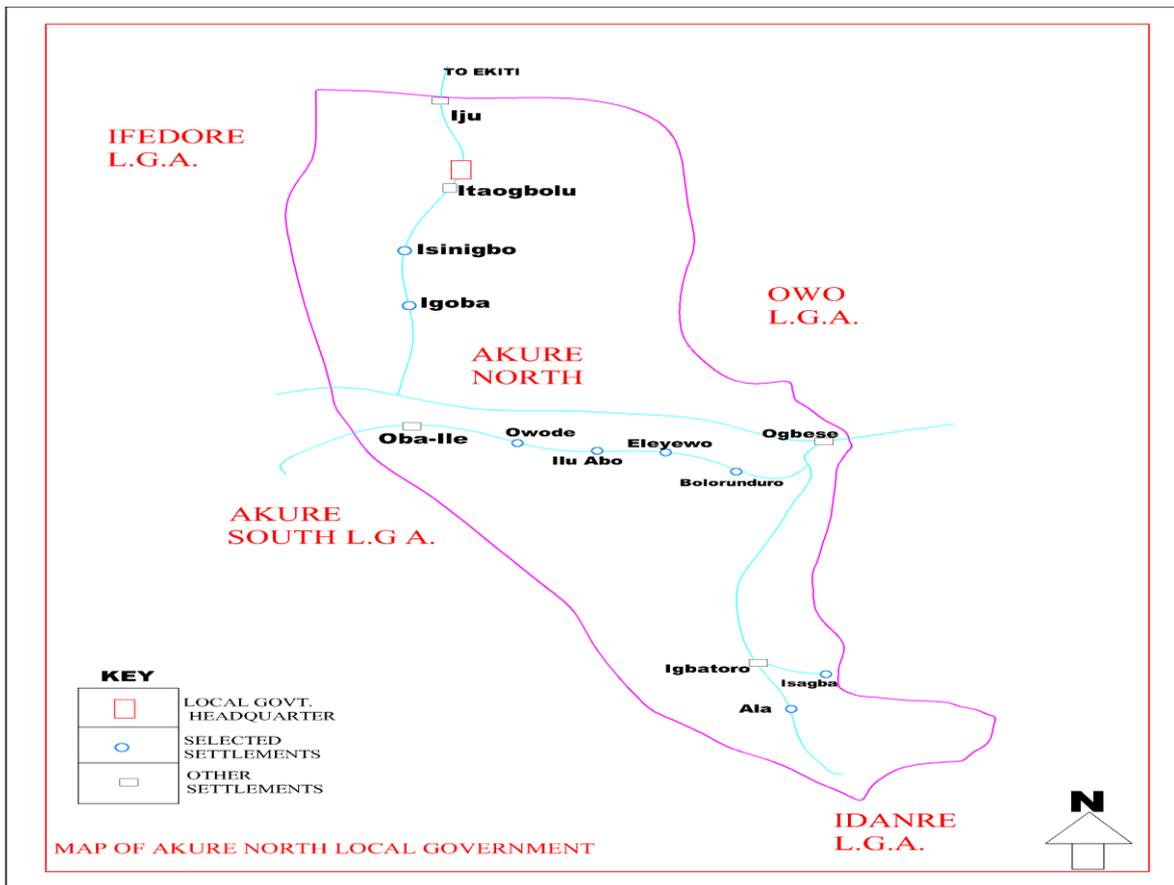
The local government enjoys a tropical climate with rainy season from April to October and dry season from November to February every year. This climate supports both cash and food crops, which accounts for abundance of agricultural products such as cocoa, palm oil, yams, maize, fruits, vegetable to mention a few. The vegetation is tropical boasting of such hardwood as Iroko, Mahogany, Obeche, Teak and Afara as well as various types of soft wood.



Map of Ondo State in National settings



MAP OF ONDO STATE SHOWING AKURE NORTH L.G.A.



V. REVIEW OF RELEVANT LITERATURE

Papacostas (1987) defined transportation as a system that consist of the fixed facilities, the flow entities and the control system that permit people and goods to overcome the friction of geographical space efficiently in order to participate in a timely manner in some desired activity. Ademiluyi and Solanke (2002) stated that transportation is that part of economic activity which is concerned with increasing human satisfaction by changing the geographical position of goods and people. This is particularly so in the context of a developing community where transportation is considered as the engine of growth of such economy.

Transportation is necessary ingredient in economic and social development. Its play an important role in getting land into production, marketing, agricultural commodities, development of industries, health and education programmes and the exchange of ideas (Olawole, Aloba and Adetunji, 2010)

According to Olawole et.al, (2010), accessibility and mobility are capable of reducing the level of poverty of rural people because the basic necessity of life such as health care delivery, education, etc. will become more accessible to them. Rural transportation system consists of transport infrastructure, transport operation and the transport users Starkey et.al, (2002). They further extend the list of elements in rural transportation as follows; networks, terminal, interchange points, motive power/ Mobile facilities, Operators, Management and Control and supportive services.

In the light of the above, development in the rural sector can hardly be achieved without adequate transport infrastructure and services. It is clear that rural transportation plays an important part in rural development. It provides the means by which local communities can access the

opportunities and necessities which can enhance their livelihoods.

Filani (1988), transportation is so important and without it, the inherent potentials of an area may not be realized. The provision of road transport as an approach to rural development is one of the methods mostly used by developing countries of the world in which Nigeria is not left out. Therefore, efficient and effective rural road transportation within rural communities and nearest urban market enhances communities' interaction and improve socio-economic of the people through the sales of their agricultural products.

Rural road network has significant effect on the distribution of facilities in rural areas and has the potential of reducing poverty (Aderamo et al, 2010). Ogunsanya et al, (1993) observed that the need for transportation arises in any economy that is distributed over space, this need is particularly so in the context of community development where transportation is considered as the engine of growth of such economy.

Rural transportation is essential not only for connecting people to agricultural product, health care and family in the ways that enhances their quality of life, but also for contributing to regional economic growth and development by connecting business to customers, goods to markets and tourists to destinations. Commodities including timber, fuel and agriculture product must be moved from rural areas where they are produced to urban areas where they are processed, consumed, or sent out of the state or country. Rural road network has significant effect on the distribution of facilities in rural areas and has the potential of reducing poverty (Aderamo et al, 2010).

VI. RURAL DEVELOPMENT STRATEGIES IN NIGERIA

Rural development strategies have classified into various forms over the years, especially during the 20th century. It was originated from the developed countries and then spread through different channels to the developing nations like Nigeria particularly during the post-colonial periods.

➤ Operation Feed the Nation (OFN) and Green Revolution

The 1976 Operation Feed the Nation (OFN) programme and that of Green Revolution of 1979 in Nigeria readily come to mind. Both programmes were aimed towards developing agriculture in Nigeria. The continuous deteriorating state of food production nationwide led to the inauguration of Operation Feed the Nation in May 1976 with the aim of making farming attractive to all and sundry. The Operation Feed the Nation was designed to give encouragement and material assistance to the people in form of technical advice and distribution of farm inputs as subsidized prices.

➤ The Directorate of Food, Roads and Rural Infrastructure (DFRRI)

In 1986, the Directorate of Food, Roads and Rural Infrastructure was to oversee the implementation of the Federal Government rural development budgeting package. The programme commenced a nationwide rural water sanitation and rural roads construction scheme towards the end of 1987. The programme aimed at developing the rural areas, knowing fully well that one of the bases for successful planning rests on the premise of knowing what happened in the past and using the past knowledge to assess the current situation and finally project and plan for the future.

Conceptual framework

- Economic development model
- Spatial interaction model
- Urban development model

Economic development model

General economic development model was postulated by an American economist Hirschman in 1958 in order to extend development from urban core area to the periphery to ensure balanced development. This theory is of the opinion that growth is supposed to trickle down from the core to the periphery to ensure a balanced development without an area being worse-off either rural or urban. Obateru (2005) recognized a growth pole to be a point which centripetal forces are attracted and from which in time centrifugal forces emanates throughout the field of influence of the set of activities constituting the pole. This growth pole concept has been used by many regional planning scholars in regional development issues because the concept has a fundamental importance to contemporary regional planning and constitutes a significant percentage of regional planning activities. According to Okafor et al, (1986) one of the main advantages of this model as a tool of spatial analysis and planning of rural development relates to its total coverage of the national space economy thus embracing both urban and rural development.

Spatial interaction concepts

Ullman (1956) postulated three concepts which are relevant to this study. These are: complementarity,

intervening opportunities and transferability. Complementarity implies area differentiation in the natural resources and the existence of supply and demand in different areas, which can result in interaction between two distances. It is clear that significant proportions of people residing in the rural areas are farmers, because the rural communities are able to meet the demand of the farmers through the provision of fertile soil and adequate land area for farming activities.

Intervening opportunity set up constraints as to the possibility of interaction taking place between two places, even if the condition of complementarities is fulfilled. An efficient and effective road transport gives way to intervening opportunities within communities such as market, health centres etc., which can catalyze rural development in Nigeria.

The third one, which is transferability, relates to the ease with which demands between two complementarities places could be met and it is measured in real terms of transfer and time cost. Effective rural road network is essential for ease mobility of people and goods to various rural communities for rural development and interaction.

Urban development model

This model concentrated on development projects in urban centres with the assumption that development will spread to the rural areas from the urban centres. One of the proponents of this model is Lele in 1975 who argued that tricked down benefits from the urban centres will stimulate economic development in the rural areas. However, the concentration of development incentives in urban centres has not had the expected impact on the rural areas. Instead it has attracted large numbers of jobless youths from the rural areas to urban centres which has resulted to social vices in Nigeria. However in addressing the impact of road transportation on rural development in any part of Nigeria, the urban development model is relevant to stimulate the issue. Urban development model support the spread of development from the urban centres to the peripherals, which are the rural areas of the country. Unfortunately the model failed to address its aim.

VII. RESEARCH METHODOLOGY

This research made use of primary and secondary sources of data. Eight communities were selected randomly in the study area with total population of 2651 (1991 population census). For the purpose of this study it was projected to year 2017 which amounted to 4794. However, 5% of the projected population was taken, which resulted to 240 (Appendix refers). Therefore, 240 questionnaires were designed for the research. Systematic sampling method was used in administration of questionnaires, which was analyzed and discussed.

VIII. FINDINGS AND DISCUSSION

Rural transportation is an essential instrument to rural development in Nigeria. It enhances effective movement of raw materials and food crops. The socio-economic characteristics of the study area revealed that 72% of the respondents earn below ₦10,000 monthly. However, interaction with the respondents revealed that they do not have regular income, the amount of money that comes their way from time to time through the sales of their farm produce varies, and sometimes earning per month could be zero naira. But the peak period of their income yearly is between June to

December which is rainy season and harvest periods. The major occupation of the study area was farming with 75% of the respondents follow by trading with 20% of the respondents.

The most available means of transportation in the study area was public transport which has the highest percentage (59%). This study also revealed that most (71%) of the roads that lead to the various farm settlements were in poor condition, follow by inadequate transportation services. These have implication on the cost of transporting farm produce during the harvest period and the development of the study area. It was revealed that high proportion (43%) of the respondents spent between ₦1000-₦3000 transport farm produce, while 36% spent between ₦600-₦900 to evacuate farm produce. This result has great implication on the nature of farming engaged in by farmers in the study area. However, the cost of transporting farm output depends on the agricultural product. Also, the economic implication of this was felt in the low quantum of food crop that could be produced for the season. The roads connecting some of the settlements in the study area were narrow and unpaved, while most of the paved roads have broken surface with pot holes.

The hypothesis tested on rural road condition and cost of evacuating farm produce in this study revealed that rural road condition has influence on the cost of transporting farm produce i.e. H1 of the hypothesis is accepted because x^2 calculated value is greater than the critical values. (Appendix refers)

An interviewed conducted with the Department of Works at the Local Government Headquarters in Iju/Itaogbolu revealed that they do carry out road upgrading in some settlements in the local government yearly especially during the dry season but the Department has been facing financial difficulties and inadequate equipments to carryout effective maintenance and upgrading of rural roads.

Also interview conducted with the Road Workers (NURTW) in the study area complained that most of the roads are in poor condition, especially during rainy season which has significant effect on their vehicles in terms of maintenance. Also, some of the settlements cannot be accessed by commercial and personal cars, they can only be accessed by motorcycle popularly called 'Okada' in Yoruba parlance.



Eleyewo/Owode Road

IX. CONCLUSION

This research has examined the existing rural road transportation in the study area. The study was able to examine socio-economic activities of the study area, the rural road condition and the various transportation challenges associated with it. However, the view of the study is that, in order to achieve a comprehensive rural development in Nigeria, rural transportation must be effective and efficient to enhance the standard of living and the Nation's economy. This can be achieved if the recommendations suggested as a result of findings are given serious consideration and attention to increase the living standard and economy of the rural areas in Nigeria. This will also check the alarming rate of rural-urban migration and the Nation's agro base industries will advance as there will be effective and efficient access to raw materials and food crops in rural areas.

X. RECOMMENDATIONS

In other to alleviate the identified rural road transportation challenges in the study area, the following measures are recommended:

1. Relevant agencies of government should carry out or fund researchers from high institutions of learning towards regular research on rural road transportation in order to enhance rural development in Nigeria.
2. Local government council should be equipped with finance, personnel and equipment to manage and maintain rural roads in order to ensure fast, safe and smooth traffic movement in the study area.
3. The Local Government council should have community development office to co-ordinate various communities and educate them on the need to invest more on the maintenance of roads and be involved in the transportation system of their communities



Bolorunduro Farm Road

4. Federal and State Governments should embark on various policies such as rural road upgrading and maintenance, rural empowerment and development, rural infrastructure improvement and development towards enhancing rural development in Nigeria. There should be adequate co-ordination between the three arms of Government to properly implement the policy formulated.

5. There should be regular monitoring and upgrading of rural roads by Department of Works at the Local Government level. Constant monitoring will give the Department an idea on road condition and will also provide firsthand information on the sections of the rural roads that need immediate attention.

6. Rural dwellers should be empowered towards development of their various settlements to reduce the level of dependence on government. Also there should be encouragement from the Government through public participation in provision of basic facilities through various community self-help developments programme in Nigeria.

7. Rural dwellers should constitute themselves into cooperatives and pressure groups; so that they can have more revenue to embark on community development or road maintenance services, and towards having a proper bargaining power to influence the governments' attention.

REFERENCES

- [1] Adejuwon, J. O. (1971) "Rural Transportation" in Toyin Falola and Olanrewaju, S. A (Ed) Transport systems in Nigeria, Maxwell School of Citizenship and Public Affairs, Syracuse University pp. 128
- [2] Ademiluyi, I. A. and Solanke, M. O. (2002).An Appraisal of Rural Transport Situation for Sustainable Development in Nigeria.In Ibitoye, O. A. (Ed.) ural Environment and Sustainable Development.Ado-Ekiti: Petoa Educational Publishers, pp. 174-180
- [3] Aderamo, A. j. and Omolaran, O. I. (2006) "Accessibility Problem and the Incidence of poverty in Nigerian Rural Environment: A Case of Offa LocalGovernment Area of Kwara State". Geostudies Forum. Publication of theDepartment of Geography, University of Ilorin (3) 2: 45-56.
- [4] Aderamola, A. J. and Magaji, S. A. (2010) rural transportation and the distribution of public facilities in Nigeria: Case study of Edu Local Government Area ofKwara State. Journal of Human Ecology, 29(3): 171-179.
- [5] Adesayan, O. A. (1991) Administration and Provision of roads in State, NISSER,Ibadan
- [6] Ale A.S.(2013) 'Rural Transportation to Food Crop Production'' Journal of Environment, vol-02, issue 05, pp.112-117
- [7] Aloba, O. (1986) "Rural Transportation in ToyinFalola and Olanrewaju, S.A. (ed.) Transport system in Nigeria, Maxwell School Citizenship and Public Affairs, Syracuse University, pp.125
- [8] Aloba, O. (1983) Evolution of rural roads in the Nigeria Cocoa Belt, Journal of Tropical Geography, 4 (1) pp. 1-10.
- [10] Akinola, S.R. (2007) Coping with infrastructural deprivation through collective action among rural people in Nigeria. Nomadic Journal of African Studies, 16 (1). 30- 46
- [11] Asian Development Bank (2007) Rural Accessibility in the Asia and Pacific Region. ADB Transport Strategy Final Report, January, 2007. IT Transport Limited. Ardngton
- [12] Baker, J.L. (2000) Evaluation the Impact of Development Projects on Poverty: A Handbook for Practitioners. Washington DC, World Bank.
- [13] Basorun, J.O (2005); Basic Element of Urban and Regional Planning, Akure: Shalom Publishers
- [14] Csaki, C., and Tuck, L. (2000) Rural Development Strategy; Eastern Europe and Central Asia. Washington DC,World Bank
- [15] Filani, M. O. (1988). Mobility and Survival.DailySketch.Friday April 1, p. 5.Asian Development Bank (ADB) (2002) Impact of Rural Roads on Poverty Reduction: A Case Study-Based Analysis. [Internet] ADB, Operations Evaluation Department,IE-68. Available from: <http://goo.gl/xlIjqT> [Accessed1st October 2014].
- [16] Herman Prichetf C. (1943) 'The Tennessee Valley Authority Report Chapel Hill USA
- [17] Obateru, M. O. I (2005) Planning regional and rural development. Penthouse Publication, Nigeria
- [18] Ogunsanya, A. A. (1987) "Road Accessibility Problems and Human Resource Development". Journal of Rural Studies (3) pg 2
- [19] Ogunsanya, A.A. and Ojetola W. (1993)"The Transport Factor in Rural Development: The Case of Kwara State, Nigeria" in Research for Development vol. 1 & 2 pp. 145-161
- [20] Oguzor, N. S. (2011) A spatial analysis of infrastructures and social services in RuralNigeria.GeoTropico, 5 (1), 25-38.
- [21] Okafor, F.C and Onokerhoraye, A.G. (1986) Rural systems and planning, the Geography and Planning Series of Study Notes.Benin, Eguavoen Printers. Nigeria
- [22] Okoro C.A (2001); surveillance for Health status in minority communities. United State; UK Pubmed central, British Library, University of Manchester 53 (6) pp. 1-36.
- [23] Olawole M. O., Aloba O. and Adetunji M. A. (2010). The Place of Transport in the Attainment of the Millennium Development Goals in Rural Areas of Nigeria. Ife Journal of Environmental Design and Management.4 (1), 33 - 48.
- [24] Olayiwola, L.M., and Adeleye, O.A. (2005) rural infrastructural development in Nigeria between 1960-1990- problems and challenges.Journal of Social Science, 11 (2): 91-96.
- [25] Oni, S, I. and Okanlawon, K. R. (2006) "Nigeria's Transport Infrastructural Development: An Integral Part of National Economic Empowerment and Papacostas, C.S. 1987. Fundamentals of Transportation Engineering. Prentice Hall Inc. New Jersey.
- [26] Riverson, and Steve Carapetis, John D.N., (2009)"Potential of Intermediate Means of Transport in Improving Rural Travel and Transport in Africa), World Bank Technical Paper No. 161.Infrastructure Division, World Bank, Washington D.C.
- [27] Starkey, P. Ellis, S. Hine, J. and Ternell, A. (2002) Improving Rural Mobility Options for Developing Motorized and Nonmotorized Transport in Rural Areas.World Bank Technical Paper No. 525.World Bank. Washington,DC.
- [28] Taaffe,E.J. Morrill, R.L. and Gould, P.R. (1963)Cited from Aloba, O. (1986) p.129 U.S Department of Transportation, Federal Highway Administration (nd).PlanningforTransportationinRuralAreas .RetrievedDec.,14th2014,fromhttp://www.fhwa.gov/planning/rural/planningfortrans2ourts.html
- [29] Titilola, S.T. (1999).The Impact of Rural Roads on Employment, Productivity and Rural Welfare: A Study of Three Villages in

Analysis Of Road Transport Impact On Rural Development In Nigeria : A Study On Akure North Local Government Area, Ondo State

Yobe State, Nigeria. NISER Monograph Series No. 3, Ibadan, NISER.

[30] Ullman, E.L. (1956) The Role of Transport and the Basis for interaction in: Thomas, W.L. ed. Man's Role in Changing the Face of the Earth. Chicago, University of Chicago Press.

[31] Weir, L. J and McCabe, F. (2012) Towards a Sustainable Rural Transport Policy: from <http://www.irishrurallink.ie> (Retrieved Dec 14th, 2014).

[32] World Bank (1994) Adjustment in Africa: Reforms, Results and the Road Ahead. A World Bank Policy Research Report, Oxford University Press.

Appendix

Table 1: Population and number of questionnaire (sample size)

Communities	Population(1991)	Population(2015) (Sample Frame)	Sample Size (5%)
Ala	417	754	38
Isagba	490	886	44
Eleyowo	173	313	16
Igoba	355	642	32
Owode	104	188	9
Ilu-Abo	312	564	28
Isinigbo	496	897	45
Bolorunduro	304	550	28
Total	2651	4794	240

Source: Field work, 2017

Table 2: χ^2 Calculation

	O	E	(O-E)	(O-E) ²	(O-E) ² / E
A	50	30.56	+19.44	377.91	12.37
B	11	30.56	-19.56	382.59	12.52
C	86	75.16	+10.84	117.51	1.56
D	64	75.16	-11.16	124.55	1.66
E	103	134.28	-31.28	978.44	7.29
F	165	134.28	+30.75	945.56	7.04
Total	479				42.44

Source: Field Survey, 2017

$\chi^2 = 42.44$

Table 3: Summary of χ^2 Calculation

Variables	DF	Critical limit	Calculate chi-square value	Decision
Rural road condition has influence on the cost of transport farm output	(R-1)(C-1) (3-1)(2-1) 2×1 2	5.99 (0.05%) 9.21(0.01%)	42.44	Reject Ho while H1 is accepted

Source: Field Survey, 2017

Rule: If the χ^2 Calculated value is greater than χ^2 critical value reject Ho. Therefore;

In this case the χ^2 calculated value is 42.44 which is greater than the critical values 5.99 and 9.21. In this regard Ho is rejected while H1 is accepted. Therefore, it can be concluded that rural road condition has influence on the cost of transporting farm produce in the study area.