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A Critical Assessment of Road Infrastructural Development in Akwa-Ibom State, Nigeria

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Abstract

Road infrastructure is one of the major channels of economic development in Nigeria. This study critically examined some of the factors that affect road infrastructure development in Akwa-Ibom State, Nigeria. The study made use of primary data through the use of questionnaire shared to respondents in various professions in the state. The data was analyzed using the relative significance index (RSI). The result showed that over-dependence of road development on public financing was the major factor impacting road infrastructure in Akwa-Ibom state. Also, absence of specific ministry/agency saddled with role of road infrastructure development was the least ranked factor affecting road development in the state. The study thus recommended, among others, that there should be a holistic technical evaluation and cost assessment of road projects before its inclusion into annual budgets.

Key Words: Road, Infrastructure, economic, development, Nigeria

Introduction

Infrastructure is an umbrella term for many activities referred to as social overhead capital by development economists such as Paul Rosenstein Rodan, Ragnar Nurske and Albert Hirschman (Adger, 2015; Woolcock & Narayan, 2000).

Road infrastructure has a very high economic impact on the rural/urban integration especially with the creation of any developing State or economy. It is a fundamental requirement for facilitating industrial, agricultural and other socio-economic development. Road infrastructure is central to the activities of household and economic production. It is common knowledge that adequate road networks are very essential aspects of economic activities. Hence, road infrastructure is a key facilitator of industrial, agricultural and other socio-economic

development (Owei, 2018). This reality becomes painfully evident when natural disaster or civil disturbances destroy roads, culverts, bridges, electricity lines, water mains, and so on. In such circumstances, communities' quality of life and productivity becomes radically reduced. Thus, providing road infrastructure to meet the demands of households, businesses and other users is central in contemporary development discourse. Thus, poor access to road infrastructure could add a new challenge toward jobs creation and poverty alleviation (Lustig, 2005,& Maria, 2017).

The deplorable condition of the roads, the dependence as the major means of transportation and the socio-economic importance of roads in the region have resulted in greater concern in the recent time by the stakeholders (public, policy makers and researchers) on the need for improvement. A factor which could have contributed to non-sustainability of road development in the region is that road infrastructure procurement has remained a traditionally public task through public budgetary financing (Opawole, Jagboro, & Babatunde, 2011). The increasing advocacies on the shift from the traditional budgetary financing approach to public-private partnership (PPP) financing initiative for road infrastructure development, especially concession, has only attracted less significant private sector participation. Reason for this may be that the framework for alternative financing initiatives in Nigeria is not yet available.

While road development thus depends substantially on budgetary financing in the region, most roads projects undertaken through public budgetary allocations seem to be poorly implemented with the result that they are partially completed, suspended or abandoned. According to Opawole, Jagboro, and Babatunde, (2011) only 45.3% of the road projects covered by public budgets are implemented in Nigeria. This phenomenon, though has long been worrisome, seems traceable to deficiency in budgetary allocation to cope with the desirable level of road constructions, lack of proper implementation of the government budget on road infrastructure, or lack of data on these to aid policy making and implementation, or some other factors.

In Nigeria, most rural areas receive fewer infrastructures than the urban areas. The implication is that the kind of infrastructure put in place determines the level of poverty. Most of the poor are in rural areas, and the growth of farm productivity and non-farm rural employment is linked closely to the type and quality of infrastructure in place (World Bank, 2007). This means that countries that will provide adequate infrastructure in rural areas will succeed in reducing poverty drastically. However, the use of basic socio-economic infrastructure as a development strategy forms the World Bank's parameter for assessing the level of poverty anywhere in the world. Thus, accessibility to basic infrastructure is a measure of regional standard of living. Although the federal and state governments have adopted various measures of meeting the basic needs of the people, the results lacked far reaching effects especially in rural areas where majority of the people still lack access to basic necessities of life. To this end, this phenomenon thus demands empirical investigation.

Classification of Nigerian Roads

Nigeria has a network of federal, state and local government roads. Kadiri and Alade (2016) maintained that road infrastructure categorized as local government roads rose from total length of 27, 950 km in 1953 to 85, 000km in 1992. This represents 60 percent of the 144,100 km of roads in the country. Of greater importance is the fact that only 870 km or 0.6 percent of the local roads is paved (Kadiri and Alade, 2016) as at 2014.

The emphasis on local government roads is based on the fact that they have implications for rural development. Besides the fact that the roads are more in length than the other two categories combined, it is the category that is most under-developed as seen in Table 1. This means that rural roads need greater attention if their roles in freight movement are recognized.

Table 1. Classification of Nigeria Roads

TYPE	PAVED (KM)	UNPAVED (KM)	TOTAL (KM)
Federal	23,000 (16.0)	5,600 (3.9)	28,600 (19.9)
State	10,430 (7.2)	20,070 (13,9	30,500 (21,1)
Local government	870 (0.6)	84,130 (58.4)	85,000 (59.0)
Total	34,300 (23.0)	109,800 (76.2)	144,100 (100.0)

Source: Compiled from Kadiri and Alade (2016)

Despite the importance of rural roads, the government concern was marginal until 1986 when the Directorate of Food, Roads and Rural infrastructure (DFRRI) was set up. Before then, the attitude was that of neglect as various national development plans have shown. According to Kadiri and Alade (2016), rural feeder roads were neither the responsibility of the federal nor state governments while the financial involvement for their development was beyond the executive capacity of local governments. Thus, poorly designed and maintained road infrastructure has been an issue of concern to many. For instance, a well-maintained paved road should last for about 10-15 years before needing resurfacing but poor maintenance has led to severe deterioration of roads shortly after commissioning. Road infrastructure in particular, is very important for political, economic, social and military purposes (Kadiri&Alade, 2016). It is also capital intensive. At 2015 prices, it was estimated that the nation's road infrastructure has an asset nominal replacement value of one thousand, two hundred and fifty billion naira (Oni, 2017). Though, there are over 200, 000 Kilometers of all categories of roads (Kadiri&Alade 2016), not all settlements are adequately served. This inadequacy may be the reason for emphasis on road development by the different tiers of government.

Literature Review

The significant issues affecting infrastructure development in Nigeria related to procurement process and funding (Oyegoke, 2005; Oforeh, 2006). A survey conducted by Wahab (2017) on infrastructure development revealed that before 1999, Nigeria was losing an average of $265 million annually through various kinds of manipulation of the procurement procedure in award and execution of public contracts. These manipulations were in the forms of inflation of contract costs, use of contract system to divert public funds to private pockets, award of contracts for non-existent projects, use of inexperienced contractors, over-invoicing, influence peddling, award of contracts to friends, relations and family members, and award of contacts without adequate planning and budgetary provisions. Also, Babalola, Babatunde, and Opawole (2010) identified these abuses as major causes of abandonment of public projects and by implication a major threat to sustainable infrastructure development in Nigeria. According to Oforeh (2006), another major problem of infrastructure development in Nigeria is attributed to policy formulation on infrastructure development being undertaking with minimum input of the construction professionals at macro-economic level.

Also, public investment in infrastructure development in Nigeria has been criticized to be inadequate (Oforeh, 2006). This assertion supported by growing bodies of evidence

substantiating the importance of public investment in infrastructure for development is identified as an accumulation of evidence that infrastructure investment in developing countries is suboptimal. Another problem of road infrastructure sustainability in Nigeria could be traced to poor budget implementation. According to Olufidipe (2006), budget implementation in Nigeria is identified as low, exemplified by huge budget deficits and poor physical performance. Olufidipe (2006) identified significant number of projects contained in the annual budgets of government at all levels in Nigeria as either partly implemented or not implemented at all, thus resulting in wide divergence and persistent disparity between the actual and projected budget figure.

Moreover, sensitive stages, especially, identification, definition, planning, and budgeting, for infrastructure sector at macro-level have also been criticized to be dominated by the executive arm of the government with minimum input of the construction professionals (Mogbo, 2018). Oforeh (2006) asserted that the policy makers who plan for infrastructure development in both the national and state budgets lack adequate knowledge of the complex technological processes of construction and the cost characteristics of infrastructure constructions. These factors could have been critical to poor road infrastructure sustainability in Nigeria. Olayiwola and Adeleye (2005) asserted that one of the major factors responsible for low level of rural development is the imbalance in infrastructure distribution. Ukpong (2017) describes the low level of development in Akwa-Ibom State in terms of high poverty incidence with estimated poverty level of one US Dollar per adult per day and that more than 74 percent of the adult population live below the poverty line. People in such conditions are said to be extremely poor (Abdullahi, 2018). The high incidence of poverty scenario has made the World Bank to declare that its task on poverty has become "vast, important and urgent" (World Bank, 2007). Afonja and Ogwumike (2017) have attributed poverty to the quality and quantum of infrastructure provision as well as unequal distribution of production assets. In Akwa-Ibom State, preliminary investigation has indicated that the level of infrastructure development is indisputably low, although the pattern of infrastructure development from the perspective of road infrastructure has not been substantially established.

Apparently, there is an existing research gap in this regard. It is hoped that this study would showcase the trend of development in road infrastructure and thus, reveal the extent of government commitment towards road infrastructure development in the state.

Methodology

Akwa-Ibom State located in the South-Southern region of Nigeria, was considered appropriate for this study because road infrastructure development in the State depends substantially on budgetary financing (Opawole,Jagboro, Babalola, and Babatunde, 2012). A total of 72 (out of 106 copies administered) properly completed questionnaire by 6 architects, 4 quantity surveyor, 6 town planner, 5 estate surveyors, 4 builders, 21 engineers (mechanical, civil, and electrical) and 26 economists/accountants representing a response rate of 68% provided quantitative data for the study. Data analysis was done through, mean, percentage and relative significance index.

Data on the total length of all the roads in the state and total area of all the 31 Local Government Areas in the state were obtained from the State Ministry of Works and Transport, which serve as input data for computation of road density. The data on topological accessibility index and the distance of sampled communities to nearest highway (in kilometres) were obtained through map work analysis. To assess the levels of road

development in the rural areas, field observations were conducted in 50 spatially sampled rural communities in the state.

Spatial sampling framework was employed and a political map of the state was divided into 480 quadrates (grid cells). To sample the communities, a table of random numbers was applied and 50 out of 480 spatial units were selected. In all the sampled communities, the quality of road leading to sampled communities was measured in terms of type of roads (paved or un-paved), categories of roads, major means of transportation and usage intensity of roads as indicators or surrogates for assessing road infrastructure development.

Study Area

Akwa-Ibom State is the study area which is one of the states in the Niger Delta Region of Nigeria. Generally, the region is characterized by rising waves of restiveness due to low levels of development in the face of increasing oil exploration and exploitation activities. The State is a major oil producing state and thus, contributes significantly to the total revenue base of the nation. Located in the southeastern coast of Nigeria, Akwa-Ibom state was created on September 23, 1987 from the former Cross River state of Nigeria. The State is wedged in between Rivers, Abia and Cross river States and the Republic of Cameroon to the Southwest, North, East and Southeast respectively while the Bight of Bonny bordered the State to the South. It lies between latitudes 4o32' and 5o32' North of the Equator, and longitudes 7o28' and 8o 25' East of the Greenwich Meridian. According to the 2006 National Population Census result, Akwa-Ibom State had a total population of 3,920,208 persons out of which 87.89 percent constituted rural population while 12.11 percent formed the urban population (National Population Census (NPC), 2007), thereby accounted for 2.7 percent of the overall national population.

Data Analysis

According to NPC (2007), Akwa-Ibom state has a total land area of 6,187 km^2, which represents 0.67% of the total land mass of Nigeria. The State has 31 Local Government Areas with Uyo, Eket, Ikot-Ekpene, Abak, Etinan, Ikot-Abasi and Oron being the most developed urban centres. The most striking characteristic of the population of Akwa-Ibom state is its crude density. When compared with other states in the south-south and southeast, the region is one of most densely settled state. In fact, apart from Imo and Anambra states, Akwa-Ibom state is the most densely populated state with densities as high as 634 persons per square kilometer in Nigeria (NPC, 2007)

The statistical tools used for data analysis were percentage and relative significance index and the linear trend graph. The formula for the relative significance index (RSI) is given as:

RSI = $\underline{\Sigma^5 NiKi}$

NRh

Where, Ni = number of respondents; Ki = 1-5 on the Likert scale; N = total number of questionnaires collected and Rh = highest value in ranking. A rating scale of 1 to 5 was adopted with 1 representing the lowest level and 5 representing the highest level.

Demographic Result of Respondents

Table 2 shows the percentage representation of the respondents. Respondents that were architects represents 8.3%, 8.3% were town planners, 5.6% were builders, 5.6% were quantity surveyors, 29.2% were engineers, 6.9% were estate surveyors and 36.1% were

economists/accountants. This result expressed adequate opinion of the infrastructure stakeholders as both the financial administrators and construction professional were adequately represented.

Table 2: Type of Respondent

RESPONDENTS	NUMBER ADMINISTERD	NUMBER COLLECTED	PERCENTAGE (%)
Architects	8	6	8.3
Town planners	7	6	8.3
Builders	8	4	5.6
Quantity surveyors	4	4	5.6
Engineers	40	21	29.2
Estate Surveyors	7	5	6.9
Accountants/Economists	32	26	36.1
Total	**106**	**72**	**100.0**

Source: Author's Field Survey (2019)

In Table 3, 26.4% of the respondents were holders of Master of Science or Masters of Technology; 44.5% were holders of Bachelor of Science or Bachelor of Technology; 18.1% obtained Post Graduate Diploma (PGD); 9.7% held Higher National Diploma (HND); and 1.4% held Doctor of Philosophy.The result shows that all the respondents possess the minimum registration qualification of their various professional bodies in Nigeria and are of adequate academic training to supply reliable data for this study

Table 3: Academic Qualification of Respondents

QUALIFICATION	NUMBER OF RESPONDENTS	PERCENTAGE (%)
Ph.D.	1	1.4
M.Sc/ M.Tech	19	26.4
B.Sc/B.Tech	32	44.4
PGD (Post Graduate Diploma)	13	18.1
HND (Higher National Diploma)	7	9.7
TOTAL	**72**	**100.0**

Source: Author's Field Survey (2019)

Table 4: Working experience of Respondents

YEARS	MID-POINT (X)	FREQUENCY	FX
0-5	2.5	7	17.5
5-10	7.5	10	75.0
11-15	13	4	52.0
15-20	18	13	234.0
20-25	22.5	27	607.5
Above 26	26	11	286
Total		**72**	**1272**

Source: Author's Field Survey (2019)

The professional qualification of the respondents is shown in Table 5. Sixty-seven (67) respondents representing 93.1% of the total respondents were either associate or corporate members of their various professional bodies. The result shows that the respondents are either associate or corporate members of the various professional bodies or possess some other

professional qualification. This shows that the respondents are in the position to supply reliable data for this research.

Table 5: Professional Qualification of Respondents

PROFESSIONALS	NUMBER	PERCENTAGE
Nigerian Institute of Architects (NIA)	4	5.6
Nigerian Institute of Town Planners (TPL)	5	6.9
Nigerian Institute of Building (NIOB)	4	5.6
Nigerian Institute of Quantity Surveyors (NIQS)	4	5.6
Nigerian Society of Engineers (NSE)	19	26.4
Nigerian Institute of Estate Valuers and Surveyors (NIEVS)	5	6.9
Institute of Chartered Accountant (ICAN)/Association of National Accountants of Nigeria (ANAN)	25	34.7
Others	1	1.4
Non-Professionally Qualified (NPQ)	5	6.9
Total	**72**	**100**

Source: Author's Field Survey (2019)

Table 6: State of Roads in Akwa-Ibom State

AVAILABILITY AND CONDITION	FEDERAL ROAD	STATE ROAD	LOCAL ROAD
	TWF	TWF	TWF
EXCELLENT	5.0	10.0	0.0
GOOD	24.0	68.0	8.0
FAIR	138.0	117.0	87.0
POOR	34.0	26.0	60.0
VERY POOR	2.0	1.0	11.0
MEAN	**2.82**	**3.08**	**2.31**
REMARK	**Fair**	**Fair**	**Poor**

Source: Author's Field Survey (2019): TWF= Total Weighted Value.

Analysis of Result

Table 7 shows the assessment of the condition of Federal, State, and Local roads in the State. The assessment was based on the scale of 5 = excellent, 4 = good, 3 = fair, 2 = poor, and 1 = very poor. The interpretation of the scale as adopted from Central Bank of Nigeria (2003) report on the spot assessment of the state of roads in Nigeria is shown in Table 7. The mean rating was highest in the State road which indicates fair on the scale of assessment, while Federal and Local roads were rated 2.82 and 2.31 which indicate fair and poor respectively. This result revealed that the budgetary allocations to road development by the governments is either inadequate or the budget allocations are poorly implemented. The result also provides basis for assessment of road condition. Thus, roads in excellent, good, fair, poor and very poor condition could be assessed with 4.5-5.0, 3.5-4.0, 2.5-3.0, 1.5-2.4 and 1.0-1.4 indices respectively on a scale of 0-5.

Table 7: Road Assessment Index

CONDITION ASSESSMENT	Characteristics as adopted from Central Bank of Nigeria (2015) Report	Assessment Index Range as Used in the Survey Questionnaire
	TWF	**TWF**
EXCELLENT	Free of potholes, peel offs, and cracks.	4.5-5.0
GOOD	Very few pot holes and peel offs	3.5-4.0
FAIR	Some potholes and peel-offs that could be refilled to make traffic flow better.	2.5-3.0
POOR	Potholes and peel offs at almost every kilometre, the shoulder of the road had eroded off.	1.5-2.4
VERY POOR	Many potholes with gullies and ditches, major cracks (longitudinal and transverse), depressions, broken down bridges, the shoulder, and the road had eroded off.	1.0-1.4

Source: Author's Field Survey (2019); TWF= Total Weighted Value.

Table 8 shows the profile of budgetary allocations for road projects in the State between 2006 and 2015. The mean budget allocation was established as N2, 458.8m. This represents 23.7% and 10.7% of the capital budget and total budget respectively. The statistical detail of the trend of budget allocations is presented in the table below

Table 8: Trend of Budgetary Allocation for Road Projects in Akwa-Ibom State (N, Million)

Year	Total Budget	Capital Project	Budget Allocation to Road Infrastructure	Budget Allocation as % of Capital Budget (%)	Budget Allocation as % of Total Budget (%)
2006	4,790.00	1,530.00	405.00	26.44	8.46
2007	11,820.00	6,700.00	1,060.00	15.84	8.97
2008	20,480.00	12,040.00	3,500	29.02	17.09
2009	18,870.00	10,710.00	2,430	22.72	12.88
2010	14,530.00	4,830.00	609.00	12.62	4.19
2011	18,910.00	6,910.00	724.00	10.48	3.83
2012	25,220.00	11,630.00	3,930	33.81	15.58
2013	29,050.00	13,500.00	4,170	30.86	14.35
2014	34,770.00	17,790.00	3,960	22.23	11.39
2015	38,010.00	16,310.00	3,800	23.30	10.00

Source: Akwa-Ibom State Budget Estimate

The trend of budget allocation for road projects between 2006 and 2015 is as shown in Table 8. The table revealed a gradual increase in the allocation from N405m in 2006 to N3, 500m in 2008. This progressively declined to N609m in 2010. The upward increase was restored in 2011 and this continued till 2013. The upward trend was, however, reversed in 2014 and steadily declined to 3,800m in 2015.

Road Network Density in Akwa-Ibom State

In the present dispensation, Akwa-Ibom state has a total landmass of about 7289 Km^2 and a cumulative road network length of about 6288 kilometres. Out of this, 1272.6 kilometres (21.6%) have paved surfaces while 5015.4 kilometres (78.4%) constitute unpaved roads as Table 2 shows. The table 9 shows the proportional distribution of paved and unpaved roads in each sub-region as well as road density and the ratio of tarred road per km^2. The overall network density in the state is about 0.86 kilometre per kilometer square. The total length of the paved category of roads in the state (1272.6 Kms) yielded a density value of about 0.17 kilometres per kilometer square while that of the unpaved category indicated 0.69 kilometres per kilometer square respectively.

From this analysis, it may be inferred that road infrastructure development in the state is at low ebb going by the low network density values for paved roads. At the intra-regional level, network density values equally reflect deplorable levels of development of the road infrastructure.

Table 9: Statistics on Road Network in Akwa-Ibom State in 2018

S/N	L.G.A.	Total Length (Km)*	Length Tarred (Km)*	% of Total	Length Untarred (km)*	% of Total	Area** (Km2)	Tarred** road/ Km2	**Road Density
1	Abak	152.4	37.7	24.7	114.7	75.3	252	0.14	0.6
2	Eastern Obolo	141.0	20.0	14.2	121.0	85.8	117	0.17	1.2
3	Eket	218.5	132.0	60.4	86.5	39.6	175	0.75	1.2
4	Esit-Eket	41.0	26.0	63.4	1.5	36.6	164	0.16	1.2
5	Essien-Udim	364.0	55.0	15.1	30.9	84.9	295	0.18	1.2
6	Etim-Ekpo	189.9	0.0	0.0	189.9	100.0	235	0.00	0.8
7	Etinan	214.2	63.3	29.6	151.0	70.4	182	0.34	1.1
8	Ibeno	19.0	3.0	15.8	16.0	84.2	248	0.01	0.1
9	Ibesikpo-Asutan	501.0	70.0	14.0	431.0	86.0	191	0.36	2.6
10	Ibiono-Ibom	273	11.0	4.0	262.0	96.0	333	0.03	0.8
11	Ika	97.2	0.0	0.0	97.2	100.0	68	0.00	1.4
12	Ikono	150.3	4.0	2.7	146.3	97.3	390	0.01	0.3
13	Ikot-Abasi	318.6	62.0	19.5	256.6	80.5	335	0.18	0.9
14	Ikot-Ekpene	216.9	71.0	32.7	145.9	67.3	115	0.61	1.8
15	Ini	129.0	30.0	23.3	99.0	76.7	320	0.09	0.4
16	Itu	193.0	23.0	11.9	170.0	88.1	273	0.08	0.7
17	Mbo	83.6	20.0	23.9	63.6	76.1	335	0.05	0.2
18	Mkpat-Enin	393.0	47.0	12.0	346.0	88.0	332	0.14	1.1
19	Nsit-Atai	174.0	0.0	0.0	174.0	100.0	101	0.00	1.7
20	Nsit-Ibom	194.1	15.0	7.7	179.1	92.3	109	0.13	1.7
21	Nsit-Ubium	202.5	5.0	2.5	197.5	97.5	243	0.02	0.8
22	Obot-Akara	75.00	25.2	33.6	49.8	66.4	227	0.11	0.3
23	Okobo	77.5	27.9	36.0	49.6	64.0	360	0.07	0.2
24	Onna	291.3	147.3	50.6	144.0	49.4	174	0.84	1.6
25	Oron	59.8	25.0	41.8	34.8	58.2	96	0.26	0.6
26	Oruk-Anam	449.9	117.0	26.0	332.9	74.0	512	0.22	0.8
27	Udung-Uko	113.5	7.0	6.2	106.5	93.8	64	0.10	1.7
28	Ukanafun	223.4	52.0	23.3	171.4	76.7	254	0.20	0.8
29	Uruan	356.0	15.0	4.2	341.0	95.8	422	0.03	0.8
30	UrueOffongOruko	121.6	19.0	15.6	102.6	84.4	118	0.16	1.0
31	Uyo	253.9	142.3	56.0	111.6	44.0	249	0.57	1.0

	Total Length (Km)*	% Total of Tarred road	% total of untarred road	
%	100.0	21.6	78.4	

Local Roads	3526.8 (56.1%)
State Roads	2195.2 (34.3%)
Federal Roads	602.0 (9.6%)

Source: Ministry of Works and Transport, Headquarters, Uyo (2018)

The nature of the result of the density analysis is however as expected in the sense that network density is a measure of the total length of roads per unit area. Thus, the higher the density values per unit area, the higher the level of development of road infrastructure and vise-versa.

On the basis of the quality of road infrastructure from the perspective of the network density of paved road per unit area, the condition of road infrastructure in EtimEkpo (0.00), Ibeno (0.01), Ibiono (0.03), Ika (0.00), Ikono (0.01), Ini (0.09), Itu (0.08), Mbo(0.05), Nsit-Atai(0.00), Nsit-Ubium (0.02), Okobo (0.02) and Uruan (0.03) Local Government Areas is deemed as deplorable as exemplified by their very weak density values. A total of 27 local government areas belong to this category but 12 of them with network density value range of 0.00 – 0.09-kilometre length of paved road per kilometer square may be termed the most vulnerable in terms of road infrastructure development. The second category of local government areas are those with density value range of 0.50 – 1.00 kilometre of paved road per kilometer square.

Only 4 out of the 31 LGAs in the state fall into this category and comprise of Uyo (0.57), Ikot-Ekpene (0.61), Eket (0.75) and Onna (0.84) respectively. This category is considered as having moderate levels of network density. Densities of 1 Km length of paved road per unit area, an index that could be considered a developed situation were not observed.

In a study conducted to assess the conditions of road infrastructure in Nigeria, Israel (2015) observed that 26% of the paved network was in poor condition requiring rehabilitation and reconstruction while 42% was in fair condition that requires resurfacing to prevent further decline to poor conditions. The conditions of unpaved roads were even worse.

Unpaved roads have many disadvantages as not all of them can be used in all seasons. Besides, maintenance costs are high and they have the propensity to reduce the economic life of automobiles plying them. Unpaved roads also contribute to high cost of transport fares. This is because, unpaved roads are generally deficient for effective movement and thus, require new development and rehabilitation to improve and aid mobility.

According to Kadiri and Alade (2016), the local government roads are the most under-developed category of Nigerian roads. The result of this study has strengthened this assertion. Considering the importance of road infrastructure in socio-economic development and welfare of the people, major road rehabilitation, maintenance and upgrading efforts are required in communities where roads are unpaved. This may require significantly increased road funding commitment by the government at all levels particularly at local government level.

The existing maintenance strategies and practices may also be upgraded to aid effective and efficient movement and accessibility.

Table 10: Factors Affecting Road Infrastructure Development in Akwa-Ibom State

Factors	5	4	3	2	1	TWV	RSI	R	OVERALL RANK
Policy Issues									
Over dependence of road development on public financing	31	18	15	5	3	285.00	0.792	1	1
Lack of clear long-term sector programme for road infrastructure development	12	22	25	7	6	243.00	0.676	4	10
Absence of specific ministry/agency saddled with role of road infrastructure development	6	19	20	19	8	212.00	0.588	8	14
Non-availability of reliable data for road infrastructure planning and supply by government	10	22	23	11	6	235.00	0.652	5	11
Absence of database system for road infrastructure development	11	22	17	16	6	232.00	0.644	6	12
Dominance of the political executive opinion in budgetary preparation for road infrastructure sector	9	17	26	17	3	228.00	0.634	7	13
Excessive bureaucracy in project implementation process	15	25	20	11	1	246.00	0.716	2	7
Funding/Financing Issues									
Huge funding profile/requirement of road projects	25	20	18	7	2	275.00	0.764	2	3
Low investment base (budgetary allocation) by government for road development schemes/projects	19	21	19	12	1	260.00	0.726	4	5
Long gestation (pay back) period of most road infrastructure projects	16	23	25	4	4	259.00	0.720	5	6
Inadequate funding of maintenance of infrastructure projects	24	22	16	9	1	275.00	0.764	2	3
Non-revenue generating nature of road projects	24	27	10	8	3	277.00	0.770	1	2
Absence of legal framework for commercialization or privatization of road infrastructure projects to take advantage of their revenue generation potential	17	22	20	10	3	256.00	0.712	6	8

Source: Author's Field Survey (2019)

Table 10 shows the factors influencing road infrastructure development in Akwa-Ibom State. The relative significance indices (RSI) obtained for the factors ranges between 0.588-0.792 which indicate that all the factors were significant. In the case of policy issues, over dependence of road development on public financing ranked highest with RSI of 0.792. This was closely followed by dominance of the political executive opinion in budgetary preparation process for road infrastructure sector, excessive bureaucracy in project implementation process and lack of clear long-term sector programme for road infrastructure development with respective indices of 0.716, 0.684 and 0.676. Absence of specific ministry/agency for road infrastructure development and absence of clear monitoring system for road infrastructure development were ranked lower with RSI of 0.0.634 and 0.588 respectively. Funding/financing issues had non-revenue generating nature of road projects with RSI of 0.770, huge funding profile/requirement of road projects and inadequate funding of maintenance of infrastructure projects both with the respective RSI of 0.764 as the factors with the highest ranking. Factors with the least ranking are absence of legal framework for commercialization or privatization of road infrastructure projects to take advantage of their revenue generation potential and long gestation (pay back) period of most road infrastructure projects with RSI of 0.072 and 0.712 respectively.

On the overall, over dependence of road development on public financing ranked highest with RSI of 0.792, non-revenue generating nature of road projects with RSI of 0.770, huge funding profile/requirement of road projects with index of 0.764 and low investment base (budgetary allocation) by government for road development schemes/projects with index of 0.726. On the other hand, factors with the least ranking were those of absence of specific ministry/agency saddled with role of road infrastructure development (0.588), absence of clear monitoring system for road infrastructure development with RSI of 0.634, absence of database system for road infrastructure development (0.644) and non-availability of reliable data for road infrastructure planning and supply by government (0.652).

These results showed that the factors that were critical to road infrastructure development were substantially funding/financing issue, that is, sole dependence of road infrastructure development on budgetary financing, non-revenue generating nature of road projects, huge funding profile/requirement of road projects and low investment base (budgetary allocation) by government for road development schemes/projects. This, therefore, presupposes the need for improved budgetary allocations for road development, adoption of alternative financing initiative and establishment of commercial and legal framework to take the advantage of the revenue generating potentials of some road projects. This would not only facilitate better development, but also provides attraction for the private sector participation in road infrastructure development in the state.

In the case of policy issues, dominance of the political executives' opinion in the budgeting process for road infrastructure development was identified as most significant that should be looked into. Though this problem had been asserted by Oforeh (2006) with respect to infrastructural development in Nigeria, it seems no attention had been given to the issue. This was established as an important issue with respect to budgeting process for road infrastructure development.

Moreover, this result identified the need for curtailing undue bureaucratic process in the implementation process of the road projects and the need for government to develop a long-term road development programme that would enhance development continuity should there be a change in government, a factor that has often lead to abandonment of public projects in

Nigeria. The fact that absence of specific ministry/agency saddled with role of road infrastructure development and absence of clear monitoring system for road infrastructure development were indicated as less significant suggests that existing Ministry of Works and Transportation (MWT) saddled with this role is suitable for road infrastructure development in the State. This has again been strengthened by the establishment of Ministry of Infrastructure in the State by the present administration.

Conclusion

This study revealed that the mean budget allocation for road infrastructural development in Akwa-Ibom State as 23.7% and 10.7% of the capital budget and total budget respectively. The study revealed budgetary allocations for road infrastructure development as lacking holistic technical evaluation and cost assessment. This was reflected in poor connectivity between road projects budgeted for execution and the budgetary allocations and is significant to poor implementation of road projects in the State. This study has also been able to analyze road infrastructure in Akwa-Ibom State at the regional and rural perspectives. The result shows that the quality of road infrastructure development in the study area is poor based on the proportion of paved road per kilometer square. Spatial vulnerability in road quality was observed among the 31 LGAs. A large proportion of the total length of all the roads in state is unpaved. Moreover, the study shows the factors that are critical to road infrastructure development as over dependence of road development on public financing, non-revenue generating nature of road projects, huge funding profile/requirement of road projects and low investment base (budgetary allocation) by government for road development schemes/projects, which are substantially funding issue.

Recommendations

1. The study recommends a holistic technical evaluation and cost assessment of road projects before inclusion into annual budgets and the adoption of alternative financing. This would not only facilitate better funding and implementation of road projects but also provides attraction for the private sector participation in road infrastructure development.

2. There is urgent need to rehabilitate roads in order to improve accessibility especially in rural areas. Road infrastructure works as a bridge between the rural and urban worlds.

3. An improvement in road quantity in terms of length and density as well as quality lowers travel time and reduces vehicle running and maintenance costs, which in turn lowers the actual cost of marketing produce and reduces the costs of delivering inputs, increasing the inter-linkages between urban and rural areas.

4. Since physical infrastructure which includes road network and affordable transport can have far –reaching consequences on producers' prices, as inadequate roads usually entail prohibitive transport costs, improved rural – urban interaction through improved road infrastructure development would reduce rural – urban disparities, reduce prices of goods and services, and thus help fight inflation to a reasonable extent.

5. There is also the need to put up a framework for routine maintenance of paved roads so as to prevent them from degenerating to deteriorating conditions.

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