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Towards Efficient Transport Connectivity for Sustainable Market Patronage in Nigeria

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Market centre and transportation system are inseparable land-uses. The success or failure of one makes or mar the other. This paper aims at examining how the transport situation in Osun State has affected the market patronage of farm products in the State. The use of sample technique, observation method and road inventory survey were employed. Out of the 253 registered market centres in the state, 60 of them were selected for survey. This represents 23.7%. The selection was done by picking two market centres from the existing 30 local government areas in the state; one from the local government headquarters and the other ones randomly selected by ballot from the remaining market centres in the local governments. Major findings reveal the existence of large range of goods and services in the existing 253 registered market centres which are in their hierarchy of specialization. Other findings include poor road net-work and bad condition of roads which compelled market patrons to use motorcycle as their major mode of transport.. A large numbers of market centres and even towns were found 'unconnected' by Direct Motor-able Routes (DMR). Recommendation include imploring government to open-up more roads, supplying more commercial buses, introduction of empowering programmed and lastly adoption of public–private-participation in road construction and management.

Keywords: inter-settlement, transport connectivity, accessibility, market patronage, range of goods, sustainability

Introduction

Good accessibility to rural areas is of paramount importance to the developing countries like Nigeria where rural population constitutes about 65.0% of the country's inhabitants. Adequate and efficient rural federal 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 fabrics and processes of the rural communities.

In other words, rural roads provision, according to Ademiluyi and Solanke (2002) forms an intrinsic part of rural development strategies which serves as a mechanism and catalyst for rural transformation through the reinforcement of rural development. The importance of transport facilities in rural areas is justified from both social and economic perspectives. Apart from the fact that it promotes the socio-political interactions among the teeming population of over 60.0% inhabitants of the country that resides in the rural areas. A good number of studies on rural development in Nigeria have agreed on the need to improve transport facilities in the country's rural areas (Ogundana, 1972; Idachaba et al, 1981; Ogunsanya & Ojetola, 1993; Oyekunle, 1995; Ademiluyi & Solanke 2002; Omole & Owoeye, 2007). These researchers identify the inadequacy of rural development. Despite this strong observations and benefit potentials of rural areas; planning for efficient rural transport development had received little or inadequate government attention in Nigeria. However, it is the realization of the need to harness rural resource potentials, particularly the farm products for the benefit of generalities of the country through adequate and efficient transport means that form the bedrock of this study. Nigeria, being an agrarian nation with a large majority residing in rural areas, they specialize in primary production such as farming, fishing, lumbering, etc. Coincidentally, majority of the goods to be transported are agricultural products which by nature are bulky, low priced, highly perishable which must be conveyed from their area of production to their zone of consumption with minimum delay and cost. But the constraint in the regular evacuation of these goods from their area of production has been a great concern. For example, Mbagwu (1977) in his study of rural-urban flow of agricultural food products in Owerri observed some transportation constraints among which include (i) dominant use of the relatively inefficient means of transportation in preference to the more efficient mode (ii) non-availability of the efficient media at certain location, and (iii) poor condition of the roads and their seasonal deterioration

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during rainy season. This situation seems to be relevant to most of our rural communities in Nigeria. Agricultural products are dispersedly located and the task of effectively linking several producing areas with the consumption centres depends on good roads and availability of efficient transport facilities (Adefolalu, 1980; Kohles & Uhi, 1985). The motivation for this study is stirred-up by enormous wastages of these farm products in their respective areas of production due to lack of accessibility. This reduces the farmers' income, aggravates their poverty level and increases prices of food items in urban centers. Hence, this paper provides possible solutions to address these problems.

The Study Area: An Overview

Osun State was one of the nine states created on August 27th, 1991 through the sixth anniversary broadcast of the former President Ibrahim Babangida. Before this time, the State was part of the old Oyo State. The state capital is Osogbo, which is a local government area on its own. In all, a total of thirty local government council areas constitute the state. Among the major towns in the state are Ilesha, Ife, Ede and Ejigbo, all having big urban market centres (See Figures 1 & 2).

Figure 1. Map of Nigeria showing Osun state in the national setting. Source: Osun State Ministry of Lands and Physical Planning, Osogbo (2010).

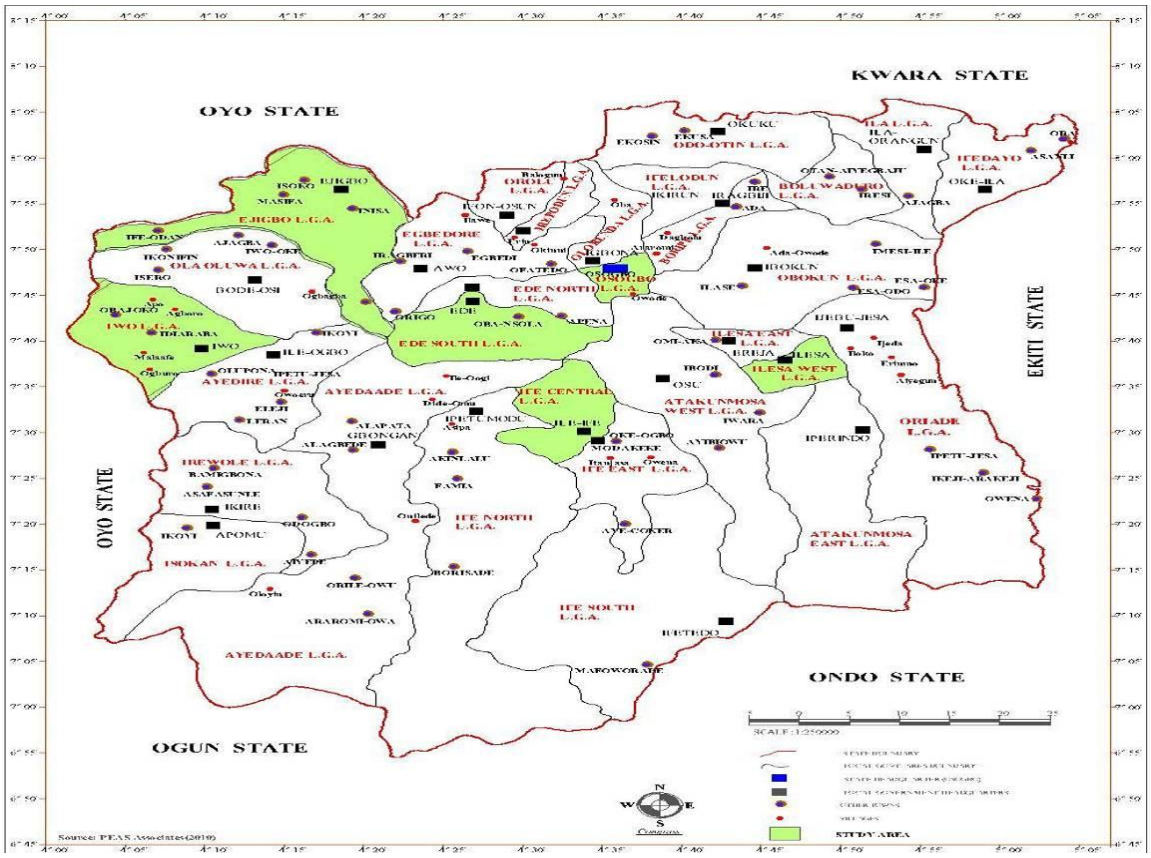

Figure 2. Map of Osun State showing the selected Local Govt. Areas for the study. Source: Osun State Ministry of Land and Physical Planning, Osogbo; (2010).

The state has a total land area of 8620 square kilometers and shares boundary with Kwara state in the North, Oyo in the west, Ogun and Ondo in the South and Ekiti State in the East. The National Population Commission (NPC) Figure of 2006 put the state population at 3,428,535. The state experiences a tropical climate while the local vegetation is the lowland rainforest type that favours agricultural products, which are in abundance in both the rural and urban market centres in the state. A large number of the state urban roads are motor-able to some extent while majority of the rural roads are in a deplorable condition. Majority of these roads links the rural market centres where agricultural products are gathered for onward transfer to the urban market centres.

Methodology

The method of research here is both descriptive and analytical in nature. The study relies heavily on field survey and documentary analysis. The presentation is basically an extract from a wider research carried out in Osun State, Nigeria. Deductions were from thirty local government areas of the State. Precisely, out of the 253 market centres identified in the state, sixty of them, representing 23.7% were surveyed with the aid of questionnaire survey responded to by market shoppers and sellers. A market each from the local government headquarters and one other from the rural areas in the same local government area were selected for survey. This gives a total of two market centres from each of the thirty local council areas in the state, totaling sixty markets in all. This represents 23.7%. The selection was done by picking two market centres from the existing 30 local government areas in the state; one from the local government headquarters and the other ones randomly selected by ballot from the remaining market centres in the local governments.

Figure 1shows the Map of the study area and the selected market areas. Inventory survey on the condition of roads was also carried out. Data collected lasted for about four months and these were subjected to analyses. Models, involving connectivity index and distance matrix models were developed to explain the inter- and intra-towns linkages.

The major limitations of the study which were of course summated were the poor condition of roads which reduced the fast movement of vehicles during survey and the wideness of the study area. These prolonged the survey period of the research work.

Discussion of Findings

Findings from the study are discussed under subheadings which include location, range of goods and services, the nature and condition of the existing road transport and facilities, the mode of transport used and market linkages.

Location and range of goods and services

The range of goods and services according to Omole (2005) is the average maximum distance that prospective consumers are willing to cover in order to consume a good or service. A computation was done to determine the inter-local government distances. Using appropriate model (as shown on appendix 1) and Boripe Local Government Area as an illustration in relationship to other Local Government Areas, the closest market centres to market patrons from Boripe LGA are Ifelodun (at a distance of 3kilometers), Obokun (12km), Odo-otin (19km), Olorunda (19km), Boluwaduro (20km). Others are Oshogbo (the state capital, 21km), Ila (32km), Ilesha (32km), Oriade (32km), and so on. The location and the shapes of market centres as found in the study area do not conform to Walter Christellar's hexagonal shape and proposition that each market area will serve the same number of smaller centres (Central Place Theory). Rather, the finding here shows that market centres are areas of overlap influence and there is no market centre in the study area that is all alone serving six other market areas as the hexagonal principle explains. This is so because there is a lot of intervening market centres that break this principle. The relevance of this is that there is a hierarchy of market centres as well as some levels of specialization among the market centres.

By their locational advantage, all the local government headquarters earlier mentioned provide some sort of higher order goods and services to other market centres.

Appendix 1 further shows that the first five high ordered market centres in the state are based on the most Direct Motorable Routes (DMR). From the appendix, if market patrons from Boripe LGA of the state cannot get what they want in their local government markets, they have other markets in the state they could patronize depending on the distance they are prepared to travel.

In this manner, a consumer from Boripe LGA can go to Ifelodun LGA, which is about 3km away from them or to Oshogbo LGA, which is about 21km away or to Ilesha LGA of about 33.5km, Ede LGA 34.5km or Ife central which is about 47km away to them. By their locations, all the mentioned LGAs provide high order goods and services than what is available in Boripe Local Government area. The same explanations go for the other LGAs as illustrated in Appendix 1. Using this same principle, the total number of kilometers to be covered (all over the state) by prospective traders or shoppers is computed with their intervening market opportunities (See Appendix 2).

Location and movement

Findings reveal that majority of the market centres in the state were 'ordered' to be built and located on their present cites by the traditional rulers. Table 1 shows the locational distance of the 60 sampled market centres.

Table 1. Distance of market centres from the town centres.

Location	Frequency	Percentages
At the Town centre	19	31.7
Less than 1km from the town centre	28	46.7
1 to 2km from the Town centre	11	18.3
over 2km from the Town centre	2	03.3
Total	60	100.0

Movements were largely between the market centres and homes of patrons, which could be trekked within 30 minutes. Those located at the town centres accounted for 31.7% and those at less than 1km from the town centre accounted for 46.7%. It was also discovered that majority of the market centres in the state have locational advantage in terms of proximity to the major roads and verge of major highways. This of cause has its own problem, in that it exposes the market patrons to the risk of motor accidents.

On the mode of transport, Table 2 reveals that 57.0% of the market centres in the state fully depend on the use of commercial motorcycle popularly called *Okada*. This is understandable in the sense that majority of the markets are rural market centres where condition of roads are poor. The poor condition of the roads also account for the insufficient buses and taxi–cabs plying the roads. It was evident from Table 2 that 43.0% of the modes of transport available are on buses or taxi cabs. Majority of these buses and taxis cabs are urban and local government headquarters based market centres.

Table 2. Mode of transport.

Mode	Frequency	Percentages
Motorcycle (Okada)	34	57.0
Taxes	26	43.0
Total	60	100.0

Many of these buses, taxi-cabs and pick-up vans were found to be old vehicles, not properly maintained and many a times were found to be overloaded thereby endangering the lives of market patrons particularly the market sellers.

Road condition and transport routes

While a large number of the state urban roads were motor-able to some extent, majority of the rural roads were in the deplorable condition. These rural roads link rural market centres where agricultural products are gathered for onward transfer to the urban market centres. Our inventory survey reveals that over 283 roads linking rural markets in the state need one form of rehabilitation or the other (OSMWT, 2001). The routes linking Local Government Headquarters were just 12.0%. These have been the only ones receiving attention from the government, particularly from the State Government. The Location Government Councils see road rehabilitation and construction as capital intensive projects and as such they try to shy away from it. Hence, most of the rural roads linking the market centres in the non-urban areas in the state are left uncared for.

Transportation and market linkage

Connectivity as used here involves the inter linkages among the market centres in the state, while transportation involves a system of carrying passengers or goods from one place to another. These two terms become relevant here as they affect the flows of goods and movement of people in market centres in the state. Appendix 2 is computed to show the direct connectivity among the local government headquarters from where ever one starts his journey down to the specific market centers within the local government area.

From the 30 by 30 matrix in appendix 2, a total of 30 links are expected but our findings revealed that all the local government areas have less than Average Connectivity. A critical look of the Appendix shows that majority of the local government areas do not have direct motor-able links to one another. This is costly in terms of cost of travel, time involvement on trips and delay. The implication is that local governments that do not have direct motor-able routes (DMR) subject market patrons to a lot of delays because of stop-over they have to make in order to join other vehicles before they can get to their destinations. Examples among many of such cases are Atakumosa to Ede, Oriade to Oshogbo and Irepodun to Odo-Otin. In these areas, there is no direct connectivity in terms of direct motor-able route linkages. This was a major problem that market patrons complained of in most parts of the state.

Our findings equally revealed that 7 out of the 30 local government areas in the state have Direct Motor-able Routes (DMR) to only six other local government areas. Appendix 2 gives further information on this. Therefore, it can be deduced that the DMR in the study area is below the maximum links of 900 (i.e. 30 by 30) links or even below an average of 450 (if only fifteen out of thirty existing LGAs) links. What we experienced was just 111 links, which is far below the expectation of the connectivity model. The general interpretation of this is that connectivity in terms of motor-able access is low in the study area and this has negative influence on development.

For instance, the higher the number of other LGAs a local government is linked with, the higher the accessibility to such local government market centres and the higher the economic activities and development accrued to these areas. The observed relatively high connectivity of some LGAs in the study area account for the development of the market centres in these areas. The poor connectivity experienced by LGAs like Orolu, Isokan, Iwo, Ayedire, Ila, Ola-Oluwa, among others accounted for the poor development of market centres in those areas.

The bad state of market's roads make commercial vehicle owners withdraw their vehicles from the roads while the commercial motorcycle owners now taken over the use of the roads. The motorcycle is found of moving faster at about 23km per hour while the commercial vehicle travels at average of 11km per hour on rural roads. The numbers of motorcycles patronizing the rural markets have been on the increase daily because these motorcycles can cope (to some extent) with the bad roads. Apart from this, it is better and easily maintained since it has the advantage of fuel economy.

In addition, it can be hired by one or two people and this makes the journey to the market centres faster, in that one does not need to wait endlessly until the commercial vehicle is fully loaded before embarking on a journey. Road diversions owing to impassability and poor condition of road to the market centres have increased the burden of movement. Situations were discovered where market patrons missed market days because of bad roads and

or lack of vehicles plying the roads. For instance, once one misses the few vehicles on these roads, no other ones will be available for the day. This indicated low reliability of vehicles and low accessibility which in turn have a negative impact on the socio-economic development of the settlements in this area. Over 53.0% of the sampled market centres experience irregular patronage of commercial vehicle to the market centres.

Few examples of such market centres are: Iregun, Idoka and Idominasi among others. All these settlements are non-urban centres and non-local government headquarters (LGHQs) but are in serious need of good roads.

Another dimension of this problem is the poor circulatory road network system in the study area and around the market centres. It was discovered that most market centres in the study area are not originally designed as market centres. They incidentally and unconsciously developed to what we know today as market centres. This perhaps makes a large number of the market centres in the state lack good physical planning, in terms of parking and circulation in the market area.

Recommendations and Policy Guidelines

In line with the goal of this research and findings realized, some policy recommendations that are aimed at ameliorating the situation are offered. In the first instance, some market settlements and market areas that were not accessible to many sellers and buyers should be worked on by the state and local governments. It is hereby recommended strongly that governments should open-up areas that are not properly linked to encourage the inflow of goods to and from the market areas in the state. This will bring a great lot of development to the state. The state government through its Multi-State Road Project Board should make sure that all the local government headquarters, major towns and villages are linked. Among the roads that are recommended for open-up include Ife-Igbira- Yekemi-Apojo road linking Ijebu-Igbo in Osun state. The rehabilitation of Ijebu-jesha, Esa-Odo,Ilare-Otan-Iresi road.

Others are Otanayegbaju –Ila Orangun road linking Kwara State among others. Also important is the experimentation of the concept of public-private participation as regards road maintenance in the state. Government should find a way of bringing in the private organizations into road construction, and maintenance. The National Union of Road Transport Workers (NURTW) in conjunction with the state and local government should work out modalities to make vehicle available and assign commercial vehicles to all routes, particularly on the market days.

In the area of planning, every market should have enough parking spaces for loading and off-loading rather than the present practice whereby vehicles were parked on roadside, creating holdup, accident and vehicle-passengers conflicts. Also, we recognize that land use is a major determinant of the direction of traffic flow. Market centres as we discovered are important land use that influenced trip generation and distribution. As such, market centres should not be allowed to spring-up anyhow. Effective planning must be put in place before the establishment of market centres in the state. Market centres are growth poles and centres for development, it is therefore expected of the state and federal government to prepare regional plans to annex these market centres in their numbers and hierarchies with good arterial road system for free flow of agriculture and industrial goods in the state. These are opportunities which the governments cannot afford to miss.

Implications of the Study

Major implications of the study are that vital information and facts about market centres in the state were highlighted. Available resources in terms of foodstuff and raw materials in the state market centres were identified for regional consumption and developmental purposes. The travel patterns of market sellers and buyers were also identified. The mileage and kilometer coverage/distances between settlements in the state were also identified and these data were developed to build explanatory models (see appendices 1 & 2).

This data and models can be used by prospective market patrons and even governments to make policy decisions. The state of the roads, its network and connectivity were discovered. All these would definitely help other researchers and policy makers in carrying out further studies and initiating positive actions for development in the state and Nigeria in general; from which other developing countries could copy.

References

Adedotun, S.B. (2002). Rural accessibility as a strategy for poverty alleviation in Osun State: *School of Business Studies Book of Reading*, The Federal Polytechnic Ede, 3(1). 12- 22.

Adefolalu, A.A. (1980). Transport and rural integrated development (Proceeding of the National Conference and Integrated Rural Development and Women): *Development Centre for Social, Cultural and Environmental Research*, University of Benin, Nigeria, 294-321.

Ademiluyi I.A. & Solanke, M.O. (2002). An appraisal of rural transport situation for sustainable development, *Journal of Rural Environment and Sustainable Development;* Department of Geography and Planning Science, University of Ado-Ekiti, 174-180.

Idachaba, F.S; Umebese, C.E; Akingbade, I.O & Adeniye, A (1981). Rural infrastructures in Nigeria: Basic needs of the rural majority: *Federal Department of Rural Development*, (1)16-18.

Kohles, R & Uhi, J (1985). *Marketing of agricultural products (Sixth Edition);* Collier Macmillan Company, USA, 370-385.

Mbagwu, T.C. (1977). Transportation constraint in rural-urban flow of agriculture food and products: A case of Owerri Area: *Transportation in Nigerian National Development;* NISER, Ibadan, 234-262

NPC. (2006). National population commission: Provisional Census Figure of Nigeria.

Ogundana, B. (1972). The transport constraint on rural development in Nigeria: *Rural Development in Nigeria;* Proceedings of the 1972 Annual Conference of the Nigerian Economic Society, 77-91

Ogunsanya, A.A. & Ojetola, W. (1993). The transport factor in rural development: The case of Kwara State, Nigeria, *Research for Development*, 10(1&2), 145-161.

Omole, F.K (2005); Analysis of some factors affecting market patronage in Osun State, *Nigeria, Journal of Economic and Financial Studies*, 1(1) 67-83.

Omole, F.K & Owoeye, J.O. (2007). Inter-market transport situation and patronage in Osun State, Nigeria: *International Journal of Transportation Studies;* Federal University of Technology, Akure, 3(1), 57-67.

Osun State Ministry of Lands and Physical Planning (2010). Maps of Osun State (both in the National and Local Government Settings).

Osun State Ministry of Works and Transport (OSMWT, 2001). Roads Network in Osun State.

Oyekunle, F.A.S. (1995). Political consideration in road development: A case study of Ogun state government policy and programmes (1975-1976), Unpublished M.Sc. Dissertation, submitted to Ogun State University, Ago-Iwoye. Nigeria.

Appendix 1. Inter Local Govt. Distance Matrix in Osun State (By Direct Motorable Routes).

	LGAs	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Total
1	Ayedaade	0	35	33	48	72	86	32	29	35	55	69	22	11	58	19	114	98	48	50	21	47	23	30	70	85	41	52	59	50	51	1443
2	Ayedire	35	0	68	83	66	80	33	30	30	35	63	57	33	93	54	109	92	83	85	71	42	73	5	62	70	17	46	94	45	45	1708
3	Atakumosa West	33	68	0	47	36	52	40	37	41	61	39	11	26	47	13	81	65	15	17	54	43	56	63	24	55	65	30	26	46	28	1219
4	Atakumosa East	48	83	47	0	57	73	61	58	62	82	60	26	41	34	29	95	95	22	25	68	64	70	78	54	76	89	51	34	67	49	1698
5	Boripe	72	66	36	57	0	20	33	36	34	54	3	47	62	83	50	34	32	35	32	93	36	95	54	12	19	58	19	32	39	21	1264
6	Boluwaduro	86	80	52	73	20	0	47	50	48	68	17	63	78	99	68	29	13	51	48	107	50	109	68	28	33	72	33	32	53	35	1610
7	Ede North	32	33	40	61	33	47	0	2	3	23	30	35	27	71	32	75	59	39	36	53	15	55	28	28	46	27	12	45	18	12	1017
8	Ede South	29	30	37	58	36	50	2	0	6	26	33	32	24	68	30	78	62	40	39	50	18	52	31	31	49	24	15	48	21	15	1037
9	Egbedore	35	30	41	62	34	48	3	6	0	20	31	38	30	74	35	76	60	40	37	56	12	58	25	29	47	24	13	46	15	13	1038
10	Ejigbo	55	35	61	82	54	68	23	26	20	0	51	58	50	94	55	96	80	60	57	76	27	78	30	49	67	31	33	66	24	33	1539
11	Ifelodun	69	63	39	60	3	17	30	33	31	51	0	50	65	86	53	45	29	38	35	90	33	92	51	15	16	55	16	35	36	18	1254
12	Ife Central	22	57	11	26	47	63	35	32	38	58	50	0	15	36	3	76	76	25	28	43	50	45	52	35	66	63	41	37	53	39	1222
13	Ife North	11	33	26	41	62	78	27	24	30	50	65	15	0	51	12	72	72	40	43	58	59	60	67	31	81	78	39	52	42	39	1358
14	Ife South	58	93	47	34	83	99	71	68	74	94	86	36	51	0	33	110	110	46	49	79	86	81	88	69	102	99	77	58	89	75	2145
15	Ife East	19	54	13	29	50	68	32	30	35	55	53	3	12	33	0	79	79	28	31	40	53	42	49	38	69	60	44	40	56	42	1236
16	Ifedayo	114	109	81	95	34	29	75	78	76	96	45	76	72	110	79	0	16	80	77	135	78	137	97	41	41	100	61	46	81	63	2222
17	Ila	98	92	65	95	32	13	59	62	60	80	29	76	72	110	79	16	0	54	51	119	62	121	80	41	25	84	45	45	65	47	1877
18	Ilesha East	48	83	15	22	35	51	39	40	40	60	38	25	40	46	28	80	54	0	3	68	42	70	83	20	54	58	28	12	45	27	1257
19	Ilesha West	50	85	19	25	32	48	36	39	37	57	35	28	43	49	31	77	51	3	0	71	39	73	80	20	51	61	20	9	42	24	1239
20	Irewole	21	71	54	68	93	107	53	50	56	76	90	43	58	79	40	135	119	68	71	0	68	2	43	78	106	62	71	80	71	72	2005
21	Irepodun	47	42	43	64	36	50	15	18	12	27	33	50	59	86	53	78	62	42	39	68	0	70	37	28	49	36	15	48	3	15	1225
22	Isokan	23	73	56	70	95	109	55	52	58	78	92	45	60	81	42	137	121	70	73	2	70	0	45	80	108	64	73	82	73	74	2067
23	Iwo	30	5	63	78	54	68	28	31	25	30	51	52	67	88	49	97	80	83	80	43	37	45	0	49	67	11	50	66	40	33	1500
24	Obokun	70	62	24	54	12	28	28	31	29	49	15	35	31	69	38	41	41	23	20	78	28	80	49	0	31	53	18	20	34	16	1107
25	Odo-Otin	85	79	55	76	19	33	46	49	47	67	16	66	81	102	69	41	25	54	51	106	49	108	67	31	0	71	32	60	52	34	1671
26	Olaoluwa	41	17	65	89	58	72	27	24	24	31	55	63	78	99	60	100	84	58	61	62	36	64	11	53	71	0	39	70	39	37	1588
27	Olorunda	52	46	30	51	19	33	12	15	13	33	16	41	39	77	44	61	45	28	26	71	15	73	50	18	32	39	0	35	18	2	1034
28	Oride	59	94	26	34	32	32	45	48	46	66	35	37	52	58	40	46	45	12	9	80	48	82	66	20	60	70	20	0	51	33	1346
29	Orolu	50	45	46	67	39	53	18	21	15	24	36	53	42	89	56	81	65	45	42	71	3	73	40	34	52	39	51	51	0	18	1319
30	Oshogbo	51	45	28	49	21	35	12	15	13	33	18	39	39	75	42	63	47	27	24	72	15	74	33	16	34	37	2	33	18	0	1015
	Total	1443	1708	1219	1698	1264	1610	1017	1034	1038	1539	1254	1222	1358	2145	1236	2222	1877	1257	1239	2005	1225	2061	1500	1107	1671	1588	1034	1346	1319	1010	

Note: This table considers the shortest motorable route. Source: Compilation from Authors' Field Work, (2010).

Appendix 2. Inter Local Govts. Connectivity Matrix for the LGAs in Osun State (By Direct Motorable Routes.

	LGAs	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Total
1	Ayedaade	-	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
2	Ayedire	0	-	0	0	0	0	1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2
3	Atakumosa West	0	0	-	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	6
4	Atakumosa East	0	0	0	-	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	4
5	Boripe	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	2
6	Boluwaduro	0	0	0	0	0	-	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2
7	Ede North	1	1	0	0	0	0	-	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6
8	Ede South	1	1	0	0	0	0	1	-	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	5
9	Egbedore	1	1	0	0	0	0	1	1	-	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	6
10	Ejigbo	0	1	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
11	Ifelodun	0	0	0	0	1	1	0	0	0	0	-	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	5
12	Ife Central	1	0	1	0	0	0	0	0	0	0	0	-	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
13	Ife North	1	0	1	0	0	0	0	0	0	0	0	1	-	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
14	Ife South	0	0	1	1	0	0	0	0	0	0	0	1	1	-	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
15	Ife East	0	0	1	1	0	0	0	0	0	0	0	1	0	1	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
16	Ifedayo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	1	0	0	0	0	0	0	0	1	0	0	0	0	0	2
17	Ila	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	-	0	0	0	0	0	0	0	1	0	0	0	0	0	3
18	Ilesha East	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	-	1	0	0	0	0	1	0	0	1	1	0	1	7
19	Ilesha West	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	-	0	0	0	0	1	0	0	1	1	0	1	7
20	Irewole	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	1	0	0	0	0	0	0	0	0	2
21	Irepodun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	1	1	2
22	Isokan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	-	0	0	0	0	0	0	0	0	1
23	Iwo	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	1
24	Obokun	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	-	0	0	0	1	0	1	6
25	Odo-Otin	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	-	0	0	0	0	1	5
26	Olaoluwa	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	-	0	0	0	0	2
27	Olorunda	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	0	0	-	0	0	1	6
28	Oride	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	-	0	0	2
29	Orolu	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
30	Oshogbo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	1	0	0	-	3
	Total																															111

KEY: 1= direct connectivity Sources: (i) Information deduced from the existing Osun State Map, (ii) National Union of Road Transport Workers (NURTW); (ii) Augmented by authors' inventory survey, (2010).
2= No direct link.