

## Assessing the Conurbation Effects of Lagos Megacity on the Parking Facilities, Sango Ota Tollgate, Ogun State

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### Abstract

Lagos megacity is extending across Ogun State boundaries. The Lagos-Abeokuta expressway is a significant link between Lagos State and Ogun State, and the Sango Ota tollgate has witnessed a very high level of socio-economic activities. Problems ranging from traffic bottleneck to parking problems of various dimensions are identified in the study area. Hence, the assessment of the conurbation effects of Lagos megacity on the parking facilities was carried out. Three days out of the seven days in a week were selected for traffic count, and a total of 33,321 vehicles were counted in location A, and a total of 34,076 vehicles were counted in location B for the three days. On-the-spot evaluation was carried out while a traffic survey was equally carried out. The traffic survey outcome revealed that car has the highest percentage of vehicle plying the road with a daily average number of 4476 in location A, and 4526 daily average number in location B, representing 40% of the total number of vehicles in each location. On parking, illegal parking of vehicle was carried out on the paved surface of the road, which limits traffic flow. A total of 3278 vehicles are parked illegally in location A, with mini-bus having the highest of 1846, representing 56% of the total number of vehicles parked, while a total of 3292 vehicles are parked in location B, with mini-bus having 2001, representing 61% of the total number of vehicles parked. The situation at the tollgate is a manifestation of poor Megacity Planning, and recommendations made include the preparation and implementation of a Motor Park Layout/Design, with a collaboration of the Lagos State and Ogun State government.

**Keywords:** Conurbation, Megacity, Urbanization, Motor Park, Traffic Flow.

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## 1. Introduction

The concept of Conurbation by Patrick Geddes in the early 19<sup>th</sup> century is a clear concept of human settlements which is defined as the agglomeration or fusion of settlements, as a result of intensive socio-economic activities of either one or the whole settlement. It is a concept that explains the increase in the population of fringe settlements and an expansion in the development of the land area of such communities (Dekolo & Oduwaye, 2011). A critical examination of this concept revealed that conurbation is a function of urbanization which is expressed in term of population upsurge and intensify land uses. This concept is often described as the resultant effect of a high rate of urbanization. This is experienced in the increase of urban population, which results in overflow into the neighboring communities, with a negative impact on the neighboring community's infrastructural facilities, both in term of provision and management.

Several thousands of populations move into Lagos daily as a result of the state's socio-economic potentials, whereas little or no person moves out. On this premise, Olaseni (2011) observed that a direct impact of the ever-increasing population has resulted in the rapid expansion of the city and pave the way for suburbanization. The overflow in population has created over the years an agglomeration of immediate state, in which Ogun State and Lagos State are

included, and this situation is described as conurbation. Within this context are settlements which are best described as fringe due to their location, but have expanded and activities intensified which make it difficult to give a clear identity, taken into cognizance the socio-economic characteristics of the inhabitants.

Transportation is essential to life sustenance, but poor planning has resulted in various transportation bottleneck; hence, it is referred to as a decisive factor of growth and development of human settlements. Ahmed (2015) observed that transport is vital to the growth of human settlements, and the most urban settlements have experienced urban decay as a result of poor transportation at different scales of urban development. It is noted that parking is a significant aspect of transportation planning, which requires proper analysis, taking into cognizance the complex nature of urban settlements. Adedayo & Zubairu (2013) noted that the conflict between the customers and the providers of the parking facilities is inevitable, and this calls for proper management of the facilities. Ahmed (2015) identified parking along the street as a consequence of the lack of spaces for parking within a particular confined area authorized by the government. This illegal parking has contributed significantly to road transportation problems in Nigerian urban areas.

The problems identified in the study area (Sango Ota tollgate corridor) is no exception both in character and dimension to the general views of the issues associated with the urban transportation problem. The crisis is multi-dimensional, ranging from add-travel time, road crashes, parking problems, high traffic density, to poor environmental quality. In terms of traffic congestion and delay, the magnitude of the problem varies according to the intensity of the flow of the vehicle; hence, the problem is aggravated during the peak periods of 7:30am-10:30am and 3:30pm-7:30pm. The closeness of Lagos has contributed significantly to the traffic intensity and the complexity of the transportation problem. Apart from its nearness to Lagos, it is quite important to attribute the characteristics of the traffic and the parking behaviour to the land-use composition, which is mainly a combination of industrial and commercial land use (Kadiri, 2009).

Parking is essential to urban management. In terms of urban policy, parking is identified to be very important in six aspects of urban management, namely, transportation, environmental quality sustenance, land use planning, social development, economic development, and urban financing. According to Litman (2009), the negative consequences of poor parking management is a high contributory factor to urban problem, while parking remains one of the determinant factors of the use of a vehicle by types.

The conurbation effect of Lagos Megacity on parking facilities in Sango Ota tollgate is assessed to make necessary recommendations. Hence, the traffic situation studies include the categories of vehicle on the roads; the examination of the traffic flow intensity; and the character of the road in terms of the dimension, and condition, and the existing parking facilities.

Agbola (2006) cited by Kadiri (2009) observed that urbanization has become an important aspect of urban studies, and that Lagos has kept growing in leaps and bounds, with the population growth rate of the metropolis progressively increasing from 5.5percent per annum in the mid-eighties to between 12 and 13percent in the year 2002; while it is no longer new that Lagos is identified to be among the largest cities of the world in year 2020, due to an estimated population of above 25million people. FMHND (2000) cited by Kadiri (2009) noted that Lagos population has been growing at a geometric rate, while the land area within the metropolis had remain inelastic. He observed that Lagos reacted in two ways; by expansion and also through adjustment of land use intensity along with changes; and by expanding along area of least resistance where soil condition and level of accessibility permitted as much as possible

Parking is an important aspect of transportation; hence, it is a major factor in traffic management. Urban transportation problem is quickly noticeable in add- travel time, parking problems, traffic jam, and poor environmental quality. Asiyanbola & Akinpelu (2012) described transportation problems as a major problem in urban areas, , and this problem

is majorly caused by road users, while Mingardo (2013) pointed out that adequate researches are required in motor park management in order to achieve a sustainable urban transportation. However, Rye & Koglin (2014) notes that the inadequacy of scientific research on parking has made policy formulation and implementation that will address various urban parking issues unrealizable.

The problems identified in the study area are problems associated with urban road transportation, namely, the flow of traffic, and the provision and functional motor parks. These two aspects are mutually exclusive within the content and context of urban transportation. Traffic congestion, particularly during the peak period is identified. The traffic situation along the corridor, particularly at the tollgate becomes chaotic during the (7:30am-10:30am, and 3:30pm-7:30pm). The emergence of illegal motor parks along the corridors is a major problem identified. The illegal parking is found along the roads and these illegal motor parks has enhanced commercial activities on the roads, thereby resulting into vehicular and pedestrian conflicts. The poor state of the environment resulting from the illegal motor parks is another identified problem. Poor disposal of waste at the illegal motor parks, often contribute poor drainage. During the raining season, flooding occurs within the area, which results into blockage of roads, thereby affecting traffic flow of vehicle negatively.

## 2. Research Methodology

The Lagos – Abeokuta Expressway is a corridor which link Lagos State and Ogun State. The border between these states along this corridor is the Sango toll gate. Sango Ota is a town located in Ogun State, and also as the headquarters of the Ado-Odo Ota local Government which is accessed by two major roads, namely; the Lagos -Abeokuta expressway; and the Owode-Idiroko road, while Ajegunle serves as the immediate settlement of Lagos (border settlement) along the corridor. It is being acknowledged that megacity region as a continuous built up area spanning over 153,540 hectares of land comprising virtually all the Local Government Areas of Lagos State and four in Ogun State, that is Sagamu, Owode, Ifo and Ado-Odo/Otta.

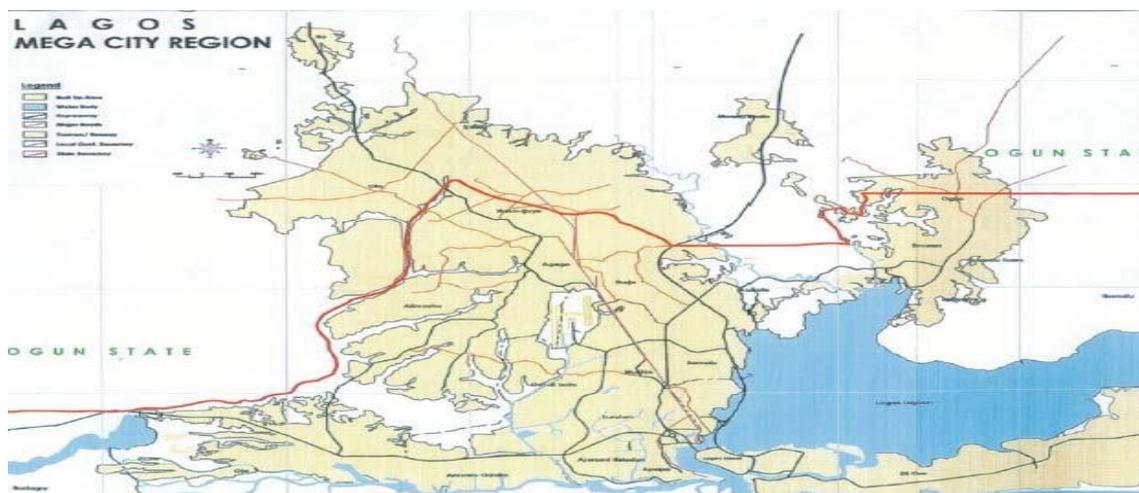


Figure 1: The Region of Lagos Megacity (Source: Redevelopment of Megacity Region Report, 2006), culled from Managing Lagos Megacity and Its Geospatial Imperatives. Dekolo & Oduwaye, (2011).

The empirical investigation involved the collection of relevant data on both the traffic intensity on the corridor, and the characteristics of the parking facilities. On- spot evaluation is conducted in order to have a proper understanding

of the character of traffic and parking at the Sango Ota toll gate. It is important to note that traffic counts were conducted on Monday, Wednesday, and Saturday between the hours of 7:00am-7:00pm, in which the Origin and Destination Survey (ODS) was adopted, while parking survey was carried out for three days, that is; Monday, Wednesday, and Saturday. The parking survey involves the identification of parking lots, their legality, intensity, and effects on traffic flow.

Secondary data on Megacity development, traffic situations, and parking characteristics and its effects resulting from urban agglomeration were collected from relevant journals and other publications, while statistical analysis is adopted for the purpose of analysis.

### 3. Data Analysis and Presentation of Findings

Data on the traffic volume of the two (2) identified corridors are presented as the Summary of Traffic Survey Outcome of location A (Sango Otta Tollgate): Sango Otta to Lagos, and location B (Sango Otta Tollgate): Sango Otta from Lagos, in tables 1 and table 2 respectively.

Table 1: Location A (Sango Otta Tollgate): Sango Otta to Lagos

Date	Car	Coaster	Mini Bus	Trucks	Heavy Vehicle	Motor Tricycle	Cycles/	Total
Passenger Car Units. PCU	1.00	1.5	1.5	2.5		0.7		
Monday,10 <sup>th</sup> Feb 2020	4860	1201	2455	786	625	1684		11611
Wednesday,12 <sup>th</sup> Feb 2020	4416	1200	2480	774	637	1455		11141
Saturday,15 <sup>th</sup> 2020	4150	1209	2371	742	642	1455		10569
Total	13426	3610	7306	2302	1904	4773		33321
Daily Average	4476	1203	2435	767	635	1591		11107

Table 2: Location B (Sango Otta Tollgate): Sango Otta from Lagos

Date	Car	Coaster	Mini Bus	Trucks	Heavy Vehicle	Motor Tricycle	Cycles/	Total
PCUS	1.00	1.5	1.5	2.5		0.7		
Monday,10 <sup>th</sup> Feb 2020	4449	1249	2479	777	729	1574		11257
Wednesday,12 <sup>th</sup> Feb 2020	4498	1207	2471	743	668	1637		11224
Saturday,15 <sup>th</sup> 2020	4630	1236	2500	783	737	1709		11595
Total	13577	3692	7450	2303	2134	4920		34076

Daily Average	4526	1231	2483	768	711	1640	11359
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Data on the parking of vehicle along the two identified corridors are presented as the daily average of the vehicle parked along the identified corridors. The daily average of the vehicle parked along the two (2) identified corridor is derived from the average number of vehicles parked for the three days of the survey, that is, Monday, Wednesday and Saturday.

Table 3: Daily Average of the vehicle parked in location A (Sango Otta Tollgate): Sango Otta to Lagos

Type of Vehicle	No	Percentage
Mini-Bus	1846	56
Car	392	12
Heavy vehicle	34	1
Motor Cycle/Tricycle	1006	31
Total	3278	100

Table 4: Daily Average of the vehicle parked in location B (Sango Otta Tollgate): Sango Otta from Lagos

Type of Vehicle	No	Percentage
Mini-Bus	2001	61
Car	386	12
Heavy Vehicle	_28	_1
Motor Cycle/Tricycle	877	26
Total	3292	100

The traffic survey outcome of both location A and location B in table 1 and table 2 respectively revealed high intensity of traffic flow at the tollgate, which is a consequence of Lagos urbanization. The two locations displayed similar characteristics in terms of the total number of vehicles by type. A daily average of four thousand, four hundred and seventy six (4,476) was recorded for cars in location A, which represents 40% of the total percentage of the vehicle plying the corridor, and this has the highest percentage, while heavy vehicle has the least percentage of vehicle plying the corridor with a total number of six hundred and thirty five (635), representing 6% of the total percentage. Similarly, the location B, has the same percentage for cars (40%) as vehicle plying the corridor, with a daily average of four thousand, five hundred and twenty-six (4,526), which represents the highest number of vehicles plying the road. In comparison, the heavy vehicle has the least percentage of 6%, with a total number of seven hundred and eleven (711).

It should be noted that Mini-bus has two thousand four hundred and thirty-five (2,435) as the daily average number of vehicles plying the corridor in location A, which represents 22% of the total. Percentage, while the total number of mini-bus in location B is two thousand, four hundred and eighty-three (2,483), representing 22% of the total percentage of vehicle plying the road.

On parking of a vehicle, it should be pointed out that no legal parking facilities are provided within the tollgate geographical area. Illegal motor parks are located at the location A: Sango Ota to Lagos and location B: Sango Ota from Lagos. Parts of the paved surface of the road are used as motor parks, thereby limiting the spaces provided for

traffic flow, and also resulting in vehicular/pedestrian conflict. Hence, the data on the daily average of the vehicle parked in location A and location B, represent the daily average of the vehicle parked along the road. The analysis in table 3 and table 4 show that the mini-bus has the highest percentage of the vehicle parked in the two locations. In comparison, the heavy vehicle has the least percentage of the vehicle parked in the two locations.

From the data analysis, very high intensity of traffic occurs on the corridor due to the intense socio-economic activities taking place within the tollgate area and also the agglomeration existing between Lagos state and Ogun state. Based on this traffic characteristic, the non-provision of legal motor parks has aggravated the problems associated with urban transportation, particularly those associated with megacity transportation problems. It should be noted that the 24 meters Lagos-Abeokuta Expressway have no capacity for motor parks along the road, particularly within the geographical area of the study area (Sango Ota tollgate). However, the intensity of traffic is a determinant factor of the area covered by the identified illegal motor parks, which implies a variation daily.

#### **4. Conclusion and Recommendations**

The conurbation existing between Lagos State and Ogun State is expressed in terms of the overlapping of socio-economic activities. The tollgate located along the Lagos-Abeokuta expressway, which is often referred to as Sango Ota tollgate has manifested problems associated with Lagos Megacity Development. The traffic characteristics within the tollgate area is a pointer to the level of agglomeration of Lagos state and Ogun state. At the same time, the illegal motor parks along the corridor have shown poor Urban Planning within the context of Megacity Planning. The traffic and environmental problems identified in the study area have necessitated the need to make necessary recommendations to create an environment suitable for mobility in the urban areas. Various surveys in siting good locations for motor parks within the geographical areas of the tollgate is recommended, and factors to be considered should include; the topographical nature of the land, soil types, existing land uses, public utilities, and the character of the traffic flow with the types of vehicle. Also, a detailed Motor Park Layout Plan/Design is recommended, and its preparation should consider the characteristics of the site selected, to achieve the free flow of vehicle and pedestrian in the study area, with a suitable environment for urban development. An effective enforcement mechanism for proper implementation of the development plan is recommended.

It should be stated here that the concept of megacity development should be embraced, and the collaboration of the two states (that is Lagos state and Ogun state) in the preparation of the motor park layout plan/design and its enforcement should be effective.

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