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BUILDING CAPACITIES IN THE  
CIVIL SERVICE

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# ***Land Use Characteristics of Automobile Workshops in Lagos Metropolis, Nigeria, by \*Olanrewaju Samson Olaitan<sup>1</sup> and Jelili Musibau Omoakin<sup>2</sup>***

## **Abstract**

*This paper evaluates the land use characteristics of automobile workshops in Lagos Metropolis with a view to proffering recommendations that will aid the control of automobile workshops in the study area and similar urban centres in the country. To achieve this, a total survey of the formal workshops in the metropolis was done, while 389 informal workshops located on both sides of purposively selected roads in the metropolis were sampled. Further, a 300-meter radius was delineated around each sampled automobile workshop for landuse characterization. Percentages, Analysis of variance, and query function of the Geographic Information System were used to investigate the landuse characteristics of the automobile workshops. The study discovered that automobile workshops in Lagos Metropolis are in dense residential areas, though formal automobile workshops tend to be in denser neighbourhoods than informal ones. These workshops are situated on an average area of 6636 square meters with about 70% of the land area developed. However, the workshops do not comply with spatial planning standards, especially road setbacks. It is therefore recommended that mass awareness and effective development control be put in place by officials of Lagos State Ministry of Physical Planning and Urban Development.*

**Keywords:** Land use, Automobile workshops, Urban planning

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## **Introduction**

Sustainable urbanization is a dream for no less than 50% of the global South's primary cities. Yet these cities including Nairobi, Lagos, Cairo, Dar es Salam, Kampala, Kinshasa, and Dakar, are faced with human, social, physical, and institutional challenges of achieving this aspiration. Notable among other evidence of unsustainable urbanization in these cities is the challenge of managing complex, and usually informal, land uses. One such land use is automobile workshops.

The increasing growth rate of human population, income and affluence have encouraged the use of automobiles for different purposes. Also, human settlements, particularly urban areas, react to an increase in landuse intensity and its associated transportation demands by depending on more automobiles. This situation is not exclusive to urban areas in Nigeria. However, the dependence of Nigerians on various grades of used automobiles (Adewoyin et al, 2013, Aloysius et al, 2013), has led to an increase in the need for, patronage, and the rising number of automobile workshops in the country. Unfortunately, automobile workshops are indiscriminately located in Nigerian towns and cities to provide maintenance and repair services, hence, they have resultant effects on their local environment (Adelekan and Abegunde, 2011). This locational attribute of automobile workshops causes environmental disorderliness, reduces city aesthetics, and threatens its sustainability (Jelili et al, 2017).

Lagos, a major industrial and commercial hub in Nigeria, has over the years witnessed an increase in vehicular use (Motor Vehicle Statistics, 2012) - hence the continual establishment of automobile workshops, especially in proximity to roads for access and emergency service

delivery. The major concern here is that, at the sight of poor urban planning and the inability to economically compete for land, there is a tendency for the haphazard dispersal of automobile workshops and their associated landuse impacts. The location of automobile operators and their micro and macro landuse impact are of serious concern to landuse planning. This is not only because of the continual, haphazard emergence of these automobile workshops and the multidimensional nature of their impacts but that such decisions are the orientation of urban planning.

The environmental (Ipeaiyeda, 2008; Nwachukwu *et. al*, 2010; Adewoyin *et. al*, 2013; Farombi, 2013), and socioeconomic (Md and Shakila, 2013) dimensions of automobile workshops in urban areas have been documented. However, there is little emphasis on the landuse characteristics of automobile workshops both in Nigeria and the study area – thereby creating a gap in the effective management of this land use type towards the achievement of sustainable urbanization in the city and beyond. It is against this background that this study evaluates the land use characteristics of automobile workshops in Lagos Metropolis. This is with a view to proffering urban planning interventions that will aid the control of this land use category in the study area, as well as other towns and cities that may have similar characteristics.

## **The Study Area**

Lagos State was created on May 27, 1967, by virtue of state (Creation and Transitional Provisions) decree No. 14 of 1967, which restructured Nigeria's Federation into 12 States. Prior to this, Lagos Municipal had been administered by the Federal Government through the Federal Ministry of Lagos Affairs as the regional authority, while the Lagos City Council (LCC) governed the city of Lagos. Equally the metropolitan areas (colony provinces) of Ikeja, Agege, Mushin, Ikorodu, Epe and Badagry were administered by the Western Region. The state took off as an administrative entity on April 11, 1968, with Lagos Island serving the dual role of being the state and Federal capital. Lagos metropolitan area comprises 15 Local Governments namely Agege, Alimoso, Apapa, Amuwo-odofin, Eti-Osa, Ikeja, Ifako-Ijaiye, Kosofe, Lagos Island, Lagos Mainland, Surulere, Mushin, Oshodi-Isolo, Ojo and Somolu. These metropolitan areas are centres of economic, industrial, and administrative activities in the state, hence highly patronized by different automobiles to support it.

## **Methodology**

For this study, a list of formal automobile workshops in the metropolis was obtained from the National Automobile Technician's Association (NATA), Lagos state Chapter; thereafter, a total survey of the workshops (i.e., 30 automobile workshops) was carried out. However, due to absence of records on the number of informal automobile workshops in the metropolis, sampling of this category of workshops was carried out using road. For clarity, a formal automobile workshop is a workshop registered with Nigeria's Cooperate Affairs Commission and file tax returns to the government. However, informal automobile workshops are workshops that are not registered with the government.

Roads in the metropolis were stratified into arterial and major roads. Thereafter 40% of the road in each category was randomly selected. Hence 15 roads, out of 38 roads, were sampled and utilized for the study. For every selected road, automobile workshops on both sides of the road were inventorised and landuse characterization was done. In this instance, a 300 meters radius was delineated around each sampled automobile workshop while land use characterization of the delineated area was done. The inventory includes a record of various land uses within delineated areas, setback of identified structures/ buildings, type of building or space occupied. This was done using physical observation and measurement. These data were subjected to both



descriptive and inferential statistics. Descriptive statistics were utilized and include percentages and cross tabulation, while inferential statistics such as Analysis of Variance was utilized. In addition,

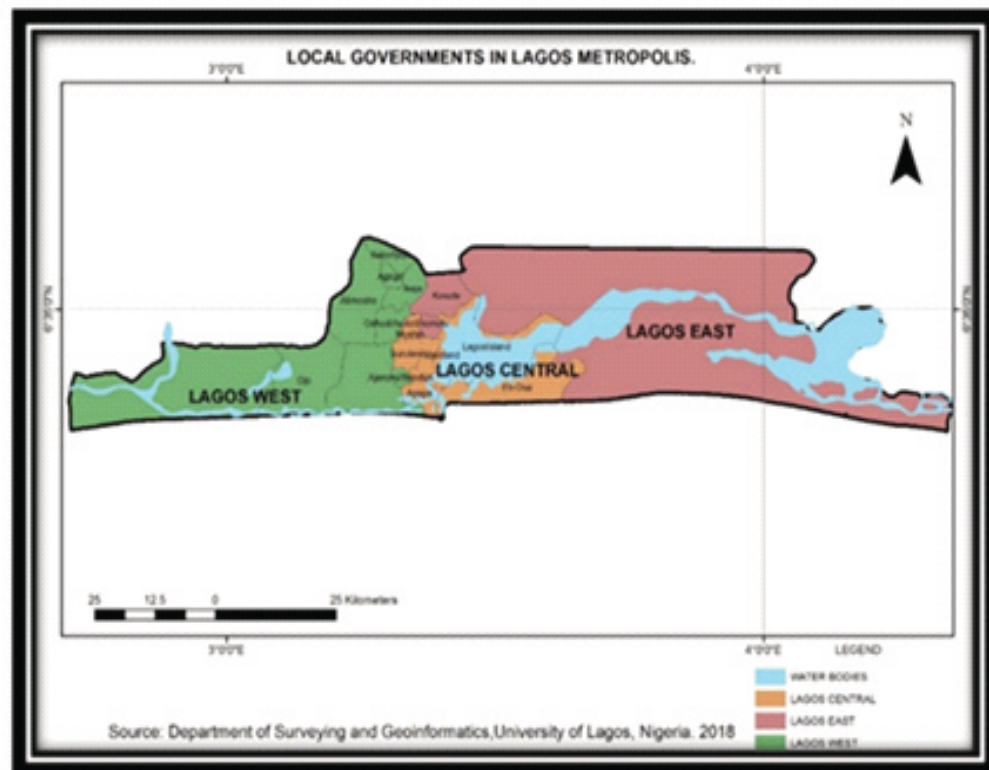


Figure 1: Local Governments in Lagos Metropolis  
Source: Adapted from Department of Surveying and Geoinformatics, University of Lagos, Nigeria, 2023

Geographic Information System (GIS) was used to query the landuse characteristics of the delineated area around the automobile workshops.

### Discussion of Findings

There is a systemic and adaptive relationship between every land uses and its environs. Such is a result of adjusting interactions (e.g., physical, social, economic, and environmental) between the land use and its environment. Hence, like plants, landuses grow in supporting environment, and become extinct in non-supporting ones. The landuse characteristics of areas around automobile workshops in Lagos Metropolis are discussed in this section.

### Land Usage of Automobile Workshops in the Lagos Metropolis

In Lagos Metropolis, an average automobile workshop is located on a land size of about 6636 meters square with about 70% of the total land developed. The remaining 30% is used as open space or car park in informal workshops, and as landscape area in their formal counterparts – these however vary among automobile workshops. Further investigation reveals that informal automobile workshops have an average land area of almost 6610 meters square. Meanwhile, the total land area developed by informal workshops in the study area is about 70%. A similar usage pattern was observed in formal workshops, where the average land size is about 7000 meters square and about 68% was developed (Table 1).

From another perspective, the number of automobile workshops in Lagos Metropolis, that have the land size of almost or above 6000 square meters was queried for using ArcGIS10.3. It was discovered that 272 (i.e., almost 50%) of the automobile workshops have an average land size of 6000m<sup>2</sup>. Hence, it can be inferred that the minimum land size required for establishment of an automobile workshop - garage inclusive, irrespective of its formality type, is 6000m<sup>2</sup> (Figure 2). This can be introduced into spatial policy response of Lagos State, where a land area of 6000m<sup>2</sup> will be recommended as the minimum land required for the development of automobile workshops in the metropolis.

Table 1: Total Land Size, Total Area and Percentage of Area occupied by Automobile Workshops in Lagos Metropolis

Formality		Total land size (m <sup>2</sup> )	total area occupied by automobile workshop (m <sup>2</sup> )	% of area covered
Formal	Mean	6970.00	4758.67	68.27%
Informal	Mean	6610.54	4673.65	70.70%
Total	Mean	6636.28	4679.74	70.52%

Source: Author's work, 2023

About 60% of the identified automobile workshops in Lagos Metropolis are not internally organized - with the use of partition. Further inquisition, as summarized in Table 2, reveals that 92.3% of partitioned workshops are in the informal category, thereby suggesting that partitioning of workshops is not popular in the study area. In some cases, in formal workshops, operation area is always in form of a hall with secretary or administrative worker occupying a part of the workshop. Whereas in informal workshops, automobile operations are carried out in open space with trees used as shades, and in some other areas, locally made sheds are utilized with internal partitions done with the aid of bamboos, small trees, or plywood. Non-partitioning of automobile workshops disfigures it, and makes it appear spatially unorganized.

Table 2: Internal Space Organization of Automobile Workshops in Lagos Metropolis

		formality		Total	
		formal	informal		
Workshop partition	Yes	Count	13	155	168
		% within workshop partition	7.7%	92.3%	100.0%
		% within formality	43.3%	39.8%	40.1%
		% of Total	3.1%	37.0%	40.1%
	No	Count	17	234	251
		% within workshop partition	6.8%	93.2%	100.0%
		% within formality	56.7%	60.2%	59.9%
		% of Total	4.1%	55.8%	59.9%
Total		Count	30	389	419
		% within workshop partition	7.2%	92.8%	100.0%
		% within formality	100.0%	100.0%	100.0%
		% of Total	7.2%	92.8%	100.0%

Source: Author's work, 2023

$\chi^2 = 0.141, \alpha = 0.74$

### Land Use Type and Density of Areas Around Automobile Workshops

As summarized in Table 3, the highest landuse type within the delineated areas around automobile workshops in Lagos Metropolis is residential land use. This is as it accounts for an average of 856m<sup>2</sup> within every 300 meters around the workshops. The implication of this is that automobile workshops in Lagos Metropolis are in residential neighborhoods. However, around



these neighborhoods are patches of industrial and recreational landuses, as these account for an average of 2.48m<sup>2</sup> and 0.41m<sup>2</sup> respectively. Further inquiry reveals that the average landuse density of areas around automobile workshops in Lagos Metropolis is 272 dwelling units per hectare (dw/ha) (Table 4). The foregoing informs that automobile workshops in Lagos Metropolis are in dense residential areas – suggesting overcrowding and its associated socioeconomic implications such as crime, petty informal trades etc. Meanwhile with the Average Number of Residents (ANR) values of about 747 persons and 690 persons respectively for areas around informal and formal automobile workshops, there are more residents in structures/buildings around the former than the latter (Table 4).

**Table 3: Summary of Landuse Distribution Around Automobile Workshops in Lagos Metropolis**

Formality		residential use (m <sup>2</sup> )	commercial use (m <sup>2</sup> )	industrial use (m <sup>2</sup> )	recreational use (m <sup>2</sup> )	educational use (m <sup>2</sup> )	agricultural use (m <sup>2</sup> )	uncategorized use (m <sup>2</sup> )
formal	Mean	685.46	.00	2.10	.33	.00	.00	.00
	N	30	30	30	30	30	30	30
Informal	Mean	869.90	.00	2.51	.41	.00	.00	.00
	N	389	389	389	389	389	389	389
Total	Mean	856.69	.00	2.48	.41	.00	.00	.00
	N	419	419	419	419	419	419	419

Source: Author's work, 2021

**Table 4: Density of Area Delineated Around Automobile Workshops**

Formality	Average number of buildings/structures within delineated area i.e 300 meters (dw/ha)	Average number of buildings per hectare(dw/ha)	Total Residential Area (Meters Square)	ANR	Occupancy Density per 300m
formal	8.23	274.4444	156900.00	690.20	.0045
informal	8.19	272.8363	166423.65	747.45	.0046
Total	8.19	272.9515	165741.76	743.35	.0046

Source: Author's work, 2023

### Setback of Automobile Workshops in Lagos Metropolis

Only 17% of the automobile workshops in Lagos Metropolis have a minimum setback of 4.5 meters – stipulated by Lagos State Urban and Regional Planning Law – to its nearest road. Further investigation, as summarized in Table 5, with  $t = -13.13$ ,  $p = 0.000$ , the setback of automobile workshops to the nearest road is significantly lower than the 4.5 meters stipulated by Lagos State Urban and Regional Planning Law. The non-compliance of automobile workshops to planning standards is, unfortunately, more acute in formal workshops. This is as the average setback of formal automobile workshops to their adjoining road is 3.46 meters while that of informal is 3.50 meters.

From the foregoing, it is evident that, despite their formality status, formal automobile workshops are more non-conforming to land use standards stipulated in Lagos Urban and Regional Planning Law. The concerns associated with non-conformance of automobile workshops to physical planning standards caused an investigation to be made into the awareness and obstinance of development permits by automobile operators. Result, as evidenced in Table 6, revealed that with  $X^2 = 419.00$ ,  $p = 0.00 < 0.05$ ; owners/operators of formal automobile workshops are not only aware of the need for physical planning, but obtained development permits for their workshops. If approval was given to these workshops, then, what caused the non-conformity? Was it at the implementation stage? If yes, then, one is coerced to believe that there is a loophole in the enforcement of planning laws by the

Development Control Department of Lagos State Ministry of Physical Planning and Urban Development.

Similarly, about 89% of the automobile workshops in Lagos Metropolis maintained a minimum of 3 meters airspace to its closest landuse (Figure 4). Though with the previous analysis, it is almost entirely possible that observance of airspace is neither because of automobile operators' awareness of urban planning standards nor the conscious intervention of development control officials. However, such could have been informed by their (automobile operators) informal understanding of the need for space between two buildings as well as the traditional notion of giving at least a walkable distance between two different properties to avoid future encroachment and its associated land dispute issue.

Unfortunately, the spatial and aesthetic integrity of Lagos Metropolis is gradually losing its value because of the unorganized nature of these workshops and similar economic landuses. This is because economic landuses, especially automobile workshops, usually tend to be located at proximity to road, hence cause accidents, especially during driving in and out of garage.

**Table 5: Average Distance of Automobile Workshops to Road**

	Formality	N	Mean	T-Value	Sig. (2 Tailed)
Distance of workshop to road (m)	Formal	30	3.4663	-13.13	0.000
	Informal	389	3.5008		

Source: Author's work, 2021

**Table 6: Obtaining of Physical/Development Planning Approval**

		Formality		Total		
		Formal	Informal			
Obstinance of physical planning approval for this location	Yes	Count	30	0	30	
		% within obtainance of physical planning approval for this location	100.0%	0.0%	100.0%	
		% within formality	100.0%	0.0%	7.2%	
	% of Total		7.2%	0.0%	7.2%	
	No	Count	0	389	389	
		% within obtainance of physical planning approval for this location	0.0%	100.0%	100.0%	
		% within formality	0.0%	100.0%	92.8%	
		% of Total		0.0%	92.8%	92.8%
	Total		Count	30	389	419
		% within obtainance of physical planning approval for this location	7.2%	92.8%	100.0%	
		% within formality	100.0%	100.0%	100.0%	
		% of Total		7.2%	92.8%	100.0%

Source: Author's work, 2023

$X^2=419, \alpha=0.000$

### Conclusion and Recommendation

The study has evaluated the landuse characteristics of the automobile workshops in Lagos Metropolis, from which it accounted that workshops are located in dense residential areas. These they do with little cognizance for planning regulations, hence threatening sustainable urbanization of the metropolis. To address this, the following recommendations are proffered:

- Automobile workshops operators, as important components of the society, should be sensitized on the various land use implications of their activities. Such sensitization

programmes can be put forward in indigenous language so as to pass the message to even illiterates and semi-illiterates.

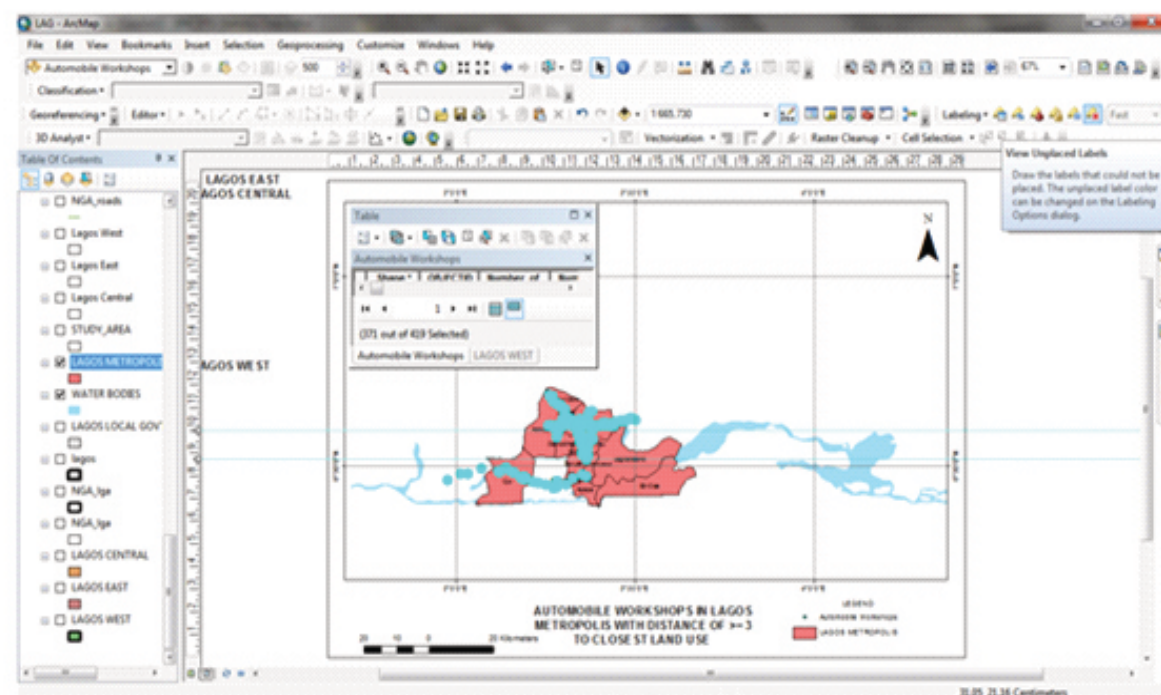


Figure 2: Distance of Automobile Workshop in Lagos Metropolis to Closest Landuse  
Source: Author's work, 2023

- Lagos State Ministry of Physical Planning and Urban Development as well as the State Ministry of Transport should collaboratively develop a guideline for the establishment and management of automobile workshops in the state. The guideline should clearly state planning standards for the citing and developing automobile workshops in the state. Areas to be covered by the guideline include minimum number of units in each workshop, minimum acreage for automobile workshop, minimum setback to adjoining landuse, types of adjoining landuses to automobile workshops and necessary facilities in automobile workshops.
- Development control, particularly for automobile workshops and similar landuses, should be carried out by the state Ministry of Physical Planning and Urban Development. Also, routine inspection of automobile workshops should be carried out by development control officials to ensure total compliance of automobile workshops to planning standards.

It is therefore concluded that if these recommendations are religiously considered and implemented in the metropolis, sustainable urbanization will be achieved.

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## Author Contributions

Olanrewaju Samson Olaitan conceived the idea, wrote the proposal, conducted data acquisition work, analyzed the data and drafted the report. Jelili Musibau Omoakin helped as a co-researcher throughout the research process.