



## Challenges of Water and Road Transport System in Nigeria, Effect on Commuters. Case Study of Lagos

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### ABSTRACT

Transportation plays essential roles to habitat is metropolitan given that businesses are concentrated at the heart of the city while those from suburban areas strive to get to their places of work using diverse means of transportation including train, buses, bike, tricycle, ships, canoes, among others. However, the diverse means of transportations are confronted with several challenges which grossly affect the health and lives of the commuters. The study adopted a descriptive survey method in investigating the effect of road and water transport systems on commuters in Lagos state. Apapa and Lagos Island were selected for this study given their tendencies for traffic, as well as the fact that a large population of workers can be found here at any given time. Random sampling method was utilized in selecting 200 respondents for the study. Questionnaire was structured to accommodate the three research questions formulated in this study. The data gathered was descriptively analyzed using frequency, percentages, mean and standard deviation. This result of this study revealed some challenges of water transport to commuters to include: poor maintenance of available facilities; over speeding by the operators; damage of ferry/boat on travel; discomfort on ferry/boat due to overloading; weather changes; poor level of service; and high cost of transport. Similarly, the study following challenges were identified as challenges of as challenges faced by commuters in the use of road transport system: poor maintenance of available facilities; over speeding by the operators; damage of ferry/boat on travel; discomfort on ferry/boat due to overloading; weather changes; poor level of service; and high cost of transport. Finally, the study revealed that the major effect of water and road transport system on commuters' productivity include: poor health due to exposure to traffic-related air pollution; decreased productivity due to ineffective functioning of public transport system; minimizes economic participation of those without other transport options; it compromises the safety and security of commuters; and exposure to communicable diseases. Based on the result of this, the study recommends that more roads, fly overs, and highways be created to minimize traffic jam in Lagos. The study further recommends that more traffic lights be constructed at different junctions and total complaints to traffic rules be upheld to ensure smooth movement of vehicles in the land/road.

**Keywords:** Water, Road Transport System, Effect Commuters.

### Introduction

Transportation is integral to the activity of humans, as it serves as a base for every economic interaction and development. Therefore, the lack of effective transport facilities especially in developing countries is a hindrance to economic development. A developing country is characterized by congested ports, bad roads, and overcrowded planes. The city of Lagos in Nigeria is a commercial nerve center with a population of about 20 million, which implies that a good number of this population either own or drive a vehicle (Onokala&Olajide, 2020). As a commercial state, there is bound to be regular movement of people from one place to another, which puts a strain on public infrastructures. The use of vehicles is a more popular means of transportation with Lagosians, and as such other alternative means are not usually considered as a first option. Movement in Lagos can be very hectic owing to several factors such as the presence of heavy-duty trucks engaged in the movement of goods from the port to various locations. This has made vehicular movement a nightmare in Lagos state. In spite of the obstacles presented in road transport system in Lagos, not many people have adapted to the idea of using water transportation, despite the advantage of it being a faster means of movement than road. The use of boats and ferries by Lagosians is not a popular idea based on personal and safety reasons.

To improve the quality of life of citizens in any country, it is the duty of the government to provide a higher level of development, which would endear the citizens to the existing governance. There are however pre-requisites to achieving this such as the achievement of economic and socio political stability Lunke (2020). Thus, an aspect of socio-economic change is the provision of transport system. Effective transportation systems influence economic opportunities as the mobility needs of people are met and ease in access to resources (Gobind, 2018).

The disorganization often associated with transportation in Lagos state leads to unproductivity on the part of citizens as they become isolated from productive jobs and re deprived from assessing basic life amenities. This implies that enhancing the functionality of a city is dependent on how well the transportation network is improved to provide reliable and accessible opportunities. Thus with improved mobility, there is increased productivity growth. As one of the fastest growing cities in the world, Lagos state has been faced with transport challenges. This has led to government being under so much pressure to improve the quality of Lagos state transport system to meet the demands of a growing population such as investing in public transport and infrastructure in the last couple of years (Ogunola, Kriticos& Harman, 2019).

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## Statement of research problem

There are various modes of transport available to Lagosians; road, rail and water. Of these three the road is the most accepted and common means amongst people, despite the hindrances often faced in the use of vehicles, such as road obstruction caused by trailers and traffic congestion leading to unproductivity and delay. The use of water transportation has been reported as a faster means of transport and devoid of issues associated with road transport; it is however not a popular means amongst Lagosians as many seem frightened by the mere thought of getting onto a ferry, while some can be attributed to cultural factors influencing their phobia for water. Thus, commuters tend to become affected by the hindrances in transportation, road and water, which can lead to delay and losing out on productive moments, which decrease the possibility of productivity growth (Ogunola, Kriticos & Harman, 2019). In view of the foregoing, this study investigates the effect of water and road transport system on commuters in Nigeria; with a focus on Lagos state.

## Research objectives

The specific purpose of this study is to;

1. Assess the challenges of water transport to commuters
2. Determine the challenges of road transport to commuters
3. Investigate the effect of water and road transport system on commuters' productivity

## Research questions

1. What are the challenges of water transport to commuters?
2. What are the challenges faced by commuters in the use of road transport system?
3. What is the effect of water and road transport system on commuters' productivity?

## Research hypothesis

There is no significant effect of water and road transport system on commuters in Nigeria.

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## Literature review

Lagos state is in the South West of Nigeria, the former capital state of the country but still considered as the commercial hub of the country with a high population density of over twenty million people. Within this metropolis, the means of transportation used are road, rail and water transport system with road transportation being the most prevalent and extensive (Nwafor and Onya, 2019). Road transportation system accommodates all means of transport such as buses, cars, trailers and other goods vehicles, bicycles, pedestrians and animals. Road transportation in Lagos involves the Lagos Bus Rapid Transit (BRT), the Lagos Bus Services Limited (LBSL), minibuses popularly called danfo which carries approximately 12–18 passengers, taxis and Shared rides like Uber and Bolt, tricycles popularly called Keke and motorcycles popularly called Okada. Motorcycles and tricycles have been banned from major highways in the state by the government (Mogaji, 2020). The derelict road networks and inadequate fleets of public transport vehicles present major concerns for the state. There is an increasing number of cars on Lagos roads, which leads to traffic congestion and gridlock. Commuters lose up to 75% of their weekly operational hours because of traffic congestion (Obi, 2018).

The waterways in Lagos are managed by Lagos State Waterways Authority (LSWA), but then the use of boats and ferries has not been well received as people feel it is unsafe and does not serve most locations (Mogaji, 2020).

Effects of road and water transport system on commuters.

Commuters who use public transport are forced to be in close contact with each other, thereby risking their exposure to communicable diseases (Yezli & Khan, 2020). In many parts of the state, the roads are in very terrible conditions coupled with lack of proper maintenance which contribute to high rate of road traffic accidents (Onokala & Olajide, 2020) that can result in loss of lives.

Commuters who are exposed to exhaust fumes are at a risk of developing illnesses related to respiratory diseases and cardiovascular complications as they breathe in these fumes when in transit. Prolonged exposure to air pollution over the years can be detrimental to the health as it places enormous stress on the body (Wong et al., 2018).

Peak periods are usually chaotic with traffic jams on major roads which cause commuters to get to their work places late in the mornings and to their homes late at night. This causes stress to commuters and leave them with little or no time for other activities outside of work. For most commuters in Lagos, safety is a worry as they leave their homes very early in the morning and get in late at night, exposing them to thieves and robbers who take advantage of the lonely roads to attack unsuspecting victims. Another concern concerning safety is the reckless driving and the use of vehicles that are not roadworthy (Gobind, 2018).

It has been made known that transport stressors such as traffic congestion can result in grave repercussions such as motivational deficiency. Furthermore, the unreliability and delays of commuting have been shown to cause low efficiency in tired workers as various feelings of stress or anxiety might be due to getting late to the destination (Rezapour & Ferraro, 2021).

In a bid to avoid being found for poor performance due to latecoming, employees resort to looking for alternatives such as relocating closer to work and getting makeshift aftercare providers for their children as transport constraints disrupt working hours (Kerr, 2015)

### Previous studies

Gobind (2018) studied whether the anxiety connected with public transport results in poor work performance. 15 commuters were interviewed and responses were grouped into themes and analyzed. Findings revealed that commuters experienced concern and worry for their safety and job security when depending on public transport which indicated that anxiety associated with using public transport certainly results in poor work performance.

Lunke (2020) in a study measured commuters' satisfaction with their last trip to work, to investigate how different public transport journey characteristics affect commute satisfaction. Findings indicated that effective transport routes with reliable time use and short waiting time are more important than short distance to stations and direct routes especially among people with long commutes.

Hilbrecht, Smale and Mock (2014) analyzed data for car commuters from Statistics Canada's General Social Survey and it showed that long commute durations are linked with reduced time spent in physically active leisure and social leisure.

In a study by Tubosun et al. (2020) that focused on Safety and wellbeing of road along Apapa-Badagry Expressway, Lagos, Nigeria indicated that an average of six (6) man-hours is lost daily by road users owing to traffic congestion brought about by poor road infrastructure and an increase in reported cases of fatigue, stress, increased ill health, medical bills and sick leave as well as an increase in the cost of maintaining vehicles and energy cost and an increase in road traffic accidents.

Rezapour and Ferraro (2021) studied the relationship between various psychological feelings that commuters are likely to experience owing to delay and transport satisfaction level, using one of the most notorious rail transports in Malaysia as case study. 396 fully concluded commuters' responses at the locations of the waiting time were used as instruments. Results provided important insights concerning various feelings that the commuters experienced, which impacted their perceived quality of rail transportation.

## Theoretical framework

### The theory of planned behaviour (TPB)

This theory was formulated in 1985 by Icek Ajzen and it postulates that an individual's behaviour is a function of behavioural intention, which in turn is a function of attitude, subjective norm and perceived behavioural control. Perceived behavioural control denotes an individual's view of ease or difficulty of executing the behaviour. It also assumes that the individual dwells on previous experiences and expect obstacles.

### Methodology

The study adopted a descriptive survey method in investigating the effect of road and water transport systems on commuters in Lagos state. The study purposively selected two areas in Lagos state to carry out this study, Apapa and Lagos Island, given their tendencies for traffic, as well as the fact that a large population of workers can be found here at any given time. Random sampling method was utilized in selecting 200 respondents for the study. The instrument used in obtaining for the study was the questionnaire which was structured using the four point likert scale format. The questionnaires were distributed with the aid of research assistant engaged for such purpose of distribution and retrieval. The data gathered was descriptively analysed using frequency and percentages.

## Data Presentation, Analysis and Discussion

**Table 1: Demographic characteristics of the data**

Variables	Frequencies (N=200)	Percentages (%=100)
<b>Gender</b>		
Male	98	49.0
Female	102	51.0
<b>Educational Qualification</b>		
OND/NCE	89	44.5
B.Sc./ HND	101	50.5
M. Sc./MBA	10	5.0
Others	0	0.0
<b>Occupation</b>		
Private	58	29.0
Self-employed	37	18.5
Government/public servants	24	12.0
Apprentice	43	21.5
Students	30	15.0
Unemployed	8	4.0
Others	0	0.0

Field Survey (2021)

The table above presents the demographic information of the respondents. As indicated in the Table, 49% of the respondents were male while the remaining 51% were female. 44.5% of the respondents had OND/NCE, 50.5% had BSc/HND, 5% had MSc/MBA. The respondents were selected from different occupations with the highest coming from the private sector (29%), followed by those doing apprentice (21.5%) then self-employed (18.5%), students (15%). From the study, only 12% are working in government parastatals

### 1. What are the challenges of water transport to commuters?

**Table 2: Challenges of water transport to commuters**

Statements/Items		Strongly agreed/ Agreed	Disagreed/ Strongly disagreed	Mean	Standard Deviation	Decision (Benchmark $\bar{x} \geq 2.5$ )
Poor maintenance of available facilities	F	149	51	3.06	0.57	Accepted
	%	74.5	25.5			
Over speeding by the operators	F	108	94	2.70	0.56	Accepted
	%	54.0	46.0			
Damage of ferry/boat on travel	F	111	89	2.75	0.66	Accepted
	%	55.5	44.5			
Discomfort on ferry/boat due to overloading	F	114	89	2.50	0.43	Accepted
	%	57.0	44.5			
Weather changes	F	183	17	3.45	0.42	Accepted
	%	91.5	8.5			
Poor level of service	F	189	11	3.44	0.41	Accepted
	%	94.5	5.5			
High cost of transport	F	147	53	2.97	0.61	Accepted
	%	73.5	26.5			

Field survey (2021)

All the items in the table above were accepted as factors that constitutes challenges for water transport to commuters. As indicated in the table, the following are challenges of water transport commuters: poor maintenance of available facilities; over speeding by the operators; damage of ferry/boat on travel; discomfort on ferry/boat due to overloading; weather changes; poor level of service; and high cost of transport.

### What are the challenges faced by commuters in the use of road transport system?

**Table 3: The challenges faced by commuters in the use of road transport system**

Statements/Items		Strongly agreed/ Agreed	Disagreed/ Strongly disagreed	Mean	Standard Deviation	Decision (Benchmark $\bar{x} \geq 2.5$ )
Poor road maintenance	F	198	2	3.78	0.36	Accepted
	%	99.0	1.0			
Lack of coordination	F	197	3	3.71	0.38	Accepted
	%	98.5	1.5			
poor standards of construction	F	116	84	2.75	0.34	Accepted
	%	58.0	42.0			
Road congestion	F	173	27	3.25	0.55	Accepted
	%	86.5	13.5			
Pollution	F	184	16	3.34	0.54	Accepted
	%	92.0	8.0			

Field survey (2021)

The table above indicated all the items in the table were accepted as challenges faced by commuters in the use of road transport system. Among these challenges are: poor maintenance of available facilities; over speeding by the operators; damage of ferry/boat on travel; discomfort on ferry/boat due to overloading; weather changes; poor level of service; and high cost of transport

## 2. What is the effect of water and road transport system on commuters' productivity?

**Table 3: The effect of water and road transport system on commuters' productivity**

Statements/Items		Strongly agreed/ Agreed	Disagreed/ Strongly disagreed	Mean	Standard Deviation	Decision (Benchmark $\bar{x} \geq 2.5$ )
Poor health due to exposure to traffic-related air pollution	F	197	3	3.71	0.38	Accepted
	%	98.5	1.5			
Decreased productivity due to ineffective functioning of public transport system	F	116	84	2.75	0.34	Accepted
	%	58.0	42.0			
Minimizes economic participation of those without other transport options	F	173	27	3.25	0.55	Accepted
	%	86.5	13.5			
It compromises the safety and security of commuters	F	184	16	3.34	0.54	Accepted
	%	92.0	8.0			
Exposure to communicable diseases	F	173	27	3.25	0.55	Accepted
	%	86.5	13.5			

Field survey (2021)

As indicated in the table above, all the items are accepted as constitutes the major effect water and road transport system on commuters' productivity. With a mean score above the benchmark; poor health due to exposure to traffic-related air pollution; decreased productivity due to ineffective functioning of public transport system; minimizes economic participation of those without other transport options; it compromises the safety and security of commuters; and exposure to communicable diseases

### Research hypothesis

There is no significant effect of water and road transport system on commuters in Nigeria.

### Chi-square

The effect of water and road transport system on commuters in Nigeria.

	Observed N	Expected N	Residual
A	197	100.0	97.0
SD	3	100.0	-197.0
Total	200		

### Test Statistics

Chi-Square	28.880 <sup>a</sup>
df	1
Asymp. Sig.	.000

a. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 25.0.

Since  $X^2_{CAL} = 28.880$  is greater than  $X^2_{TAB} = 3.84$  at 1 degree of freedom and 5% significance level, we will reject the null hypothesis and accept the alternative hypothesis. That means there is a significant effect of water and road transport system on commuters in Nigeria. The result of this study supports that of earlier studies such as Gobind (2018); Lunke (2020); Hilbrecht, Smale and Mock (2014) Tubosun et al. (2020); Rezapour and Ferraro (2021) respectively.

## Conclusion and recommendation

Transportation plays essential roles to habitat is metropolitan given that businesses are concentrated at the heart of the city while those from suburban areas strive to get to their places of work using diverse means of transportation including train, buses, bike, tricycle, ships, canoes, among others. The city of Lagos in Nigeria is one of those metropolitan cities and a commercial nerve center with a population of about 20 million, which implies that a good number of this population either own or drive a vehicle (Onokala&Olajide, 2020). As a commercial state, there is bound to be regular movement of people from one place to another, which puts a strain on public infrastructures. This result of this study revealed some challenges of water transport to commuters to include: poor maintenance of available facilities; over speeding by the operators; damage of ferry/boat on travel; discomfort on ferry/boat due to overloading; weather changes; poor level of service; and high cost of transport. Similarly, the study following challenges were identified as challenges of as challenges faced by commuters in the use of road transport system: poor maintenance of available facilities; over speeding by the operators; damage of ferry/boat on travel; discomfort on ferry/boat due to overloading; weather changes; poor level of service; and high cost of transport. Finally, the study revealed that the major effect of water and road transport system on commuters' productivity include: poor health due to exposure to traffic-related air pollution; decreased productivity due to ineffective functioning of public transport system; minimizes economic participation of those without other transport options; it compromises the safety and security of commuters; and exposure to communicable diseases. Based on the result of this, the study recommends that more roads, fly overs, and highways be created to minimize traffic jam in Lagos. The study further recommends that more traffic lights be constructed at different junctions and total complaints to traffic rules be upheld to ensure smooth movement of vehicles in the land/road.

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**WATER AND ROAD TRANSPORT SYSTEM IN NIGERIA, EFFECT ON COMMUTERS: CASE STUDY LAGOS  
REQUEST FOR INFORMATION**

Dear Respondent,

I am carrying out a study on “Water and Road transport system in Nigeria, effect on commuters. Case study Lagos”, and you have been chosen to be part of the study. This questionnaire is only for academic purposes. Kindly select the response which applies to you and all information will be kept confidential

**SECTION A**

**Gender:** Male ( ) Female ( )

**Education qualification**

- a) OND/NCE ( )  
 b) B.Sc./ HND ( )  
 c) M. Sc./MBA ( )  
 d) Others ( ) Specify.....

**Occupation**

- a) Private sector ( )  
 b) Self-employed ( )  
 c) Government worker ( )  
 d) Apprentice ( )  
 e) Student ( )  
 f) Unemployed ( )  
 g) Others ( )

**SECTION B:**

Instructions: Please tick (√) as appropriate where

SA = Strongly Agree (SA), A = Agree, D = Disagree (D), SD = Strongly Disagree (SD)

**Key: Strongly agree (4), Agree (3), Disagree (2), and strongly disagree (1).**

S/N	ITEMS	SA	A	D	SD
<b>RQ1</b>	<b>What are the challenges faced by commuters in the use of water transport system?</b>				
1	Poor maintenance of available facilities				
2	Over speeding by the operators				
3	Damage of ferry/boat on travel				
4	Discomfort on ferry/boat due to overloading				
5	Weather changes				
6	Poor level of service				
7	High cost of transport				
<b>RQ2</b>	<b>What are the challenges faced by commuters in the use of road transport system?</b>				
8	Poor road maintenance				
9	Lack of coordination				
10	poor standards of construction				
11	Road congestion				
12	Pollution				
<b>RQ3</b>	<b>What is the effect of water and road transport system on commuters' productivity?</b>				
13	Poor health due to exposure to traffic-related air pollution				
14	Decreased productivity due to ineffective functioning of public transport system				
15	Minimizes economic participation of those without other transport options				
16	It compromises the safety and security of commuters				
17	Exposure to communicable diseases				