



Seasonal Variation of Passengers along the Calabar-Oron Inland Waterways Corridor, Nigeria

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ABSTRACT

This study assessed seasonal variation of passengers along the Calabar-Oron corridor. When it rains, the passengers find it difficult to leave their houses and come to the terminals as the boats do not have roofs to shade the passengers. The data were collected from records of operators of Calabar and Oron terminals. The result showed that there was significant difference in the total number of trips between different seasons. The dry season was F value = 63.41 with $p = 0.48$, while the wet season was F value = 4.35 with $p = 0.84$. The findings of the study concluded that cultural functions are scheduled during the dry seasons. The study recommends loans facilities should be provided by the government and commercial banks to the operators in the industry for effective performance

Keywords- : Dry season, wet season and Calabar-Oron corridor

INTRODUCTION

Inland waterway is one of the ancient, cost-effective and environmentally justifiable patterns of movement for commuters and cargo. In certain riverine communities, it could be the only means of transportation to link communities. Also, the inland waterways network is a natural stream of water that moves in a network with the defined bank. They are part of water bodies, which include; rivers, canals, and lakes with depth and width sufficient for vessels to travel (Bachok & Kader, 2015). Addae (2014) who worked in Volta region of Ghana viewed inland waterways transportation as one of the modes of transportation which is very significant in economic activities. Also, marine includes inland waterways and oceans. It can be internal (inland or coastal) aided with boats, ferries, coastal vessels. Waterways are vital to the movement of individuals and goods all over the globe.

Inland waterways transportation in developing countries forms part of the openings up of internal commerce with reference to the Niger Delta region of Nigeria. (Bariweni, Abowei and Akaso 2011). EL-Nakib & Robert (2006) investigated the challenges of inland waterways logistics development and posited that inland waterways such as rivers, broad canals, narrow canals, detached waterways, and tidal water are the earliest efficiently and environmentally attainable modes of movement. Inland waterways transportation is a cheap transportation alternative for people and goods (United Nations Economic Commission for Europe, 2011). Federal Government of Nigeria draft National Transport Policy (2010) proposes inland waterway transportation as a proficient coastal and inland waterway system that could reduce stress on the nation rail and road infrastructure as

voluminous and heavy goods can be moved on stretched areas at minimal cost with ease.

STUDY AREA

Calabar metropolis is made up of twenty-two political wards. Calabar Municipality local government area is the seat of the government of Cross River State and the local government area is sub-divided into ten political wards while Calabar South local government area has twelve political wards. The Oron nation has a total of fifty political wards. The political wards are equally distributed among the five local government areas; with ten each in Mbo, Oron, Urue Offong Oruko, Udung Uko and Okobo respectively. The Calabar-Oron inland waterways corridor lies within the tropical equatorial classification which is known for high temperature, high relative humidity and abundant annual rainfall. Also, there are two air masses that affect the climate on the corridor namely tropical maritime and tropical continental (Oguntoyinbo, 1978 and Inyang, 1980).

The Calabar-Oron water transportation corridor forms the main access to Calabar metropolis and has led to a corresponding commercial importance of Oron town which is located in Cross River and Akwa Ibom States respectively. Then, the importance of this corridor could be shown by the services of the defunct Elder Dempster and Cross Lines. These States are parts of the south-south geopolitical zone of Nigeria. They lie between Longitudes 8.7° and 8.19° East of the Greenwich Meridian and Latitudes of 4.30° and 5.15° North of the Equator, respectively. The location of the two inland water terminals studied are Calabar (Safe Journey) is located at $4^{\circ} 57' N$ & $8^{\circ} 18' E$, while Oron (Oron) is located at $4^{\circ} 49' N$ and $8^{\circ} 13' E$.

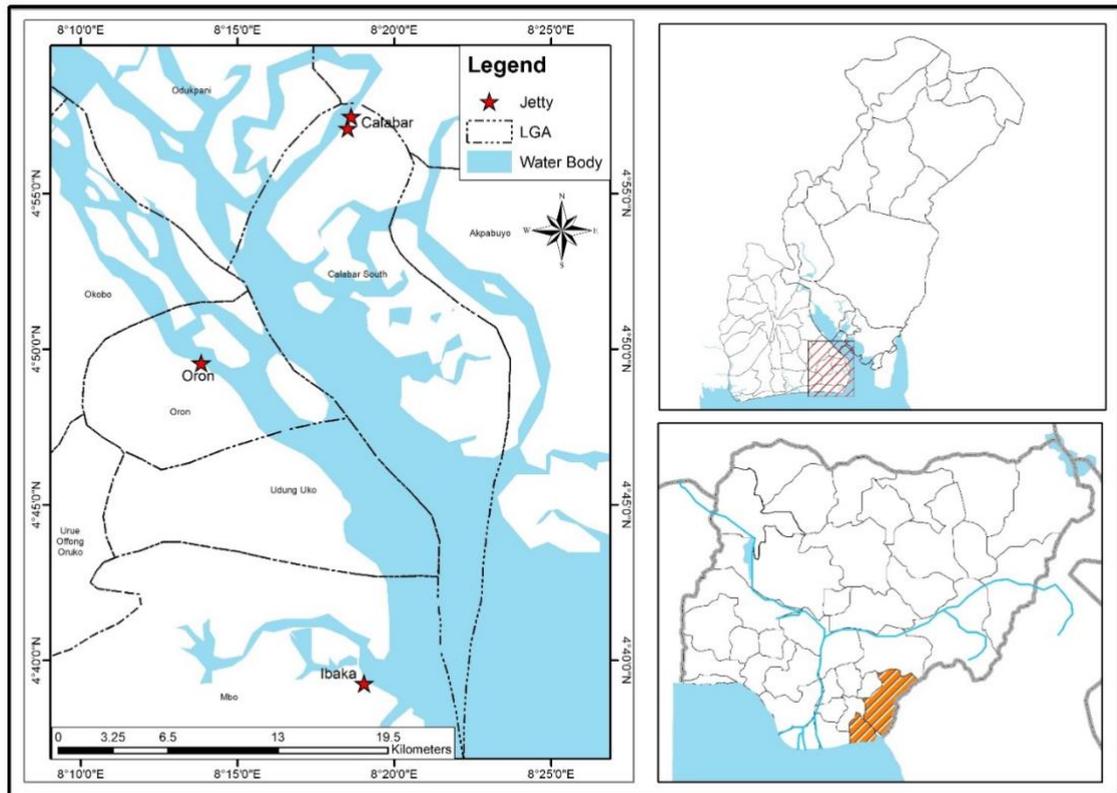


Fig1: Map of Study Area Showing Jetties

STATEMENT OF THE PROBLEM

This research seeks to identify the seasonal variation challenge and their impact on patronage. The seasons also affect the volume of passengers transported along the Calabar-Oron inland waterways corridor. The raining season affects the operations at the inland waterways corridor because the passengers find it difficult to leave their houses and come to the terminals when it rains. At the terminals, the vessels have no roof to shade passengers. However nylon or waterproof are used to temporary cover passengers. Moreover, traders find it difficult to travel with their goods (mostly food items) to avoid it being damaged by rain.

Literature Review

Beuth, M. Jourquin, B., Urbain, N., Lingemann, I., and Ubbels, B. (2014) examined variation in the climatic conditions (such as rainfall and temperature) and their impacts on inland water transportation in the Danube and

Rhine region of Europe. The researchers discovered that the rivers' water level and periods of drought may impair freight transport. They also found that in the winter period (December, January and February) and at the peak of ice, the transportation would negatively be affected. This situation according to them reduced the number of people using the water transportation in the winter period. They noted that ice berg hindered performance of inland water transportation. That finding is in line with the finding of this study. Though our seasons are predominantly the dry and wet seasons, their study has established the fact that seasonal variations can affect water transportation whether to carry freights or human beings. Contrary to our finding is the work of McCartan, Murphy and Starkel (2014) which argued that climate change could not alter the volume of freight in the inland water transportation. The study was a long-term multimodal network transport analysis, which

extends from the period 2005–2050. The impact of climate on hydrology, as modeled by the two long term ‘dry’ and ‘wet’ scenarios, are not likely to be strong enough to induce any significant shift in modal shares. Even though it seemed our findings did not agree with them, the scholar made a turn around and said that a drier scenario would justify maintaining small vessels in operation, regardless of the planned improvements in infrastructures.

Ali (2013) is in full agreement with this study as he found from his study of the lower region of River Niger that the region is limited for navigation by ocean going vessels round the year. He observed that it is navigable during the raining season months of June through October, but not navigable in the month of November to May. Our finding is in support of Backalic and Maslaric (2012) that the depth of the water varies with season. We agree with Karttunen, Vaatin, Asikainen and Ranta (2012) who found that during the winter season between (December, January and February) months, the lakes are

covered with ice and decrease the efficiency of waterway systems by conveying forest chips.

METHODOLOGY

The method used for gathering data was from the secondary sources. These were documented records of traffic from operators, published and unpublished items journals, maps, books and other completed projects that were relevant to the study and constituted the background information to this research as well as related records with operators. The targeted population for this study was the passengers who patronized the terminals.

DATA AND RESULTS

Recording of traffic as well as related records with operators were employed and analysed for this study. The wet season months were April, May, June, July, August and September, while the dry season months were October, November, December, January, February and March. The table below shows the number of trips, number of passengers and amount generated between 2015 – 2017.

Table 1: Differential in numbers of trips between the dry and wet seasons between 2015 -2017

Months/Years	2015 No of trips	2016 No of trips	2017 No of trips	Total Trips	Total Passengers	Total Amount (₦)
October	369	380	371	1,120	19,040	28,560,000
November	411	405	408	1,224	20,808	31,212,000
December	561	571	556	1,688	28,696	43,044,000
January	410	450	431	1,291	21,947	32,920,500
February	309	330	343	982	16,694	25,041,000
March	362	341	356	1,059	18,003	27,004,500
April	367	342	361	1,070	18,190	27,285,000
May	361	339	349	1,049	17,833	26,749,500
June	291	305	299	895	15,215	22,822,500

July	293	281	287	861	14,637	21,955,500
August	288	283	280	851	14,467	21,700,500
September	341	351	338	1,030	17,510	26,265,000

Source: Field Data, 2017.

The hypothesis was tested using two-way ANOVA. The result of the ANOVA showed that F value = 63.41 with $p = 0.48$ for the dry season, while corresponding wet season were F value =

4.35 with $p = 0.84$ respectively. Based on the results, there was significant difference in the total number of trips between different seasons along the Calabar-Oron corridor.

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	196692.389 ^a	34	5785.070	26.236	.154
Intercept	4343299.197	1	4343299.197	19697.502	.005
DRY	153802.311	11	13982.028	63.411	.048
RAINY	1053.970	11	95.815	4.35	.084
DRY * RAINY	1384.688	12	115.391	.523	.060
Error	220.500	1	220.500		
Total	4978424.000	36			
Corrected Total	196912.889	35			

Source: Researchers' computation 2017

DISCUSSION OF FINDINGS

Seasonal variations affect the volume of passengers. The study found that in the rainy season, the volume of passengers reduced, but increased in the dry season. Generally, when it rains a lot of people don't leave their houses for numerous reasons; for those that are not mobile, it is very difficult to board a vehicle and when you walk, moving vehicles splash water on pedestrians. In addition most cultural functions are scheduled during the dry seasons which includes church conventions, organizations end of the year parties, burials and wedding ceremonies, also, the waiting time is longer compared to dry or festival periods.

CONCLUSION

AND

RECOMMENDATIONS

Due to the neglect in the industry by government and private sector, the inland waterways transport lacks infrastructure to operate effectively during rainy season because most of the boat don't have shade and the passengers' uses nylon bag to cover themselves and freight. The study recommends loans facilities should be provided by commercial banks and government to the operators in the industry for effective performance.

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