RESEARCH ARTICLE

CORRELATE OF TRANSPORT AND TOURISM INFRASTRUCTURAL DEVELOPMENT IN NIGERIA.

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Manuscript Info

Abstract

This paper examined the relationship between transport and tourism with a view to understand their effects on infrastructure developments in Nigeria. Secondly, it assessed the travel demand against some selected tourism sites based on the available tourism infrastructures. Lastly, it identified some of the factors influencing both tourism and transport infrastructure developments in Nigeria. Primary and secondary data were collected from the selected tourist sites and transport terminals which were subsequently analyzed. Results indicated that, there are strong relationships between transport and tourism and the presence of one causes the other’s infrastructures development. \( R^2 \) value of 60.4% revealed the contributions of combined identified variables to the development of tourism infrastructure development vis-à-vis reasons for travel demand by the tourists. Five major components were extracted among eleven factors considered to be responsible for the development of transport infrastructure in Nigeria with Factor Analysis. The research concluded that, the country should promote tourism as another source of economic booster with the development of transport infrastructures and vice-versa.

Introduction:

The basic facilities, installations and services needed for an organization, community or a society to function efficiently are said to be the infrastructure. According to Ndikom (2009), the primary purpose of travel in ancient times was to trade and to undergo pilgrimage. The intertwined connection between transport and tourism remains perhaps one of the more important relationships within the wider tourism system. A fundamental fact is that people travel in varying distances by various means for a variety of reasons, and transport provision sits at the heart of these movements. Page (2009) explained the connection between transport and tourism in that “transport connects tourists from point of origin to destinations and also provides accessibility to visit different places within the local context”. Transport acts in two different forms in relation to tourism (Lumsdon and Page, 2004b): Transport for tourism and transport as tourism. Here, transport for tourism connotes the usage of transport for the purpose of tourism; which means, it is a means to an end and the satisfaction derived is related to cost and speed of travel, so the mode of travel has no direct intrinsic value in itself. However, transport can serve as the basis for tourism when for instance cruising is used as a mode of transport for tourist experience. Either way, the experience of tourists when transport serves as tourism or for tourism will have influence on whether to continue in tourism or not.

Panasuik (2007) identified four major facilities of tourism infrastructure which are hospitality facilities, gastronomy facilities (food and beverage facilities), accompanying facilities (transportation and security) and communication facilities.
facilities. Similarly, the transportation infrastructures include roads, airways, waterways, and terminals such as airports, railway stations, bus stations, warehouses, refueling depots among others (Onyeocha et al, 2015). Transportation facilities therefore, are essential for tourism achievements and developments. Also Prideaux (2000) adjudged transportation to be a very important component of tourism destinations. Hence, locational changes and spatial interactions cannot occur without efficient and effective mobility that usually opens tourists for accessibility and connectivity.

In spite of the numerous accruable benefits to be derived from the relationships between transport and tourism, Nigeria is still lagging behind in infrastructural developments in this regard. Without any form of exaggeration, the required amenities to attract tourists in the country are not adequately available. Seyideh (2017) categorized tourism into natural, cultural, indigenous, rural, business, medical, sport and coastal tourism. Of all these, there is hardly anyone fully exploited as a result of weakness in operational procedures to fully understand the necessity and impact of tourism on revenue generation and natural renaissance occasioned by tourism in Nigeria. Consequently, neglecting the infrastructural provisions to attract investors into Nigerian tourism industry has deprived the youth of employment among other positive multiplier effects. Binayew (2016) deeply expressed how congestion on roads usually affects time of flight and tourism in developing countries. The following questions are therefore generated for this study:

1. Does transport infrastructural development have any relationship with that of tourism?
2. Does the availability of tourism infrastructures bring any benefit at selected tourist sites which influence travel demand in Nigeria?
3. Are there factors responsible for both tourism and transport infrastructures development in Nigeria?

These questions guided us to fill the gap between the reality of what is obtainable in form of relationship between transport and tourism and what should be in form of their respective developments in Nigeria.

**Literature Review**

Transportation has been described as the agent of change for economic development. The importance of transportation can be underrated without experiencing the absence of it. During strike action or fuel scarcity, curfew, emergency and when people start buying things to store because of the understanding that there will be no movement; transportation value is felt than imagined. Hence, it is undisputable that transportation is the lifeline of national economies. Kadahroo and Seetanah (2007) noted that, the most important component is the transport infrastructure which can be viewed as road, seaport and airport facilitations. These transport infrastructures enhance accessibility of tourists to different parts of country’s destination and facility at the airports for instance ensure that experience of tourists from aircrafts is comfortable. The first experience tourists usually have encoutered with that may be indelible in their minds is about transport infrastructure (Murphy et al., 2000).

Tourism infrastructures as noted by Adebayo and Iweka (2014) are the physical elements that are designed and erected for visitors. The infrastructures are the ancillary and complimentary facilities, equipment, systems, processes and resources necessary for the functioning of every tourist destination (Jovanovic, 2016). Tourism has been identified as a vital sector of service industry with potentials for economic development (WEC,2007), and as such its planning according to Crouch and Ritchie (1999) cannot be possible in comparative and competitive advantage without roads, airports, harbors, electricity, sewage and portable water. In most cases, essential communication facilities that tourists must use for the purpose of information systems are housed in transportation infrastructures. Dosunmut et al., (2016) opined that, transportation has been source of revenue for government, organizations (both public and private) and individual. The revenues from airport charges, taxes on import duties, drivers licenses and others are been used to develop other sectors including tourism. Mo et al., (1993) explained that most tourists usually look for transportation facilities like that of their home country whenever they get to their destinations. Brittany (2008) stated that, when transportation access is not planned and managed carefully, it can contribute to the destruction of both the environment and communities that first attracted tourists. Aderamo (2012) and Ayeni (2018) explained some of the indicators of inadequate infrastructures are lack of or inadequate water supply, irregular electricity supply, fragile communication systems, poor environmental sanitation, poor road and transportation systems among others essential facilities that can enhance quality of life of tourists. Apart from this, when the cost of transportation is not affordable; tourism travel demand and development is not realistic.

Imikan and Ekpo (2012) asserted that transportation is the infrastructure that contributes greatest impact to tourists’ arrival in Nigeria. Series of developments attributable to infrastructural development in Nigeria can be in form of
political development, environmental development, land use planning development, economic development (WEC, 2007) among others. Different economies of the world have been increased as a result of increase in tourism development. In fact, Saudi Arabia’s tourism is expected to generate $2.133 Billion and 22,000 local jobs by 2019 (Hassan, 2017). According to Blonk (1979), improvements in transportation infrastructure lead to reduction in transportation costs and travel times. Without demeaning the importance of these developments, if not carefully managed, can be detrimental, even to the point of undermining the very landscapes that initially attracted tourists (Brittany, 2008). The negative effects of tourism development were enumerated by Kim et al., (2000) to include waste production, water and air pollution, land problems, traffic, bustle, excessive growth of welfare and service, damage to regions and sights/sites, deforestation, wetlands and unique habits.

Spatial interactions and development models

The critical and underlying activities for flow of spatial interactions are production, circulation and consumption. The Megalopolis introduced by Gottmann (1961) maintained that, creation of large urban corridors structured by transportation infrastructures and terminals maintaining interactions. Transport as a derived demand is a means of job creation and contributes to economic activities in Nigeria. There are direct and indirect interactions occasioned by transport in form of shipping, logistics, insurance, packaging, handling, employment among others.

Consumers including tourists take economic decisions on products, markets, costs, location, and prices which are themselves based on transport services, their availability, costs and capacity. The central place theory asserted that, transport services should be placed in way that will consider cost effectiveness as this affect other products’ prices. Many conceptual models and theories like Central Place Theory which sought the provision of transport services in cost effective manner. Transport bridges locations and enhances spatial interactions. In Brittany 2008’s treatise on ‘the theory of transportation’, transport was acknowledged as one of the key features underpinning social and economic development, not only to overcome the physical constraints of distance, but also to meet human needs for movement across time and space including travel for the purpose of tourism. Two characteristics of the tourism sector, the constant dependence of the tourist on those rendering the services and the currency foreign tourists bring in, have led governments to become very rapidly involved in transport and tourism involvement which has above all produced special regulations assuring a close control of the sector’s activities (Lumsdon, 2000). Consequently, transport provides the essential link between tourism origin and destination areas and facilitates the movement of holidaymakers, business travellers, people visiting friends and relatives and those undertaking educational and health tourism. Transport is also a key element of the ‘tourist experience’

Thus, the mode of transport that tourists choose can often form an integral part of their journeys and experiences, a feature often neglected in the existing research on tourism. However, the interface of transport and tourism does raise the much wider conceptual problem of what is and what is not tourism transport (Hall, 1997). While it is readily acknowledged that there are specialized, dedicated forms of tourism transport (i.e. tourist coaches, charter flights and cruise liners), there are also other forms of transport which are used by both hosts and tourists to varying extents. Khani, et al., (2009) identifies the overlap between transport, tourism and recreation, arguing that in reality it is often difficult to distinguish between tourist and non tourist use of different forms of transport, the exceptions being dedicated forms of tourist transport such as charter flights and cruises. The need for international travels and tourism development in Nigeria has necessitated the development of transport infrastructures. Since the first experience of tourist at any nation will be on transport, development of these infrastructures has always call for quality designs or improvement of existing ones so as to compete with international standards.

Van Truong and Shimizu (2017) developed Computable General Equilibrium models for the relationship between transport and tourism development as they have the capability to simulate the inter-relationships among tourism, other sectors of the domestic economy, as well as the effects of foreign producers and consumers. According to Dwyer et al., 2012; Blake et al., (2006), the model can be adjusted for alternative conditions, and can be used to quantify the effects of actual policies, such as changes in taxation, subsidies, and transportation laws. This model was said to be based on input-output quantitatively observe linear interdependencies models among economic industries, households, and governmental entities in a given area. In other words, take for instance; the oil price which is one of the operating cost in transport operations can influence tourism through its impact on income, transportation costs, demand in the tourists’ countries of origin, and the relative prices of different goods and services imported to and exported from one place to another.
Methodology:
Nigeria, being the most populated country in Africa is endowed with amiable attractions in tourist destinations such as beaches, lush mountains, natural and man-made parks, traditional and cultural attractions (Travelstartblog, 2015). Among the existing tourist attractions in several destinations in Nigeria are The Ibeno Beach, Akwa-Ibom State; Obudu Mountain Resort, Cross Rivers State; Ngwo Pine Forest, Enugu State; Awhum waterfall, Enugu State; Arochukwu Long Juju Slave Route, Abia State; The Giant Footprint of UkuseOke, Edo State; Port Harcourt Tourist Beach, Rivers State; Gashaka-Gumti National Park, Taraba State; AlokIkom Monoliths, Cross Rivers State; Isaac Boro Garden Park, Rivers State; The Tinapa Free Trade Zone, Cross River State; Osun Osogbo Grove, Osun State; The Royal palace of Oba of Benin, Edo State; Sukur Cultural Landscape, Adamawa State; Queen Amina Wall, Adamawa State; Suame Cultural Landscape, Sokoto State; Oban Hills Cross Rivers State, Oke-Idanre Hill, Ondo State; Ogbunike Caves, Enugu State, Ancient Kano City Wall, Kano State; Coconut Beach, Lagos State; Bar Beach, Lagos State; Millenium Park, Abuja; Nana Living History Museum, Delta State; The Ancient Nok Settlement, Kaduna State; New Afrika Shrine, Lagos State; Abuja Arts and Crafts Village, Abuja; Kainji Lake National Park, Niger State; and Yankari National Park, Bauchi state (Travelstartblog, 2015).

Apart from these, there are zoos at different universities in the country and these are University of Ibadan, University of Ilorin, Federal University of Agriculture, Abeokuta.

The above tourism destinations were classified and random table was used to select two each of the categories in order to avoid being biased.

Table 1:-Selected Tourism Sites and Sample Size

| S/N | Zoos | Natural Sites | Heritage Sites | Hill and Mountain | Parks |
|-----|------|---------------|----------------|-------------------|-------|
| 1   | University of Ibadan, Ibadan, Oyo State | Obudu Mountain Top, Obudu, Cross Rivers State | Abuja Art and Craft Place, Abuja | Idanre Hill, | Gumpti National Park; Taraba State, |
|     |         |               |                | Idanre, Ondo State |       |
| 2   | University of Ilorin, Ilorin, Kwara State | Bar Beach, Lagos, Lagos State | Osun-Osogbo Grove, Osun State | Waterfall, Enugu, | Yankari Game Reserve, Bauchi State |

Source: Authors’ survey (2018)

Table 1 above depicts the sampled tourism sites. Complete enumeration of tourists that are above 18 years that visited the tourism sites within the months July and October 2017 was done. Structured questionnaire was administered to the tourists using a 5 Likert scale to rate the responses of the respondents (1=very strong, 2=strong, 3=undecided, 4=weak and 5=nil). Also the relationship between transport and tourism infrastructures were categorized thus: (a) very strong (b) strong (c) undecided (d) weak (e) Nil. Also staff of the sites were interviewed through structured interview format. Descriptive analysis was used to explain the respondents’ opinion on the relationship between tourism and transport infrastructures. Similarly, it was also used to assess reasons that led tourists to the tourism sites. The multiple regression analysis was used to examine the contributions of identified variables to the development of Nigerian transport and tourism infrastructures, while Factor Analysis was used to extract major factors that contribute to transport and tourism development in Nigeria. Desk information was obtained for reasons for travel from 2006-2016 in the tourism destinations.

Results and Discussion:-

![Figure 1: Relationships between Transport Infrastructure and Tourism Infrastructure](image-url)
The Figure 1 above shows the graph of the relationship between tourism infrastructure and transport infrastructure. Many of the respondents asserted that, without transport infrastructures they cannot access the tourist sites. Hence, “very strong” and “strong” have the higher percentages from the responses received from the respondents. However, there were respondents who could not decide or make decision about the relationships between the two and nobody among the respondents opined that, no relationship exists between the two infrastructures.

**Reasons for Travel**

The study investigated reasons for the movement of tourist to the tourism sites and the data gathered were computed. The analyzed data for the above spanned through 2006-2016 travels by air for the reasons of tourism and journey that led tourists to tourism sites. The data were aggregated and the values realized are indicated based on the Figure 2 below:

![Reasons for travel](image)

**Figure 2:** Respondents’ Reasons for Tourism Journey

Source: Authors’ analysis (2018)

- Visitation (VT) 30%
- Education (ED) 10%
- Vacation (VC) 23%
- Health (HT) 20%
- Religion (RL) 17%

Explaining the reasons for travel on tourism and what type of trip led the tourists to tourism sites which ordinarily will not be absolutely possible without means of getting there (transport) based on the field survey of the respondents’ opinion can be summarized in the figure 1 above. The Religion activities (RL) (30%) has the highest values followed by Vacation (VC) (23%) (Holiday, leisure, e.t.c trips), Health related (HT) issues contributed (20%), Education (ED) had 17% while visitation had 10%.

The factors that used to attract tourists like: (Health, Beach Serenity, Social & Communication facilities, Transport Terminals, Accommodation, Cultural Artifacts and Zoo Animals) were examined in relation to travel demand. Table 2 shows R value of 25.2% as the correlation value between dependent and independent variables. The $R^2$ tells us that, the combined identified variables (Health, Beach Serenity, Social and facilities, Transport Terminals, Accommodation, Cultural Artifacts, and Zoo Animals) accounted for infrastructure development in Nigeria (60.4%). Hence, there is a strong correlation between transport and tourism; which means that the presence of transport infrastructure attracts tourism and tourism activities.

**Table 2:** Analysis of Tourists Attract Model

|                  |       |
|------------------|-------|
| Multiple R       | 0.252 |
| R Square ($R^2$)| 0.604 |
Table 2 equally explained the significance of the regression analysis with significant value of 0.008 which is less than p<0.05. Hence, tourism activities facilitate the travel demand.

### Table 3: Analysis of Identified Variables

| Coefficients<sup>a</sup> | Model | Unstandardized Coefficients | Standardized Coefficients | T | Sig. |
|--------------------------|-------|------------------------------|----------------------------|---|------|
|                          |       | B               | Std. Error | Beta |       |       |       |
| 1 (Constant)             |       | 2.247           | .918       |      | 2.447 | .017  |
| Cultural Artifacts       |       | .262            | .133       | .237 | 1.964 | .053  |
| Transport Terminals      |       | -.040           | .145       | -.034| -.277 | .023  |
| Accommodation            |       | .020            | .151       | .016 | .135  | .003  |
| Social & com facilities  |       | -.001           | .121       | -.001| -.007 | .014  |
| Zoo Animals              |       | -.037           | .131       | -.035| -.279 | .781  |
| Beach Serenity           |       | -.076           | .141       | -.065| -.543 | .589  |
| Health                   |       | -.049           | .135       | -.043| -.366 | .016  |

<sup>a</sup> Dependent Variable: Travel Demand

For multiple regression as refers in this case: \( Y_i = b_0 + b_1X_1 + b_2X_2 + \ldots + b_nX_n + \varepsilon_i \)

Where \( Y_i \) = Outcome

The Constant values in Table 3 which is 2.247 indicated that, when the value of \( X=0 \), i.e all independent variables are not available, only 2.247 travel demand will be made which was significant as significant value of 0.017 is less than 0.05.

Examining the components of tourism considered, Cultural Artifacts (CA) is not significant as the sig. value \( p>0.05 \). A unit decrease in transport terminal infrastructure provision indicated that, it will cause 0.40 decrease in travel demand. Accommodation is crucial for tourists as indicated that, its availability increases travel demand by 0.02 at \( p=0.003 \). When social amenities/facilities are not available, it has been predicted that the travel demand decreases by 0.037. The presence of zoo animals at the tourist sites surprisingly has no significant value on travel demand even though it decreases travel demand by 0.037 likewise the serenity of the beach which decreases the travel demand by 0.076. A unit change in negative condition of human health decreases travel demand by 0.049.

The under listed latent variables have been identified as some of the factors considered to be responsible for both the development of transport and tourism in Nigeria:

1. Religious pilgrimage (PIL)
2. Sport (SPT)
3. Festival (FSV)
4. Cultural day (CLD)
5. Holiday (HOL)
6. Health (HLT)
7. Boredom (BDM)
8. International recognition (INR)
9. Natural monument (NMM)
10. Wild life (WLF)
11. Ceremony (CRM)
Hence, our objective is to extract the principal components of these factors and examine their level of relevance to infrastructural developments in Nigeria. The Principal Component Analysis was used to achieve the stated objective.

**Principal Components Analysis**

The eleven factors identified based on the responses from the interview and questionnaires distributed were analysed with Factor Analysis. Sampling adequacy was tested with Kaiser-Meyer-Olkin Measure of Sampling Adequacy and was significant as indicated in the Table 4. The essence of Bartlett’s test is to control the factors scores which varied for the factors under consideration. Factor scores represent a composite score for each individual on a particular factor. The Bartlett method produces scores that are unbiased and that correlate only with their own factor (Andy, 2009).

**Table 4:** Kmo and Bartlett’s Test

| KMO and Bartlett’s Test          |          |
|----------------------------------|----------|
| Kaiser-Meyer-Olkin Measure       | .605     |
| Bartlett’s Test of Sphericity    |          |
| Approx. Chi-Square               | 194.051  |
| Df                               | 55       |
| Sig.                             | .000     |

Source: Author’s computation, 2018

Factor loadings tell us about the relative contribution that a variable makes to a factor. The interpretation of factor analysis can be fathomed by a technique known as rotation. The two types of rotation are: orthogonal and oblique rotation. According to Andy (2009), when orthogonal rotation is used, any underlying factors are assumed to be independent, and the factor loading is the correlation between the factor and the variable, but is also the regression coefficient. Put another way, the values of the correlation coefficients are the same as the values of the regression coefficients. However, there are situations in which the underlying factors are assumed to be related or correlated to each other. In these situations, oblique rotation is used and the resulting correlations between variables and factors will differ from the corresponding regression coefficients. Ideally, most variables have high loadings on the most important factor and small loadings on all other factors. Andy (2009) expressed that, this characteristic makes interpretation difficult, and so a technique called factor rotation is used to discriminate between factors. The factor loadings were a gauge of the substantive importance of a given variable to a given factor. For the analysis to work, the matrix has to be “positive”

**Table 5:** Communalities

|                  | Initial | Extraction |
|------------------|---------|------------|
| Religious        | 1.000   | .501       |
| Sport            | 1.000   | .736       |
| Festival         | 1.000   | .885       |
| Cultural         | 1.000   | .807       |
| Holiday          | 1.000   | .865       |
| Health           | 1.000   | .690       |
| Boredom          | 1.000   | .610       |
| International recognition | 1.000 | .654       |
| Natural monument | 1.000   | .676       |
| Wild life        | 1.000   | .661       |
| Ceremony         | 1.000   | .559       |

Extraction Method: Principal Component Analysis.

Table 5 shows the communalities of the variables. The communality is the proportion of common variance within a variable. Principal Component Analysis works on the initial assumption that all variance is common; therefore, before extraction the communalities are all 1 (Andy,2009). Festival shows the highest communality value with 0.885, followed by Holiday 0.865, Cultural 0.807, and Sport 0.736, e.t.c.
Table 6: Analysis of Total Variance Explained

| Component         | Initial Eigenvalues | Extraction Sums of Squared Loadings | Rotation Sums of Squared Loadings |
|-------------------|---------------------|-------------------------------------|-----------------------------------|
|                   | Total | Varianc | Cumulativ | Total | Varianc | Cumulativ | Total | Varianc | Cumulativ |
|                   | %     | e       | e         | %     | e       | e         | %     | e       | e         |
| 1                 | 3.56  | 2       | 32.381    | 2     | 32.381  | 32.381    | 2.70  | 6       | 24.596    |
| 2                 | 1.67  | 9       | 15.265    | 1.67  | 9       | 15.265    | 1.99  | 4       | 18.126    |
| 3                 | 1.34  | 4       | 12.220    | 1.34  | 4       | 12.220    | 1.56  | 9       | 14.261    |
| 4                 | 1.05  | 8       | 9.622     | 1.05  | 8       | 9.622     | 1.37  | 6       | 12.507    |
| 5                 | .856  | 7.784   | 77.273    |        |         |           |        |         |           |
| 6                 | .711  | 6.460   | 83.733    |        |         |           |        |         |           |
| 7                 | .661  | 6.005   | 89.738    |        |         |           |        |         |           |
| 8                 | .510  | 4.636   | 94.374    |        |         |           |        |         |           |
| 9                 | .321  | 2.922   | 97.295    |        |         |           |        |         |           |
| 10                | .188  | 1.707   | 99.002    |        |         |           |        |         |           |
| 11                | .110  | .998    | 100.000   |        |         |           |        |         |           |

Extraction Method: Principal Component Analysis.

In the Table 6, four factors variances were explained. It usually moves from higher value to the lowest. In this case, the initial variance was 32.381 followed by 15.265, 12.220 and 9.622 which are the first that were extracted. However, after rotation, the variance changed to 24.596, 18.126, 14.261 and 12.507 respectively.

Table 7: Component Matrix

| Component           | 1     | 2     | 3     | 4     |
|---------------------|-------|-------|-------|-------|
| Festival            | .902  | .185  | -.101 | .162  |
| Health              | .811  |       |       | .173  |
| Cultural            | .722  | .426  |       | .324  |
| Holiday             | -.658 | .151  | -.319 | .555  |
| Boredom             | -.653 | .279  |       | .317  |
| Ceremony            | .598  | .217  | .192  | .343  |
| Sport               | -.107 | -.713 | -.254 | .390  |
| Religious           | .203  | -.625 | .194  | .175  |
| International       | -.489 | .605  | .188  | .118  |
| recognition         |       |       |       |       |
| Natural             | .981  |       |       |       |
| monument            |       |       |       |       |
| Wild life           | -.230 | -.222 | .623  | .413  |

The first component can be found to be the one related to festival, health and culture as tourism activities that mostly create infrastructure developments. Secondly, religion and international recognition; thirdly, natural monument and wild life; and lastly Holiday. Values below 0.4 were not reckoned with in this table.

Conclusion and Recommendations:

The relationship between transport and tourism is like that of Siamese twin. It is difficult to separate the two. Consequently, infrastructure development of one automatically creates development of another. From the findings of this work, tourism increases the socio-economic development of Nigeria and the benefits therein are enormous such as; education, revenue generation, healing among others. The researchers therefore, recommended that:

1. Nigeria needs to promote her tourism by developing transport infrastructures
2. Focus more on sport to boost tourism activities which can stimulate transport infrastructure development
3. The country should ensure that social amenities are available at the tourist sites for the purpose of tourism developments.
4. The transportation system is integrated for the purpose of accessibility for the tourists.
5. There is need to restructure the educational system and health sector as they contributed to capital flights in Nigeria.

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