THE NEXUS BETWEEN MONETARY POLICY AND ECONOMIC GROWTH IN NIGERIA

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ABSTRACT

The study examined the relationship between monetary policy and growth of the Nigerian economy and the objective is to assess the impact of monetary policy in Nigeria, specifically, to find out if it has helped growth or not and to examine the effect of other variables in bringing about the desired sustainable economic development in Nigeria. The Ordinary Least Squares Method (OLS) is used to analyze data of between 1996 and 2022. The findings showed that CBN monetary policy exerts a positive impact on GDP growth and Balance of Payment but negative impact on rate of inflation. The paper therefore recommended that monetary policy should facilitate a favourable investment climate through appropriate interest rates, exchange rate and liquidity management mechanism and that the money market should provide more financial instruments that satisfy the requirement of the ever-growing sophistication of operators.

Keywords*: Economic growth, Monetary policy, liquidity and transmission mechanism*

INTRODUCTION

The method of using monetary policy to manage economies to bring about Sustainable economic growth and development has been the pursuit of nations and it dates back to the time of Adams Smith and later championed by the monetary economists. Since the expositions of the role of monetary policy in influencing macroeconomic objectives like economic growth, price stability, equilibrium in balance of payments and host of other objectives, monetary authorities are burdened with the responsibility of using monetary policy to grow their economies. In Nigeria, monetary policy has been used since the Central bank of Nigeria has the responsibility of formulating and implementing monetary policy via Central Bank Act of 1958. This role has enabled the emergence of active money market where treasury bills and other financial instrument are used for open market operations and raising debt for government has grown in volume and value becoming a prominent earning asset for investors and source of balancing liquidity in the market. There have been various regimes of monetary policy in Nigeria whereby monetary policy is tight and at other times it is loose mostly used to stabilize prices. The economy has also witnessed times of expansion and contraction but evidently, the reported growth has not been a sustainable one as there is evidence of growing poverty among the populace.

The question is, could the period of growth be attributed to appropriate monetary policy? And could the periods of economic down turn be blamed on factors other than monetary policy ineffectiveness? What measures are to be considered if monetary policy would be effective in bringing about sustainable economic growth and development? These are the Questions this study would attempt to answer. Therefore, the objective of this study is to assess the impact of monetary policy in Nigeria, specifically, to find out if it has helped growth or not and to examine the effect of other variables in bringing about the desired sustainable economic development in Nigeria. For this purpose, the paper is divided into four sections. The first section is the introduction, the second section focused on the theoretical framework and Literature Review, the third section x-rayed the methodology, the fourth section discusses the result of the study and the fifth section concludes the work.**Theoretical Framework and Literature Review**

The root of monetary policy is the work of Irving fisher (Diamond 2003) who lay the foundation of the quantity theory of money through his equation of exchange. In his proposition money has no effect on economic aggregates but price. However, the role of money in an economy was further expanded by Keynes (1930) and other Cambridge economists who proposed that money has indirect effect on other economic variables by influencing the interest rate which affects investment and cash holding of economic agents. The position of Keynes is that unemployment is a product of inadequate aggregate demand which can be increased by deliberately expanding money supply which generate increase spending, increase employment and economic growth.

However, he recommends a proper blend of monetary and fiscal policies in some occasions when monetary policy fail to achieve its objective. The role of monetary policy which is of course influencing the volume, cost and direction of money supply was effectively conversed by Friedman (1968). His position is that inflation is always and everywhere a monetary phenomenon, while recognising in the short run that increase in money supply can reduce unemployment but can also create inflation and so the monetary authorities should increase money supply with caution.

The interaction of monetary policy, external borrowing and supply of credit to private sector in the context of COVID-19 pandemic have been examined by World Bank (2020), Durrani et al. (2020), Smith (2020), Krugman (2020), Rogo ff(2020), Case and Deaton (2020), Mehar (2021) and Nemoto and Morgan (2020). Mehar (2021) has derived a mathematical model to device a criterion to assess the sustainability of external financing. Now, The Economist (2020) and University of Cambridge (2020) have indicated the beginning of a new era after COVID-19 pandemic. It was advised (The Economist, 2020) that governments should find the right path between stimulus and restraint. According to Krugman (2020), “There will be a hangover from borrowing but it should not pose any major problems.” Rogo ff(2020) mentioned that economic catastrophe due to COVID-19 pandemic is likely to rival or exceed that of any recession in the last 150 years. He suggested that governments should inject heavily into the economy.

Shirai (2020) has described that the crisis stimulated many central banks to implement substantial monetary easing along with massive fiscal stimulus measures. The central banks in various countries urged the commercial banks to keep lending because reduction in lending will lead to bankruptcies of different businesses which will come back to hurt the banks. Another important aspect of monetary policy is the use of financial technology for monetary transactions. Haddad and Hornuf (2019) identified

the limitations and adverse aspects of the uses of financial technology.

The use of financial technology covers a broad area from digital currencies, mobile phone wallets, crypto assets, monyline remittances, Internet banking, online brokers, robo-advisors, crypto asset trading, mobile trading to alternative finances through crowd funding, peer-to-peer lending, online balance sheet lending and supply chain finance. According to Marlene et al. (2019), “fintech” is an advanced technology to improve and automate delivery and use of financial services to consumers and businesses. Gormez (2019) mentioned that electronic money is not a new concept, and technology can enhance the way of dealing, but does not change the fundamental nature. He claims that central banks that have perfectly addressed all the fundamental glitches of money and financial service provision can issue digital currencies with no reluctance. Mehar (2021) found that higher share of population receiving payments by digital modes and the use of the Internet for payments of bills or to buy something online are significant and robust determinants of trade in services. Stijin et al. (2018) mentioned that fintech may improve the efficiency of financial intermediation and provide a substitute

There are different transmission channels through which monetary policy affects economic activities and these channels of transmissions have been broadly examined under the monetarist and Keynesian schools of thought. The monetarist postulates that change in the money supply leads directly to a change in the real magnitude of money. Describing this transmission mechanism, Friedman and Schwartz (1963) say an expansive open market operation by the Central Bank, increases stock of money, which also leads to an increase in Commercial Bank reserves and ability to create credit and hence increase money supply through the multiplier effect. In order to reduce the quantity of money in their portfolios, the bank and non-bank organisations purchase securities with characteristics of the type sold by the Central Bank, thus stimulating activities in the real sector.

This view is supported by Tobin (2015) who examines transmission effect in terms of assets portfolio choice in that monetary policy triggers asset switching between equity, bonds, commercial paper and bank deposits. He says that tight monetary policy affects liquidity and bank ability to lend which therefore restricts loan to prime borrowers and business firms to the exclusion of mortgages and consumption spending thereby contracting effective demand and investment. Conversely, the Keynesians posit that change in money stock facilitates activities in the financial market affecting interest rate, investment, output and employment. Modigliani (1963) supports this view but introduced the concept of capital rationing and said willingness of banks to lend affects monetary policy transmission.

In their analysis of use of bank and nonbank funds in response to tight monetary policy, Oliner and Rudebush, (2015) observe that there is no significant change in the use of either but rather larger firms crowd out small firms in such times and in like manne, Gertler and Gilchrist, (2014) supports the view that small businesses experience decline in loan facilities during tight monetary policy and they are affected more adversely by changes in bank related aggregates like broad money supply. Further investigation by Borio, (2019) who studied the structure of credit to non-government borrowers in fourteen industrialised countries observe that it has been influenced by factors such as terms of loan as interest rates, collateral requirement and willingness to lend.

The primary goal of monetary policy in Nigeria has been the maintenance of domestic price and exchange rate stability since it is critical for the attainment of sustainable economic growth and

external sector viability, Sanusi, (2014), Adefeso and Mobolaji, (2010) employed Jahansen maximum likelihood co-integration procedure to show that there is a long run relationship between economic growth, degree of openness, government expenditure and M2. Ajisafe and Folunso, (2015) observe that monetary policy exerts significant impact on economic activity in Nigeria. Kogar (2011) examine the relationship between financial innovations and monetary control and concludes that in a changing financial structure, Central Banks cannot realize efficient monetary policy without setting new procedures and instruments in the long-run, because profit seeking financial institutions change or create new instruments in order to evade regulations or respond to the economic conditions in the economy. Examining the evolution of monetary policy in Nigeria in the past four decades, Nnanna, (2021) observe that though, the Monetary management in Nigeria has been relatively more successful during the period of financial sector reform which is characterized by the use of indirect rather than direct monetary policy tools yet, the effectiveness of monetary policy has been undermined by the effects of fiscal dominance, political interference and the legal environment in which the Central Bank operates. Busari et-al (2015) state that monetary policy stabilizes the economy better under a flexible exchange rate system than a fixed exchange rate system and it stimulates growth better under a flexible rate regime but is accompanied by severe depreciation, which could destabilize the economy meaning that monetary policy would better stabilize the economy if it is used to target inflation directly than be used to directly stimulate growth. They advised that other policy measures and instruments are needed to complement monetary policy in macroeconomic stabilization.

Monetary policies financed large fiscal deficit which averaged 5.6 percent of annual GDP and though the situation moderated in the later part of the 1990s it was short lived as Batini, described the monetary policy subsequently as too loose which resulted to poor inflation and exchange rates record. Folawewo and Osinubi,(2016) investigates how monetary policy objective of controlling inflation rate and intervention in the financing of fiscal deficits affect the variability of inflation and real exchange rate. The analysis is done using a rational expectation framework that incorporates the fiscal role of exchange rate. The paper reflects that the effort of the monetary authority to influence the finance of government fiscal deficit through the determination of the inflation-tax rate affects both the rate of inflation and the real exchange rate, thereby causing volatility in their rates. The paper further reveals that inflation affects volatility of its own rate as well as the rate of real exchange. The policy implication of the paper is that monetary policy should be set in such a way that the objective it is to achieve is well defined. (Sanusi 2014) says that the ability of the CBN to pursue an effective monetary policy in a globalised and rapidly integrated financial market environment depends on several factors which include, instituting appropriate legal framework, institutional structure and conducive political environment which allows the Bank to operate with reference to exercising its instrument and operational autonomy in decision-making, the degree of coordination between monetary and fiscal policies to ensure consistency and complementarity, the overall macroeconomic environment, including the stage of development, depth and stability of the financial markets as well as the efficiency of the payments and settlement systems, the level and adequacy of information and communication facilities and the availability of consistent, adequate, reliable, high quality and timely information to Central Bank of Nigeria.

RESEARCH METHODOLOGY

This study is carried out to critically appraise the monetary policy of the central bank of Nigeria (CBN) in the light of macroeconomic performance of the country. The Ordinary Least Square (OLS) regression analysis method is used to analyse the data that are collected from Central Bank of Nigeria and National Bureau of Statistics publications for various years covering 1994 to 2021. In demonstrating the application of the Ordinary Least Square method, three multiple regression models are used with the liquidity ratio, money supply, cash ratio as the independent variables in all the models while gross domestic product, inflation rate and balance of payment would be the dependent variables in model one, model two and model three respectively.

Model Specification

The three models to capture the impact of monetary policy on Nigerian macroeconomic variables are stated below with the independent variables as liquidity ratio, money supply and cash ratio while the dependent variables will be gross domestic product, inflation rate and balance of payment total; so that:

Model I

Gdp = a0 + a11r + a2M2 + a3Cr + Ui (1)

Where

gdp - Gross Domestic Product
Lr - Liquidity ratio
M2 - Broad Money Supply
Cr - Cash ratio
a0, a1, a2 and a3 - Parameters Ui - Error term

Model II

Inf = b0 + b1lr + b2M2 + b3Cr + Ui(2)

Where

inf - Inflation rate
Lr - Liquidity Ratio
M2 - Broad Money Supply
Cr - Cash ratio
b0, b1, b2 and b3 - Parameters
Ui- Error term

Model III

Bop = c0 + c1lr + c2M2 + c3Cr + Ui(3)

Where

Bop -Balance of Payment
Lr - Liquidity Ratio
M2 -Broad Money Supply
Cr - Cash ratio

Diagnostic Tests and Methods of Data Analysis

The Unit root is first conducted, then followed by regression, Johansen co- integration result and lastly vector error correction model (VECM). In order to determine whether the macro variables are stationary or otherwise, unit root tests are conducted and if non-stationary at levels, we then go ahead to determine the order of integration. Next a test of co-integration is carried out between economic growth (GDP), inflation rate (INFLR), balance of payment (BOP), and the other various subset of monetary policy variables. Test for the stationary of the variables are presented in table 1. The test results suggest that the null hypothesis of unit root for the sixth time series namely, liquidity ratio (LR) cash ratio, (CASHR), money supply(MS_2), gross domestic product (GDP), inflation rate (INFLR) and balance of payment (BOP) cannot be rejected at levels. This prompted us to test the Augmented Dickey-Fuller (ADF) test at first levels. The result as shown in table1 suggests that the null hypothesis of the variables can be rejected in the first difference. These shows that some of the variables are stationary at first difference and are integrated of order one or are 1(1) series while some are stationary at order 1(2).

Table 1: Unit Root Result

Variable	DF	ADF Test critical value	ADF Test Statistics	P-values	Order of Integration	ADF lags
Δ GDP (c)	5%	-2.9850	3.622099	0.0015	I(1)	1
	10%	-2.6318				
Δ INFLR (c)	5%	-2.9798	-2.934405	0.0075	I(1)	1
	10%	-2.6290				
Δ BOP (c)	1%	-3.7343	-4.529425	0.0002	I(2)	1
	5%	-2.9907				
Δ LQR (I)	5%	-2.9850	-2.94227	0.0075	I(1)	1
	10%	-2.6318				
Δ CASHR (I)	5%	-3.6219	-4.252270	0.0004	I(1)	1
	10%	-3.2474				
Δ MS2 (I)	1%	-3.7497	-4.229205	0.0004	I(2)	1
	5%	-2.9969				

Source; E-view 9 output.

For the ADF statistics, the 99%, 95%, and 90% critical values are shown after each T-statistics at the left hand side of second column of table 1. The result in table 1 above shows that none of the variables were stationary at levels. This can be seen by comparing the observed values (in absolute terms) of the ADF test statistics at 1%, 5% and 10% levels of significance. The result provides some evidence that none of the variables were stationary when differenced at levels, hence there is evidence of non-stationary. However, differencing once induced stationary in four (GDP, INFLR, CASHRand LQR) while balance of payment (BOP) and money supply (MS2) were differenced twice to attain stationary. Therefore, the null hypothesis is accepted for non-stationary for the variables at levels and it is sufficient to conclude that there is a presence of unit root at levels, as a result all the variables were differenced and others were differenced twice and the ADF tests were conducted on them; the result is shown in table 1.

This reveals that some of the variables were stationary at first difference and some were at second difference. On these bases, the null hypothesis of non-stationary is rejected for all the variables and we therefore, conclude the variables are stationary. This further implies that the variables are integrated of order one, I (1) and two I (2).

After forming the stationary of the variables, we proceed to test for the co integration among the variables. Co-integration test becomes necessary given the presence of unit root in the time series data of the study. When co-integration is present, it means that economic growth, inflation rate, balance of payment and money supply share a common trend and long-run equilibrium as suggested in theory. We started the co-integration analysis by employing the Johansen and Juselius multivariate co integration test. The maximum Eigen value statistics indicated (6) co integrating vectors at the 5 percent level of significance, suggesting that there is co-integration relation between monetary policy and the different measures of macro-economic stability.

Co-Integration Test

Sample: 1996 2022

Included observations: 28

Test assumption: Linear determinist ic trend in the data

Series: GDP INFLR BOP LQR CASR MS

Lags interval: 1 to 1

Eigen value	Likelihood Ratio	5 Percent Critical Value	1 Percent Critical Value	Hypothesized No. of CE(s)
0.935594	213.3558	94.15	103.18	None **
0.899440	144.7921	68.52	76.07	At most 1 **
0.836302	87.36713	47.21	54.46	At most 2 **

Source: E- views 9 output

Presentation and interpretation of Results

In this study, mathematical relationships between the variables are established. Available data on liquidity ratio (LR), cash ratio (CASR), money supply (MS2), gross domestic product, (GDP), inflation rate (INFLR) and balance of payment (BOP) were collected and used for the purpose of this analysis. Three multiple regression models were formed to capture the assumed relationship between these variables.

Table 2. Presentation of Model 1 Result (GDP)

Variable	Coefficient	Std. Error	t-statistic	Prob.
C	-105615.6	1116194.0	-0.094621	0.9254
LQR	471.2586	23756.76	0.019837	0.9843
CASR	38075.83	66199.74	0.575166	0.5708
MS2	4.295952	0.157122	27.34147	0.0000

R^2=0.971739F (3, 27) = 263.6123Adj.R = ^{2} 0.968053 DW=1.382416 GDP = -105615.6 + 471.259 log (LQR) + 38075.8 log (CASHR) + 4.296 log (MS2) t = (-0.095) (0.020) (0.575) (27.34)

Source; E-view 9 output

Where the variables remain as previously defined. The above table is the result of the static regression analysis where Gross Domestic (GDP) was regressed on liquidity ratio (LQR)., Cash ratio (CASHR) and money supply (MS2). The a priori expectation of the estimate co efficient is; α0 >0, α1 > 0, α2 >0, α3 >0.

Analysis of Result 1

Considering the quality of data used in the study, the level of statistical significance chosen for testing the hypothesis is at 5% level. The regression result shows there is an existence of a linear and proportionate relationship between GDP and the explanatory variables. The explanatory variables identified are the monetary policy variables of liquidity ratio, cash reserve and broad money supply. The sign of the co-efficient estimates is rightly assigned, reflecting a positive relationship with economic growth and thus confirms to prior expectation. The statistical evidence emanating from the study of co-efficient of determination R^2 shows that the endogenous variables jointly explained over 97.2% of the total variation in the dependent variable (GDP).

The value of the adjusted R^2 (0.96805) which is over 96.8 % re-affirms the goodness of fit and signifies that over 97.2% variations did not merely result from the use of multiple variables in the model. The F-statistics (263.6) of the model estimate is statistically satisfactory such that the hypothesis of the equation being equal to zero can be rejected. The joint influence of the explanatory variables was statistically significant at 5 percent level of significant. Durbin Watson test of autocorrelation (1.38) indicates the presence of positive autocorrelation.

Specifically, at 5% level of significance liquidity ratio and cash reserve have direct and insignificant positive impact on growth except for money supply which exerts a significant positive impact on growth. In other word liquidity ratio and cash reserve were statistically insignificant and thus have no significant impact on growth and development while money supply has a significant relation with economic growth in Nigeria. This confirms the hypothesis that monetary policy (money supply) has a significant impact on Nigeria economic growth within the period under consideration.

The empirical evidence emanating from the study reveals that money supply had a direct relationship with economic growth which suggests that it encourages investment and productivity in goods and services. Liquidity ratio and cash reserve had positive but insignificant relation with growth hence, little reliance can be built on the result. This can be viewed that the expected transformations of the economy through the monetary instrument of liquidity ratio and cash reserve policies for the periods covered are not being realized.

Table 3

Model II Result (Inflation)

Variable	Coefficient	Std. Error	t-statistic	Prob.
C	5388053	18.24943	2.952450	0.0071
LQR	-0.561754	0.388416	-1.446270	0.1616
CASR	-0.0000298	0.0000257	-1.159593	0.2581
MS_2	0.357663	1.082345	-0.330451	0.7441

R^2= 0.17622 F, (3, 27) = 1.646024 DW = 1.028958 Adj. R^2= 0.068770

INFRL= 53.88053- 0.561754(LQR) – 0.357663 (CASR) -0.0000298 (MS_2)

t = (2.952) (-1.446270)

(-0.330451) (-1.159593)

Source; E-views 9 output

Where the variables remain as previously defined. The above table is the result of the static regression analysis where inflation rate (INFLR) was regressed on liquidity ratio(LQR), Cash ratio (CASHR) and money supply (MS2). The a priori expectation of the estimate co efficient is; α1 < 0, α2 < 0, α3 < 0.

Analysis of Result 2

The overall statistical significance of the estimated equation is non-satisfactory (F* = 1.65), such that the joint influence of the endogenous variables was also low (R^2= 0.176), meaning that over 17.6 % variations in inflation rate is being jointly explained by changes in monetary policy. This also reveals that monetary policy alone cannot effectively capture inflation control in Nigeria in the absence of other macro variables, such as investment and government expenditure. The result of the study further reveals the presence of positive autocorrelations.

The macro-economic variable (inflation) had indirect relationship with monetary policy, thus conforms to a priori expectations. This suggest that monetary policies discourage inflation in the economy. The study further reveals that a unit increase in monetary policy regulation reduces inflation in Nigeria although not significant. A unit increase in commercial banks liquidity ratio and cash reserve helps to reduce inflation by a corresponding unit of 1.44 and 0.357 respectively. The tendency of excess liquidity in circulation that encourages inflation in the macro economic environment is minimized. Also we could further adduce that stable macro-economic environment is necessary for effective monetary policy and economic growth.

Model III; (Balance of Payment)

Table4. Presents the summary of the regression result of monetary policy and Balance of payment as the dependent variable

Table 4: Model III: Balance of payment

Variable	Coefficient	Std. Error	t-statistic	Prob.
C	-102969.6	637728.8	-0.161463	0.873
LQR	2257.852	13573.25	0.166346	0.8693
MS_2	0.652736	0.089771	7.271160	0.0000
CASR	-15777.85	37822.72	-0.417153	0.6804

R^2= 0.707681 F, (3, 27) = 18.56037 DW = 1.533354 Adj. R^2= 0.669552BOP = -102969.6 + 2257.85 (LQR) + 0.652736 (MS2) -15777.85 (CASHR)

Model III; (Balance of Payment)

t = (-0.161) (0.166346) (7.271160) (-0.417153)

Source; E-view 9 output

The table above is the result of the regression analysis where Balance of Payment (BOP) was regressed on liquidity ratio (LQR), Cash ratio (CASR) and money supply (MS2). The a priori expectation of the estimate co efficient is; α1 > 0, α2 >0, α3 > 0.

Analysis of Result 3

Here the result of R from the empirical study indicates that over 70.8 % the variation in balance of payment were jointly captured by the independent variables (monetary policies). This is also re-affirmed by the adjusted R^2 result (0.669), explaining over 66.9 % of the variations in balance of payment. The entire model is also statistically significant (F* = 18.56) while the Durbin Watson statistics reveals little or no autocorrelation of the variables. Of the components of monetary policy entered, liquidity ratio and money supply show a direct relationship with balance of payment except for cash ratio. The empirical evidence from the study reveals that money

supply is significantly and positively related to balance of payment. This therefore, suggests the vital importance of money supply in achieving a favorable balance of payment in foreign exchange transactions. The result further reveals an indirect relation of cash reserve and balance of payment. The suggested plausible reason for this observation could be the negative effect of tight monetary policy in resource mobilization, production and export, resulting to distortion in the balance of payment equilibrium. The direct but insignificant effect of liquidity ratio could be seen as its relative small contribution to balance of payment transactions and the economy in general. It also suggests an uncomplimentary monetary policy that is not trade enhancing.

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This study examined the effect of Central Bank of Nigeria's (CBN) monetary policies on selected macroeconomic variables – gross domestic product, inflation rate and balance of payment between 1995 and 2022 and the major findings of the study are summarised below: It was found that overall, CBN's monetary policies play crucial role in influencing the level of productivity in the country. This result justifies the place of Central bank in the national development process of a nation; The regression analysis also showed that the adoption of various monetary policy measures by the Central Bank of Nigeria has no significant impact on the inflation rate in the country. This suggests that the problem of inflation in Nigeria is not a monetary phenomenon but is rather attributable to the structural rigidity in the country. This is understandably as Nigeria is operating far below full employment equilibrium and the increase in GDP does not translate to improved purchasing power because poverty index has continued to worsen over the years. A lot still needs to be done in the areas of creating public awareness, improving operations of the financial market, enhancing the depth and breadth of the market and building regulatory capacity so as to appropriately position the market to face the challenges ahead. The result also reveal that liquidity and cash ratios do not have significant

impact on the balance of payment position which means that the monetary policy has supported healthy exchange rate system that would encourage export and discourage frivolous importation.**Conclusion**

The role of the Central bank in regulating the liquidity of the economy which affects some macroeconomic variables such as the output, employment and prices cannot be over-emphasised. The Central Bank of Nigeria over the years has adopted different monetary policy management techniques to keep the economy in a stable state. Before the structural adjustment of 1986 which ushered in a period of financial deregulation, it adopted a system of direct control through the issue of credit guidelines and interest rate fixation but from the later part of the 1980s, it adopted indirect control system of management by resorting to open market operations, adjustment of legal reserves requirement and the rediscount rate. But in all these, the attainment of the desired objectives of monetary policy has been affected by domestic and external environments which include fiscal dominance, underdeveloped nature of the financial markets, external debt overhang and volatility in oil price, Sanusi (2020).

RECOMMENDATIONS

Based on the findings made in the course of this study, particularly the results of the regression models, it is clear that the development of the Nigerian economy is highly dependent on the provision of the right environment for investment, which will in no doubt encourage economic growth and development. The following recommendations are hereby made:

Monetary policies should be used to create a favourable investment climate by facilitating the emergence of market based interest rate and exchange rate regimes that attract both domestic and foreign investments, create jobs, promote nonoil export and revive industries that are currently operation far below installed capacity. In order to strengthen the financial sector, the Central Bank has to encourage the introduction of more financial instruments that are flexible enough to meet the risk preferences and sophistication of operators in the financial sector.

The government should also endeavour to make the financial sector less volatile and more viable as it is in developed countries. This will allow for smooth execution of the Central Bank monetary policies.

Law relating to the operation of the financial institutions could be made a bit less stringent and more favourable for the operators to have room to operate more freely.

Finally, the Central Bank should find a way of reducing the level of deficit financing, improve funding of the informal sector and the SMEs and promote their integration into the formal sector while at the same time working with government to improve the tax regime to make the tax capacity to approach the tax potential so as to reduce tax evasion to barest minimum and ensure that there is proper balancing between capital and recurrent expenditures of government.

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THE PROBLEM OF TAX COLLECTION AND ADMINISTRATION IN NIGERIA

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ABSTARCT

The paper is going to discuss the various issues relating to the problems of tax collection and administration in Nigeria. It will dwell on the definition of certain key terms, discuss the history of taxation in Nigeria, objectives and the uses of tax; and then proceed to discuss the main crux of the topic, which is to briefly identify the various problems, encountered in the process of tax collection in Nigeria and also the imminent problems the tax administration is saddled with.

The paper will x-ray the causes, types and various forms of problems in the tax industry regime.

A tax policies represent key resource allocator between the public and private sectors in a country. It is usually imposed. on individuals and entity that make up a country. The funds provided by tax.' are used by the states to support certain state obligations such as education systems, health care systems, pensions for the elderly, unemployment benefits, and public transportation. A nation's tax system is often a reflection of its communal values or the values of those in power. To create a system of taxation, a nation' must make choices regarding the distribution of the tax burden-who will pay taxes and how much they will pay-and how the taxes collected will be spent.

***Keywords**: Tax, Taxation, Tax Administration*

WHAT IS TAX?

1. Tax is defined as a "levy imposed by the government against the income, profit or wealth of the individual, partnership corporate organization". Also,Nchi sees taxation as "Compulsory payments to the state by individuals and business concerns of duties imposed on goods, services, income and wealth"-Tax is essentially conceived to mean the transfer of resources from the private sector to the public sector in order to accomplish some nation's economic and social goals.
2. Tax can also be defined as a compulsory levy by government on goods, services, income and wealth. Primarily to obtain revenue. In other word, it is levy or dues on the income of persons and companies. 1: provides definite source of revenue of person for government expenditure. It isthe way by which government obtain extra money it spends from income of individual or companies.

TAX IN NIGERIA

In the Stone Age, tax was collected in Nigeria long before the coming of Europeans. It was collected by the Local Chiefs for the purpose of administration and defense. Every person was expected to give part of his or her proceeds from cultivation of land to the state. Those who were cultivations were required to give their sources for public work such as clearing the bush) digging the pit latrines, wells etc. for the benefit of the community as a whole.

Failure to render such services usually resulted in loss of properties, which might be reclaimed after payment of fine.

With the coming of Europeans, taxes were collected from individual through local chiefs. In 1946 a legislative council was set up for the whole country, which obliged the regional council with a large measure of financial responsibilities.

After independence the government were to find out other sources of generating revenue. The first tax was introduced in 1904 in the northern region by Lord Lugard known as community tax.

HISTORICAL AND LEGAL DEVELOPMENT OF TAXATION IN N1GERIA

The history of taxation in Nigeria dates back to the era of the Sahara trade and the introduction of Islamic religion in Nigeria between 800 A.D and 1400 AD. The rulers of Northern Nigeria were known as “'SAFAWA" Kings, who grew rich due to gifts and levies paid to them by their subordinates as taxes on cattle and agricultural crops. The Islamic religion later introduced various forms of taxes namely: Zakat, KurdinKasa, ShukkaShukka, Jangalia, Kha rant etc. The Zakat was imposed on educational and charitable purposes.

In the south, the Obas and Ezes relied on tributes, arbitrary levies, special contributions at special festivals or events, fees, presents, all collected through the head of families, as its system of taxation.

The first legal backing of taxation was in 1904 when Sir Fredrick Lugard introduced the Native Revenue Proclamation. This Proclamation was further enhanced in 1906. The tax revenue proceeds was shared equally between the local or native authorities and the British or central Government Authority. These enactments were followed by various other legislations which the Colonial masters introduced during their era.

After independence in 1960, the government enacted three major tax laws, namely:

i. Federal Income Tax Act (FHA) 1961
ii. Income Tax Management Act (ITM A) 1961
iii. Companies Income Tax Act (CITA) 1961

These enactments form the bedrock of modern taxation)n Nigeria. The income Tax Management Act (ITMA) 1961 model for all the personal income tax laws operational in regions, with amendments in

some regions. However, in 1993 through Decree 104 the Military Government enacted the Personal Income TAX Act 1993 to repeal all previous tax laws on Personal Income TAX in Nigeria.

The Company Income TAX Act (Cl'TA) 1961 was applied to companies in Nigeria. The law was repealed and later replaced with the Companies Income Tax Act (CIT A) in 1979 with amendments in 1993.

iii. The Companies Income Tax Act.

The law regulating the taxation of Companies in Nigeria is the Companies income Tax Act Cap C21, LFN 2004. The Companies income Tax (CITA) is a creation of the CITA 1961. Prior to the promulgation of the Act, it was a part of the income tax covered under the Income Tax Ordinance of 1948, codifying the 1943 Ordinance and subsequent amendments. Essentially, the main features of the 1961 CIT A are still maintained in the current 2004 Act (the administration, charging sections, determination of profits, assessable and total profits, assessment procedure, appeals procedure, collection procedure, offences and penalties inspite of the fact that the Act has over the years been amended by Decrees (ACTS) including the Finance (Miscellaneous Provisions) and other subsequent amendments thereto. The administration of CIT A rests on the shoulders of the Federal Board of Inland Revenue which has the following powers and duties:

1. It is responsible for the administration of the Companies Income Tax Act and Decree. It assesses and collects the necessary company taxes.
2. It can sue and be sued in its official name
3. It can acquire, hold or dispose any properly held as security and account for the proceeds to the Minister of Finance.
4. It may authorize any person within or outside Nigeria to perform or exercise any of its powers except those stated under the first schedule to the Act.
5. It may (with consent from Finance Minister) appoint the Joint Tax Board to perform or exercise any of its duties or powers.

PERSONAL INCOME TAX ACT

The Nigerian tax system is basically structured as a tool for revenue collection. In Nigeria, personal income tax (PITA) for salaried employment is based on a 'pay as you earn" (PAYE) system, and several amendments have been made to the 1961 ITMA Act. For instance, in 1985 PITA was increased from N600 or 10 per cent of earned income to N2,000 plus 12.5 per cent of income exceeding N6,000. In 1989, a 15 per cent withholding tax was applied to savings deposits valued at N50,000 or more while tax on rental income was extended to cover chartered vessels, ships or aircraft. In addition, tax on the fees of directors was fixed at 15 per cent. These policies were geared to achieving effective protection for local industries, greater use oflocal raw materials, generating increased government revenue among others.

Since the implementation of the structural adjustment programme (SAP), however, taxes have been used to enhance the productivity and competitiveness of business enterprises. Consequently, attention has beenfocused on promoting exports of manufactures and reducing the tax burden of individuals and companies. In line with this change in policy focus, many measures were undertaken.These involved, among others. reviewing custom and excise duties, continuing with the reduction of company and income taxes, expanding the range of tax exemptions and rebates, introducing capital allowance, expanding the duty drawback scheme and

manufacturing-in-bond scheme, abolishing excise duty, implementing VAT, monetizing fringe benefits and increasing tax relief to low-income earners.

TYPES OF TAXES

1. Direct Tax
2. Indirect Tax

Direct taxes in Nigeria consist of the following:

1. Personal Income Tax (PIT)

- Company Income Tax (CIT)
- Withholding Tax (WHT)

Capital Gain Tax (CGT)

- Capital Transfer Tax (CTT)
- Petroleum Profit Tax (PPT)

Indirect taxes in Nigeria consist of the following:

1. Custom Duties
2. Excise Duties
3. Value Added Tax (VAT)

THE OBJECTIVES AND USES OF TAXATION

This can be divided into main objectives and secondary objectives:

Main objectives: -

(a) To raise revenue for government expenditure.

(b) To influence economic activities in the Country, through tax policies on production, investments and savings.

Secondary objectives: -

a. To bridge the gap or inequalities between the poor and the rich.

b. To restrain or curtail consumption of undesirable goods and services,

c. To correct a Country's balance of payment, i.e. the difference between a Country's import and export.

d. To protect home or indigenous industries thereby encouraging industrialization.

e. To combat inflation; government can increase tax rate and reduce relief's,

f. To encourage investments by building in tax incentives into Nigeria's tax laws.

Prospects of Tax Collection

1. The administration of tax collection will be strengthened to ensure more efficient tax collection, through training of staff, awareness, campaigns & computerization.
2. Government should continue to ensure that the tari ffpolicy enables our local industries to be competitive.
3. Specifically, aggressive action should be taken to block revenue leakage on high duty goods and bulk items.
4. VAT has become a veritable source of revenue earnings for the government and therefore needs to be strengthened and expanded. To broaden the tax base and to bring the VAT administration closer to the taxpayers, new local VAT offices should be established all over the country.
5. Government should also ensure fair tax administration based on the principle of derivation of tax proceeds; it is recommended that the tax law should be enacted.

Problems of Tax Collection

1. Inadequate Sta ff

Lack of adequate sta ffor manpower to carry out the assignment efficiently and this has contributed to the low revenue generated for the country

2. Mismanagement of Tax Collected

Where taxes collected were not been utilized for the purpose for which it was collected. This makes taxpayers not to give out their wealth for the nation.

3. Bribery and Corruption

In this day, tax collectors personal interest has overridden their official interest in the performance of their duties, consequently affect revenue

generation for the nation.

4. Poor Accounting record

Most businessmen, traders, professionals do not keep proper records of their income and expenditure

5. Inadequate Facilities

The facilities like motor vehicle and motorcycle to carry out the assignment effectively is inadequate

6. Lack of voluntary compliance from the taxpayers

This attitude of taxpayers causes tax avoidance, evasion and delinquency.

i.Tax avoidance: This refers to the minimization of one's tax liability by taking advantage of legally available tax planning opportunities, Tax avoidance is a scheme that exploits or takes advantage of the weaknesses or ambiguities in Tax laws to reduce or escape liability. This means that what seems to be tax avoidance may transcend into tax evasion depending on the circumstances of each case. There appears to be a thin dividing line between tax evasion and tax avoidance, but the end game of both is to achieve tax minimization.

From some decided cases, what the courts look for is to see if a taxpayer has tried to gain tax advantage and whether the laws have been breached. It appears that even the courts encourage tax avoidance. For instance, Lord Tomlin's dictum in the case of **C.I.R. V. Duke of Westminster held**:

"every man is entitled, if he can, to "order his affairs so that tax attaching under the appropriate act is less than it otherwise would be. Ifhe succeeds in ordering them so as to secure this result, then however, unappreciative the Commissioner of Inland Revenue or his fellow taxpayers may be of his ingenuity, he cannot be compelled to pay an increased tax.

Professor Wheatcraft supported the above dictum by Lord Tomlin, when he defined Tax Avoidance as "an act of winning games without actually cheating".

HOW TO DETERMINE TAX AVOIDANCE CASES

In the case of BULLEN V. WINSCONSfN it was held that:

"When the law draws a line, a case is on one side of it or the other. .. when an act is condemned as an invasion, what is meant is that it is on the wrong side of the law"

Tax avoidance was also described in the case of W.T . .RAMSAY LTD V. I.RC.as "pre-ordained series of transactions manufactured "to produce a given result".

From the above definitions it is obvious that companies that do self assessment can deliberately make their records to show a loss instead of a gain and thereby avoid the payment of tax and the tax authority can do nothing about it. By doing this they place themselves on the wrong side of the law. Thus violating the law. The law is the standard for determining tax avoidance.

ii. Tax Evasion: Refers to any form of fraud, willful default or neglect in order to reduce the tax liability or escape the payment of tax altogether. As contained in part iii of the 2004 CITA and part x of 2004 PITA, part xi 2004 PITA, the following are examples of tax evasion:

a. Non-compliance with the provisions of the Act.
b. Failure to comply with the requirements of a notice.
c. Failure to answer queries.
d. Making of incorrect returns by omitting or misrepresenting of profits liable to taxation.
e. Giving incorrect information.
f. Giving false statements and returns for the purpose of obtaining any deductions, set off's, reliefs or refunds.
g. Knowingly making false representations in a

return, account or particulars made or furnished with respect to tax.

h. Under declaration of income and inflation of claims.

I. Forgery, fraud, willful default or neglect.

iii. Delinquency: Many highly placed and rich Nigerians hardly pay tax commensurate to their annual incomes as they hardly disclose all their Sources of income and accurateincome per annum. Some tax officials waive or under" assess their, friends and relatives taxes to the detriment of the state.

From the foregoing analysis, it is dear that the war against tax evasion and avoidance cannot be won by tax authorities. Since it would always be attractive to evade tax since even the courts appear to support tax evaders. Thus tax authorities can only attempt to reduce the incidence of tax avoidance and evasion,

7. ILLITERACY

Illiteracy is a serious problem as most people are ignorant of tax systems and tax laws. For instance, vendors, retail traders, carpenters, welders, masons etc are predominantly illiterate and hence do not know the importance of legal implications of payment of tax. Thus when given tax forms to fill and return they will not be able to understand it in order to fill the requisite information.

PROBLEMS OF TAX ADMINISTRATION INNIGERIA

Inadequacy of the National Tax Policy /Law

A thorough examination of the current national taxation policy reveal that it is comprehensive when compared with earlier attempts at designing a policy. These challenges are as follows:

a. Administrative Challenge: Experience has shown that the institutional capacity to administer taxes effectively is woefully lacking in this country. Procedures, reinforced by third party audits, appear to ensure that taxes are paid and received albeit with potentially serious and costly internal lags. However, Nigeria lacks capacity to assess the reasonableness of the returns submitted by taxpayers, including costs and staffing, skills, pay scales, and other funding, and computer and Information Technology (IT) infrastructure. Meanwhile the current draft has not put in place an administrative strategy.

b. Compliance Challenges: A recurring problem with PITA Nigeria is the non- compliance of employers to register their employees and to remit such taxes to relevant authorities. To address this, in 2002 the government amended the 1993 PIT Act to make non-compliant employers liable to penalties up to N25,000, aswell as liable for the payment of all tax an-ears. Employers failing to keep proper records would also face a penalty ofN5,000. A fine this small tends to encourage tax evasion since the penalty for being caught is lower than the cost for non-compliance. The issues of unremitted funds from the PAYE system and withholding taxes particularly among government ministries and agencies as well as tax adherence by all three levels of government to the approved list for (tax) collection, as stipulated by the 1998 Taxes and Levies Act 21, have over the past five years attracted the attention of Joint Tax Board (JTB). This same issue of compliance was not properly addressed in the draft national tax policy.

c. Lack of Equality: Tax in Nigeria especially (PlT A) personal income tax always fails in Nigeria for lack of equitability. Even the present draft sent to the National Assembly could not provide solution to this challenge. In spite of the fact that the self-employed outnumber paid workers and that they earn as much as four times that of the formal sector employees, the bulk of PITA today is paid by employees-whose salaries are deducted at source.

d. Challenge of Multiplicity of Taxes: There is the challenge of multiplicity of taxes which is a major problem with the draft document. Already Nigeria is known for having problems with compliance. How would the Federal Ministry of Finance grapple with this problem because it is not contained in the strategy document. It must be noted that a good tax policy set out the fundamental objectives or a country's tax system and prescribe some guidelines that would shape government policy actions.

e. Poor Taxation Drive from Tiers of Government: The political economy of revenue allocation in Nigeria even with the current draft document does not prioritize tax efforts. It is, instead, anchored on such factors as equality of states (40 per cent), population (30 per cent), landmass and terrain (l0 per cent), social development needs (l0 per cent), and internal revenue efforts (10 per cent). The approach, discourages a proactive revenue drive, particularly for internally generated revenue, makes all government tiers heavily reliant on unstable oil revenues which are affected by the volatility of the international oil markets. Aside from the national syndrome of 'cake sharing', the instability and volatility of oil revenue should have created an opportunity for improved tax efforts within the provisions on taxation ratified in the 1999 Constitution. Although some state governments have initiated measures to enhance their tax generation attempts, the outcome has not reflected any level of serious effort.

Ms. Omoigui-Okauru had these to say on Tax administration challenges in Nigeria:"Mobilizing domestic resources, in particular, taxation is key to unlocking the resources required for public investment and infrastructure growth. But collecting taxes from citizens have proved Herculean tax because the average person would rather evade tax than paying it.

In Nigeria and other African countries, the level of tax evasion is quite high. As a result, African countries collect little or nothing from taxes. The effect is seen in the lack of resources for development and near dependence on foreign countries for aids and loans.

However, the need for Nigeria and other African states to establish sustainable revenue systems driven largely by their own domestic bases has become urgent, especially in the face of dwindling resources from outside the continent, occasioned by the last world economic crisis which pulled down economies of many developed countries from where aids and loans flow into Africa.

Adding to fluctuations in aids are the twin problems of decline in export revenues and falling commodity prices which have resulted to many African countries coming short on financing their national budgets, thus increasing levels of deficits, triggering inflation and increasing debt

It is against this backdrop that African tax administrators met in Cape Town, South Africa between April 4 and 7, 2011 under the umbrella of African Tax Administration Forum (ATAF) to seek solutions to the continent's tax administration challenges. The theme of the conference was: "Domestic Resources Mobilization; challenges to African Tax policy and Administration."

Taxation remains potentially the biggest source of long term financing for sustainable development and the lifeblood of all state services, including the provision of public services such as health care, education and infrastructure. Additionally, taxation he said strengthens democracy by increasing

incentives for public participation in the political process and creates pressure for more accountability, better governance, and improved efficiency of government spending.

MsIfuekoOmoigueOkauru, Chairman Nigeria's Federal Inland Revenue Services (FIRS) who spoke through her Director of Corporate Communications, Mr. EmmanuelObela, also observed that if African countries are to get to the next level; there: is need for very strong institutions and systems. Noting that one of the more important systems that requires sustained focus is the tax system, insisting that it holds the potential for being the pivot of development for many African countries.

"To develop the institutions that will take African nations out of the current level of development and into the comity of developed nations, tax systems must be ata level that will be able to support the growth and development we all seek for," she noted.

Omoigui-Okauru who spoke on "Developing an African culture of tax compliance," said that "We need to determine whether a culture of tax compliance has ever existed in Africa and if it did, what were the factors responsible for that, what circumstances intervened to alter that culture and what can 'be done to bring it back. "Historically, African communities were organized and administered on a communal basis - with internal control mechanismsusually administered on a persuasive basis and appealing to the sense of communal belonging”

Part of the mechanisms for administering such societies, she said, included voluntary contributions to a common purse for meeting communal needs. Voluntary contributions are largely enforced not with a threat of sanction, but with an appeal to the sense of belonging but regretted that expansion and interaction with foreigners began to alter means of enforcing such contributions - use of sanctions, ostracization and force were introduced, she observed.

She said that systems evolved until the time of complete conquest and colonial rule, where formal systems of taxation were imposed and the basis for enforcement changed from a largely persuasive to a coercive one this is the system still largely in place in most African countries - debatable whether it is the most efficient system - need to look back and see what lessons can be learnt from the past.

Having examined Africa's tax history, MsOmoigui-Okauru noted that, a culture of tax compliance was necessary, if African nations are to make the transition from perpetually developing to developed nations.

She said that in recent times African nations have experienced growth rates comparable and in some instances higher than those of more developed economies. However, concern is whether' African nations can sustain this impressive economic performance or whether they will regress. The answer to this, she said lies inpart on the ability of African nations to build strong systems and institutions, which can serve as the platform for constantly delivering the required level of growth for development.

She said that if the tax system in Africa is properly harnessed, it is capable of not just providing revenue for sustainable development in Africa, but is' capable of putting up Africa as a model to be emulated, adding that it is with this focus that "we must consider the benefits of developing an African culture of tax compliance." For professor Mick More, African countries have to improve on their tax collection,

while also improving on their political and financial independence if they wish to develop their economies. "We need to look at the weaknesses of fiscal policies, noting that crisis in Africa does not help in the growth of the continent. He said African countries are trying to put in place fiscal policies that can assist in tax collection, adding that incentives in place are not enough adding that, "it is for this reason that many people evade tax in Africa"."

RECOMMENDATIONS

On the basis of the foregoing, the following are recommended;

The current national tax policy should be amended and passed into law by the National Assembly so as to make it a working document to ease tax problems.

Government should consider taxpayers and other key stakeholders' interests in fiscal policy formulation and implementation in order to achieve improved tax compliance rate in the country.

Government needs to improve the revenue allocation system so as to boost the taxation drive by the different tiers of government.

There is a need for the Nigerian government to close ranks and tackle the challenges of corruption among task administrators, tax evasion, weak tax administrations and narrow revenue tax base. Corrupt and erring tax officials should be fished out and made to face the full wrath of the law to serve as a deterrent to others.

According to the tax laws the board can revised the assessment if it deems necessary, and can institute legal action against any tax defaulters in respective of his status in the community such legal rights have been derived by politician and poor administration of tax laws. Government should also devise a way of auditing the businesses of highly placed and rich Nigerians, most especially the politicians. By so doing, they would be forced to pay the correct tax. Defaulters should be severely punished todeter others.

The National Population Commission should be given the task of coming up with a data of taxable individuals in Nigeria. The tax authorities should establish or make efficient its investigations unit or departments so as to be able to find out the self-employed in the country.

PASS A NATIONAL COMPREHENSIVE TAX POLICY INTO LAW:

The way forward from is for the government to implement the tax policy. A lot of resources and time has been invested in the current draft national tax policy. Even though there are obvious f1aws in some areas, there is the urgent need for the National Assembly to pass it into law. A tax regime that lacks the policy hub cannot achieve the desired objectives.

Secondly, the Personal Income tax laws should be made clearer and simpler. The laws should be translated into major Nigerian languages for the benefit of illiterates.

IMPROVE COMPLIANCE STRATEGY:

Compliance has always been a problem in Nigeria's tax system. Even the current draft national tax document did not spell out clearly the compliance strategy. hence there is a need to make tax laws more stringent. For instance, during the military era, the Tax. Force Unit was used to enforce tax compliance. However, with democratic rule, this is not allowed and the use of the traditional court system is not only too cumbersome but also time consuming. To this effect, a bill for a tax court has been prepared by the state to replace the Tax Force. The bill has been discussed at the cabinet level, and is currently being amended by the Ministry of Justice after which it will

be presented to the National Assembly When this bill becomes operational, it is hoped that compliance will be improved.

Also, the payment requirement of tax clearance by politicians seeking election into elective posts of the country should also be extended to those seeking government appointments into key positions of the country.

The President, Vice President, Governors, Deputy-Governors, legislator's monthly emoluments should also be taxed.

The government should abolish the policy of self-assessment mode of tax payment in Nigeria. This is because a company or private individual can under state the profit it/he/she makes in order to avoid/evade tax.

Tax evasion and avoidance are ought to be made criminal offences in the country and not civil matters to mitigate the commission of the offences. Also, the fines payable are extremely too low, as low as five thousand naira (N5000) only or five years imprisonment for tax defaulters.

IMPROVE ADMINISTRATION OF TAX:

One of the major challenges of tax in Nigeria is the administration of tax. Even the current draft national tax' policy suggested the use of tax consultants to collect revenues from government ministries and agencies. This is a major flaw as PAYE does not give a true picture of performance. This is revenue that is collected at source with minimal effort and could easily be collected by government tax or revenue officials. Thus, the practice of including certain taxes (PAYE and other revenue deducted at source) within the government machinery as components of a revenue benchmark for tax consultants will not be a solution.

Tax officials should visit organizations to look into their payment schedules to ensure that correct amounts of tax are deducted and remitted to the tax authority.

Tax administrators should be adequately trained and equipped in modern technology (ICT) for efficient and reliable record keeping to enhance efficiency.

STAKEHOLDERS' CONSULTATION:

It is also imperative for government to consider taxpayers' and other key stakeholders' interests in fiscal policy formulation and implementation in order to achieve improved tax compliance rate in the country. In other words, since taxes are statute-derived, government should encourage far-reaching consultation across the broad spectrum of the economy in tax law formulation.

CONCLUSION

This paper examined the various problems of tax collection and administration in Nigeria. The paper further reviewed the tax regime in Nigeria since 1904 to the ongoing tax reforms. It identified a number of problems that affect the efficient workability of Tax collection and administration. It highlighted the problems and proffered recommendations.

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THE RELEVANCE OF REAL ESTATE INVESTMENT TOWARDS A SUSTAINABLE ECONOMIC DEVELOPMENT IN NIGERIA

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ABSTRACT

Real estate investment is an emerging business in many countries of the world especially in Nigeria. That makes the discovery of other sector like Real Estate investment imperative in the recent times. Consequently, this study examines the relevance of Real Estate investment towards a sustainable economic development in Nigeria. The study shows that Real Estate investment plays a crucial role in the economic development of Nigeria, as it is an important driver of job creation, wealth generation, and infrastructure development. Primary data were obtained from ninety-six real estate investors among which are real estate developers, Builders and real estate owners and tenants. Data collection techniques was the mix approach and questionnaire administration were used and data was analyzed by the use of Statistical Package for Social Sciences (SPSS) and qualitatively as well. From the results gotten from the analysis, it signifies that real estate investment has a define relationship to the economic development of in Nigeria. From the results gotten from the analysis, it signifies that real estate investment has a define relationship to the economic development of in Nigeria. Conclusively, Nigeria needs to adopt sustainable economic development strategies if she is not to be left behind in this era of sustainable revolution. Sustainable development, enabled by the integration of economic growth and real estate investment stewardship must be made the global guiding principle and operational standards. However, real estate investment creates a reliable return to the investment owners, the benefits that can be derived from real estate investment, has been revealed by this study.

Keywords*:* Real estate investment, Real estate and sustainable development.

INTRODUCTION

Real estate investment is among the key investment that enables the investor to recover the income invested on a real estate for a stipulated period of time. The income is generated as yield and return which are profits acquired from development of real estate is regarded as purchase, management, rental land, sales of real estate. Real estate investment is real estate that generates income or is otherwise intended for investment purposes and also contributes to economic development of a specified nation or country (van der Klaauw, W. 2011). It is common for investors to own multiple pieces as real estate, one of which serves as a primary residence while the others are used to generate rental income and profits through price appreciation. Those other real estate investments like commercial real estate investment, agricultural real estate investment, industrial real estate investment provide opportunities for financial gains to investors. Balchin, P. N & Crosby, N. (1997).

Owning a potential real estate investment properties can help build wealth, increase income, and help diversify an investment portfolio. Although there are many types of properties in the real estate market which include: Residential, commercial, agricultural, industrial and special purpose property etc.

Real estate investment is the practice of purchasing property as an investment rather than as a primary residence, in order to generate income. It may be simply defined as any piece of land, structure, infrastructure, or other tangible assets that are often immobile yet transferrable to get a profit from it. Real estate investment may include such outlets as your own home, duplexes and apartment buildings, offices buildings, shopping centers, industrial building, hotels and motels as well as undeveloped land. Friedrich H., Fred L. & Marcus. S (2009).

The concept of sustainable development can be interpreted in many different ways, but at its core is an approach to development that looks to balance different, and often competing, needs against an awareness of the environmental, social and economic limitations we face as a society. Sustainable development is development that meets the needs of the present, without compromising the ability of future generations to meet their own needs. Development is a general word that encompasses all aspects of human life, segments and disciplines, which give direction to the state of an economy.

STATEMENT OF PROBLEM

The decision to undertake this study stems from numerous problems associated with the real estate investment and its development.

In recent times, research on real estate investment has been on the front burner has it is the major source of housing for man. In the hierarchy of man's needs, housing has been ranked second and as a result of this; housing provision has become a paramount cornerstone of the policies of various governments both at federal and state levels since independence in Nigeria. The consequences of the rapid rate of urbanization are most visible in the rapid deterioration of urban housing resulting in urban housing poverty especially as there is no proportionate increase in the number of housing stocks. During the period of economic boom in the 1970s in Nigeria, there was surplus capital, the economic climate then was favorable for the development of real estate and the prospect of gain was over blown and so were the rate of development. Due to the recent drop in the prices of crude oil world wide and corruption, government has not been able to invest in real estate. Overpopulation and urbanization has led to massive increase in property development. Financial houses readily obliged developers' loans, as they perceived minimum risks. Since real estate development requires huge capital outlay, there is always the need for real estate developer to source for

fund. However, this study will examine the scope of real estate in Nigeria and its associated challenges with a view of making useful suggestions on the way forward for real estate in Nigeria.

AIM AND OBJRCTIVES OF THE STUDY

The aim of this study is to examine the relevance of Real Estate investment towards a sustainable economic development in Nigeria,

The objectives of the study:

1. To identify real estate investment types in the study area.
2. To identify real estate investment types in the study area.
3. To examine the condition of the real estate investment properties in the study area.
4. To examine the problem encountered while investing on real estate investment so as to recommend possible solution.

LITERATURE REVIEW

Real Estate Investment

Real estate investment is the practice of purchasing property as an investment in order to generate income and profit. It may be simply defined as any piece of land, structure, infrastructure, or other tangible assets that are often immobile yet transferrable to get a profit from it. It is common for investors to own multiple pieces of real estate, one of which serves as a primary residence while the others are used to generate rental income and profits through price appreciation. Real estate investment represents a significant portion of many institutional portfolios as a result of many potential benefits of real estate property.

An Historical Overview of Real Estate Investments in Nigeria

Investment in real estate in Nigeria prior the advent of British colonial masters was mainly in residential, agricultural and religious property. People invested in real estate for returns for cash or kind. The transformation from traditional to modern form of real estate investment occurred with the advent of colonial administration in the early 20th century with the government intervention in residential property development in 1928 by the then government of Lagos colony (Kabir and Bustani, 2011). The intervention was exclusively directed at the provision of housing for the white colonial population in specially protected and developed areas, referred to as Government Reservation Areas (GRAs).

The advent of colonialism accompanied with rapid urbanization swelled the ranks of urban dwellers and created an appreciable demand for residential and commercial real estate investments. With colonialism, large scale businesses in form of corporations, firms and related establishments attracted more natives and non-natives to administrative headquarters and increased demand for offices, shops, residential and industrial real estate investments.

Thus government, corporate and private individuals got interested in investing in real estate. With the attainment of political independence in 1960, real estate investment got a boost as the government in the centre and respective regional governments embarked on different housing strategies to meet the needs of the teeming populace (Ogu, 2001).

Benefits to Real Estate Investment

The benefits of investing in real estate are numerous and it varies with respect to the investors goal. However, investing on real estate is capita intensive and it requires a little or huge amount of capital which is dependent on the investor's risk tolerance. Also, an investor's time horizon is important to consider when making such a large purchase or investment. Two of the primary benefits of investing in real estate, both residential and commercial, include:

Capital Appreciation

Real estate investment can realize capital gains for investors due to property value increases over time. A capital gain is a profit that results from the difference between the original purchase price and the sale price of the property. Of course, investors can only realize the capital gain after they sell it. However, prices have risen dramatically over the last few decades as demand for housing has increased. Both supply and demand play a role in earning capital gains from real estate. If there are fewer properties in a geographic region or less supply, property prices tend to appreciate–all else being equal.

Rental Income

Many investors buy real estate for the steady stream of income that it provides. Whether it's a residential or a commercial property, renters or occupants pay the owner each month until the rental agreement or lease expires. This revenue stream can offer a stable income for retirees and others who are looking for an alternative source of income besides income from holding investment securities such as bonds or stocks. Income from real estate can also act as a hedge or protection against stock market downturns and rising prices of consumer goods.

Definition of Sustainable development.

The term 'development' has been defined as a comprehensive economic, social, cultural and political process which aims at the constant improvement of the well-being of the entire population and of the individuals on the basis of their active.

Sustainability has been defined by Jodha (1990) quoted by Grace O. Evbuomwan et al, (1990) as the ability of a system to maintain a well-defined level of performance over time and if required, to enhance output without damaging the essential ecological integrity of the system. In the opinion of Glenn M. Wiser & Daniel B. Magraw, Jr (2005), the concept of sustainability means that development efforts, including those aimed at protecting the health and the environment, should be undertaken in a manner that will not frustrate the ability of future generations to meet their needs. Environmental sustainability requires that the management of the environment should be in such a way that ensures that the environment and its natural resources give their optimum yield and preserved for the benefit of both present and future generations. According to Daly (1990), it is the rate of renewable resource harvested, pollution creation and non-renewable resource depletion that can be continued indefinitely. If they cannot be continued then they are not sustainable. It is a development model that seeks the balancing of environmental protection against economic prosperity. Sustainable development is the process of judicious use and conservation of natural resources for the overall improvement in the quality of life for the present and future generations on long term basis. The concept of sustainable development was formulated as a welding tool as well as a framework for the realization of economic growth in an environmentally viable world. Three interdependent and mutually reinforcing pillars of sustainable development are recognized world-wide in the transition towards a sustainable society. These are economic sustainability, environmental sustainability and social sustainability. Within this concept, the environmental dimension plays a significant role, being the natural system, which serves as the surrounding medium in which the social and economic systems are embedded. The environment is a condition for sustainable development, society is the ends for which development is undertaken and economy is the means to achieving that end. The maintenance of environmental structure is therefore crucial for long term economic development. Because life on earth is

conditioned upon a healthy environment, the environmental pillar must of necessity be viewed as of utmost importance, providing the necessary foundation or stability for the economic and social pillars of sustainability.

Sustainability of real estate investment

Real estate investment, globally, attract huge financial investment in recent years. The real estate investment space comprises direct (residential, retail, commercial and industrial. Real estate investment, which is the focus in the current study, is a multidimensional process with activities ranging from the restoration of brownfield sites to the purchase of raw land to the renovation of existing buildings and to the sale of serviced sites. Kalu, I. U (2001).In practice, the real estate asset market generally involves a relatively favorable risk or reward profile, with relatively low liquidity (ease of entry and exit). It is also inefficient and hard to price or predict accurately. However, the sustainability of real estate has to do with more than price; it encompasses reliability, technology, effectiveness, environmental effects, as well as governance and policy issues, optimal management, finance issues, adaptation and redevelopment.

Economic Sustainability

Economic sustainability forms an important component of sustainable development. Economic sustainability is the maintenance and sustenance of a high real growth rate of the economy to achieve the development or economic objectives. Despite the huge resources in Nigeria, the country ranks low in economic performance. Nigeria has not been able to maintain the growth rate necessary to reduce poverty. Nigeria suffers from lack of balanced development where economic, social and environmental dimensions are given due consideration for long term sustainable development. Measuring and managing Nigeria's sustainable development is key to achieving the Post-2015 Development Agenda. The multiple challenges to development in Nigeria necessitate the use of a holistic approach that integrates economic, social and environmental dimensions. As stated under the economic objectives of Nigeria, the State shall harness the resources of the nation and promote national prosperity, and an efficient, a dynamic and self-reliant economy; control the national economy in such manner as to secure the maximum welfare, freedom and happiness of every citizen on the basis of social justice and equality of status and opportunity; manage and operate the major sectors of the economy; and protect the right of every citizen to engage in economic activities. The State also pledge to direct its policy towards ensuring the promotion of a planned and balanced economic development; that the material resources of the nation are harnessed and distributed as best as possible to serve the common good; that the economic system is not operated in such a manner as to permit the concentration of wealth or the means of production and exchange in the hands of few individuals or of a group; and that suitable and adequate shelter, suitable and adequate food, reasonable national minimum living wage, old age care and pensions, and unemployment, sick benefits and welfare of the disabled are provided for all citizens. The fulfillment of these objectives requires a sustainable economic development.

RESEARCH METHODOLOGY

The target population for this study comprises of real estate investors among which are developers, Builders and real estate owners and tenants. The population size were 96 respondents (Real Estate Developers, Real Estate Owners, Builders and Tenants) which structured questionnaires were administered to get an accurate information from the field. The Likert scale pattern of Strongly disagreed (SD), Disagree (D), Agreed (A) and Strongly agreed (SA).

The elements of qualitative and quantitative research approaches. e.g., use of qualitative and quantitative research viewpoints, data collection, analysis, inference techniques.

Table 1. : Real estate investments are relevant to Economic Development.

	RESPONSE	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	16	16.7	16.7	16.7
	Disagreed	24	25.0	25.0	41.7
	Strongly Agreed	32	33.3	33.3	75.0
	Agreed	24	25.0	25.0	100.0
	Total	**96**	**100.0**	**100.0**	

Table 1: Shows that 16 respondents which represents 16.7% of the population strongly disagreed that real estate investment has relevant to economic development ,while 24 respondents which represents 25% disagreed ; while 32 respondents which represents 33.3% strongly agreed; while 24 respondents which represents 25% agreed .This shows that majority strongly agreed that real estate investment has relevance on economic development.

Table 2: What type of real estate investment is viable in the study area.

	RESPONSE	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Industrial Real Estate Investment	22	22.9	22.9	22.9
	Residential Real EstateInvestment	26	27.1	27.1	50.0
	Commercial Real Estateinvestment	26	27.1	27.1	77.1
	Special Purpose Estateinvestment	22	22.9	22.9	100.0
	Total	**96**	**100.0**	**100.0**	

Table 2: Shows that 26 respondents which represents 22.9 % of the population indicated that commercial real estate investment is more viable while 26 respondents which also represents 22.9% of the population indicated that residential real estate investment is equally viable, while 22 respondents which represents 22.9% indicated that industrial real estate investment is viable likewise special purpose estate investment. This shows that residential and commercial real estate investment are the most viable real estate investment in the area study.

Table 3 : What is the condition of the real estate investment properties in the study area.

	RESPONSE	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Good State of Repair	23	24.0	24.0	24.0
	Fair State of Repair	31	32.3	32.3	56.3
	Bad State of Repair	23	24.0	24.0	80.2
	Extremely Bad	19	19.8	19.8	100.0
	Total	**96**	**100.0**	**100.0**	

Table 3: Shows that 31 respondents which represents 32.3% affirmed fair state of repair of the real estate properties in the study area while 23 respondents which represent 24% both affirmed Good and bad state repairs of the condition of real estate properties in the study area, while 19 respondents which represents 19.8% affirmed good state of repairs of the real estate properties in the study area. This shows that most of the real estate investment properties in the study area are in fair state of repairs.

Table 4 : What are the problems encountered on real estate investment ?

	RESPONSE	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Real estate finances and funds	21	21.9	21.9	21.9
	High cost of real estate investment	27	28.1	28.1	50.0
	Diversifications of other real estateinvestment	26	27.1	27.1	77.1
	Income rate compression	22	22.9	22.9	100.0
	Total	**96**	**100.0**	**100.0**	

Table 4: Shows that 27 respondents which represented 21.9% affirmed that high-cost real estate investment is the most problem encountered; while

26 respondents which represented 27.1% submitted that diversification of real estate investment contributed to the problem; while 22 respondents which 22.9% reported that income rate compression contributed to the problem. This shows that High cost of real estate investment is the most problem encountered during the study.

Table 5: Summary of statistics with application of Skewness and Kurtosis techniques

		Real Estate Investors	Real Estate Developers	Real-estate Owners	Tenants
N	Valid	96	96	96	96
	Missing	0	0	0	0
Mean		2.67	2.50	2.60	2.40
Median		3.00	2.50	3.00	2.00
Mode		3	2[a]	3	2
Std. Deviation		1.033	1.086	1.071	1.061
Variance		1.067	1.179	1.147	1.126
Skewness		-.226	.000	-.146	.171
Std. Error of Skewness		.246	.246	.246	.246
Kurtosis		-1.082	-1.274	-1.215	-1.178
Std. Error of Kurtosis		.488	.488	.488	.488
Percentiles	25	2.00	2.00	2.00	2.00

CONCLUSION

Real estate investment is one of the leading areas of investment that has contributed to the sustainable economic development in Nigeria. The focal points of the studies have varied such as: Definition of real estate investment, Benefits of real estate investment, definition of sustainable development and economic sustainability of real estate investment etc. Nigeria desires to have an economic development but this must be pursued under sustainable dynamic equilibrium conditions. Nigeria needs to adopt sustainable economic development strategies if she is not to be left behind in this era of sustainable revolution. Sustainable development, enabled by the integration of economic growth and real estate investment stewardship must be made the global guiding principle and operational standards. Sustainable development is the part way to the future. This is the only framework that can bring together the full range of human aspirations and needs towards investing on real estate properties. It is a framework that offers a template for mutually reinforcing approaches to the challenges of the whole world. The quest for economic development must be balanced with the need for responsible real estate investment. This balancing requires policies, legislations and regulations which improve natural resource management and support sustainable resource use. An economic system is not only an institutional devise for satisfying existing wants and needs, but a way of fashioning wants in the future. Nigerians are the most important assets of this nation. There is a growing demand worldwide for a new direction of economic development and progress that will be people and earth centered. This involves a new way of economic life and organization that will empower people to meet their needs and still be able to conserve the earth and its resources for present and future generations. The Nigerian economic system should be such that is able to fashion wants of future generations while meeting the needs of present generations.

RECOMMENDATIONS

The attainment of real estate investment toward requires a sustainable economic developmental strategy. However, Nigeria needs to construct a dynamic equilibrium economy. More effort should be made to enforce environmental regulations through a stronger environmental administration. The use of market- based instruments, which can be used to regulate pollution behavior with a lesser cost should be given greater attention while instead of heavy reliance on command and control approach to pollution control. Better efforts to ensure policy coordination in environmental and trade goals should be made. Renewable energy products should be made available while more conscious efforts should be made to mitigate greenhouse gas emissions. Technology policies that will encourage cost effective green innovations instead of merely prescribing specific green technologies to be adopted by individuals should be promoted. Policies focusing on specific activities with significant co-occurring benefits which can lead to sustainable economic development, improved job creation, energy security and environmental protection should be pursued. Business models should be built into the sustainable economic development strategy so as to make payment for necessary expenses easier.

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THE RIGHT TO FREEDOM OF EXPRESSION UNDER NIGERIAN CONSTITUTION: ISSUES AND CHALLENGES

By

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Abstract

The right to Freedom of Expression under Nigerian Constitution (Issues and Challenges) is a research work which tends to X-ray issues that inhibits this right as enshrined in the constitution. The researcher traced the historic background of Human Rights which of course houses the right to freedom of expression. Several literatures on Human Rights including the 1999 constitution, Criminal code and other books on jurisprudence were consulted in the course of this work using doctrinal research method. The findings were that, this right was basically entrenched in the Nigerian Constitution as an aftermath of the Willinks Commission set up in 1958 by Colonial government to allay the fears of the minority groups in the Nigerian polity that needed protection from the domination by the three major ethnic groups. Again, the British Colonial government adopted some of the norms of the 1948 Universal Declaration of Human Rights and introduced it into Chapter 3 of the Independence Constitution of 1960 as Fundamental Human Rights. These were subsequently entrenched in the 1963, 1979, 1999 Constitution of the Federal Republic of Nigeria. It is concluded that since the right to Freedom of Expression is among the Fundamental Human Rights guaranteed in Chapter 4 of the 1999 constitution, it should be treated as natural right without interference by the government, institutions and individuals. In the same bid, it is recommended that the citizens should be responsible and duty bound to hold opinions and impart ideas which are not detrimental to successful running of the government and the reputation of the individuals. The Constitution of the Federal Republic of Nigeria which is the grundnorm should be consistently used in the interpretation in matters bordering on the rights to Freedom of Expression as against the Criminal Code Act used by many judges on adjudications.

Keywords: *Human Rights, Freedom of Expression 1999 constitution of Federal Republic of Nigeria, Issues and Challenges*

1 Introduction

The global concept of Human Rights transcends any known period in History. History itself is full of events and struggle for rights by people all over the world at all times. The fight for the protection of Human Rights still continues and the main organization in the forefront is the United Nations Organization and lately African Union.

The United Nations in 1948 made a Declaration which revolutionized the human rights issues called Universal Declaration of Human Rights. Article 1 of the UDHR proclaims that "all humans beings are born free and equal in dignity and rights" And Article. 2 of the same document insists that "all persons, without any distinct have all the rights and liberties" proclaimed in the Declaration. Later articles of this document specify a long list of rights which include; right to life, freedom and personal security (Article. 3); the right to freedom from slavery (Article. 4); the right to freedom from torture (Article. 5); the right to the recognition of one's legal personality (Article. 6); the right to equality before the law (Article. 7) etc.

An interesting feature of this Declaration is that it does not provide that it itself grants those rights; it rather recognizes that everybody, by the mere fact of being a human person, already has them.

[1]Sokefun, J. Protection of Human Rights; Contributions of the United Nations. Ogun State University, Ago Iwoye.1998 p.65.
[2]Sokefun J. 1998 *Op.Cit* 1.
[3]Elegido J.M. Jurisprudence; Abuja Spectrum Law Series 2002 p.150.
[4] UNDHR Art.1
[5] UNDHR Art.2
[6] UNDHR Art.3
[7]UNDHR Art. 4
[8] UNDHR Art.5
[9] UNDHR Art.6
[10] UNDHR Art.7
[11]Elegido 2002 *op.Cit.3*
[12]d'Entreves A. Natural Law, India. Hutchinson University Press,2nd 1970 P.25

have swung like a pendulum on the clock of time.

Many a time, the right to freedom of expression, have been perceived as a privilege not right while some other time, the government have viewed it a problem to deal with squarely mainly during the military and draconian government.

One of such is the great philosopher Socrates, whose views and teachings the government saw as a corrupting influence on the youths.

In Nigeria, section 39 of 1999 constitution provided that:

Sub-Section 1 – Every person shall be entitled to freedom of expression, including freedom to hold opinions, and information without interference.

Section 2 – Without prejudice to the generality of subsection (1) of this section, every person shall be entitled to own, establish and operate any medium for the dissemination of information, ideas and opinion. By these provisions, both the individual and the media have freedom guaranteed by the constitution, of speech, expression and to hold, impart and disseminate them without let or hindrance or interference whatsoever. What the constitution has guaranteed is very wide, but it noted the right so given is not absolute. Subsection (3) of the same section permits enabling laws curtail freedom in some respect.

The section provides:

(3) 'Nothing in this section shall invalidate any law that is reasonably justifiable in a democratic society'.

As a measure to curtail the right to freedom of expression and press law, Nigerian government has even during colonial period and independence promulgated these laws:

1. Defamation Act 1961
   - Slander
   - Libel
2. Sedition Act 1961
3. Invasion of Privacy 1961

4. Copyright 1970
5. Obsence and Indecent Publication Act 1961
6. Contempt of Court
7. Official Secret Act 1961
8. Newspaper Amendment Act 1964
9. Criminal Code Act / Penal Code of 1960
   (Harmful Publication Act 1961)

With the above stated laws, it is presumed that the right to freedom of expression under the Nigerian constitution is a right which ultimately has a duty.

[13]Shaw M. N International Law 4th Ed. London. Cambridge University Press, 1998 p.473
[14]Mansell W Public International Law London .Oxford Press. 2006 p.46
[15]Constitution of the Federal Republic of Nigeria 1999.

2) **Statement of the Problem**

The right to freedom of expression has been a challenge in the polity most especially in the democratic setting where individuals and media houses engaging in dissemination of information and imparting ideas and opinion are hampered by state laws. This problem has equally impeded the access to freedom of information from the office of government agencies and parastatals. The journalists cannot actually carry out their responsibility and discharge of their functions without the state law of defamation and sedition invoked against them. The state functionaries who were supposed to be transparent and accountable to the public may hide under the shield of law to commit unassailable atrocities and crimes without been published. This study therefore intends to investigate the extent to which the right to freedom of expression and press laws has fared under the Nigerian constitution.

3) **Objectives of the Study**

The right to the freedom of expression is a right which touches the private, public and institutional interest of every society. Being a right which could be exercised by individual, groups and institutions, it is pertinent therefore to state the objectives as follows:

1. To examine the challenges associated with right to freedom of expression in a democratic setting.
2. To investigate how the state laws hinders the right to freedom of expression and press.
3. To examine how accessible freedom of information is guaranteed to express the right to freedom of expression.
4. To investigate how right to freedom of expression can be used without being seditious and defamatory in publications.

4) **FUNDAMENTAL HUMAN RIGHTS AS GUARANTEED UNDER NIGERIAN CONSTITUTION**

The fundamental rights of Nigerians are enshrined in the Nigerian constitution and various international

treaties to which Nigeria is a signatory.

In Nigeria, the rights recognized by the 1999 constitution are:

1. Right to Life – Section 33
2. Right to Dignity of Human Person - Section 34
3. Right to Personal Liberty – Section 35
4. Right to Fair Hearing – Section 36
5. Right to Private and Family Life – Section 37
6. Right to Freedom of thought, conscience and religion – Section 38
7. Right to Freedom of Expression and the Press – Section 39
8. Right to Peaceful Assembly and Association – Section 40
9. Right to Freedom of Movement – Section 41
10. Right to Freedom of Discrimination – Section 42
11. Protection from Compulsory Acquisition of private property – Section 43

The rights referred to above are not unlimited in nature as the constitution provides that most of the rights shall not in validate any law that is reasonably justifiable in a democratic society in the interest of defence, public safety, public order, public morality or public health or for the pu
rpose of protecting the rights and freedom of other person.

[17]S.33 Constitution of the Federal Republic of Nigeria 1999
[18] S.34
[19]S.35
[20] S.36
[21] S.37
[22] S.38
[23] S,39
[24]S.40 CFRN 1999
[25] S.41
[26] S.42
[27] S.43

4.1) **RIGHT TO FREEDOM OF EXPRESSION**

The main aim of this right is to secure freedom to engage in communication and transmission or extraction of information. This include: freedom of communication and press freedom. This right is necessary in democracy for people to air their views and opinions. It is also a fulfillment of the right to freedom of thought since a thought which is not expressed may never be known or otherwise be useful . This right is also very vital for the purposes of education, dissemination of information, assessing results of scientific investigation and efforts, moulding and scrutiny of sound public opinion.

A learned author [Ogbu,N.O] puts the relationships between right and democracy as follows:

> *Democracy implies the recognition of skepticism as vital element and attitude in the lives of man. The democracy is always skeptical of what people take as ultimate and changeless truth. This skepticism of the democracy is based on only on philosophical grounds, but also on the commonsense experience and observation that man is too often inclined to pronounce his interest and passion as universal truth. To deny others right to express their opinion is to assume ones infallibility. But no man is infallible, and if so, it is always possible that the opinion he holds in a given case is mistaken.*

It is against the foregoing reasons that section 39 of the 1999 constitution provides interalia:

1. Every person shall be entitled to freedom of expression, including freedom to hold opinions and information, without interference.

2. Without prejudice to the generality of section (1) of this section, every person shall be entitled to own, establish and operate any medium for the dissemination of information, ideas and opinions.

By these provisions both the individual and the media, have freedom, guaranteed by the constitution, of speech, expression and to hold opinion, impart and disseminate them without let or hindrance or interference whatsoever. What the constitution has guaranteed is very wide, but if noted, the right so given is not absolute. Sub-section (3) of the same section permits enabling laws to curtail this freedom in some aspects.

This subsection provides;

3. Nothing in this section shall invalidate any law that is reasonable justifiable in a democratic society".

4.2) ISSUES IN RIGHT TO FREEDOM OF EXPRESSION

These issues encapsulate constitutionally derivable laws and Press laws. Press laws are made to ensure that freedom of the press is not abused to the detriment of the society at large . It ensures that the press, while enjoying her freedom; behaves ethically, responsibly and responsively. In this respect, Ukonu explains press laws as:

> *"rules made by government for the regulation of the activities of mass media professionals so as to ensure correct conduct by them"*

Historically, press laws date back to the colonial era when the colonial masters used their administrative powers to checkmate the press. In this case however, their intention was not to make for a responsible press but to gag against nationalist (anti-colonial) movements by Nigerian elites. The colonial administration promulgated such laws as;

1. Newspaper ordinances law of 1903

[29]Ogbu O.N Human Rights Law and Practice in Nigeria; An Introduction. Enugu Cidjap.1999 p.121
[30]Section 39 Constitution of the Federal Republic of Nigeria 1999.
[31]Akakwandu, H.C Mass Media Law and Ethics,Onitsha,Newlife Press Ltd.2013 p.4
[32]Ukonu,M Issues in the Nigerian Press Laws VersusPress Freedom in Nnanyelugo Okoro[ed] interdisciplinary Journal of Communication,Enugu,Ebenezer Production[2004]p.30

2. Seditious offences ordinance of 1909
3. Newspaper Act of 1917
4. Press Registration act of 1933

At the attainment of independence in 1960, the first Republic in its attempts to ensure a responsible practice of journalism also enacted laws in this respect.

1. The Criminal Code Act / Penal Code of 1960 (Harmful publication Act of 1961)
2. Defamation Act of 1961
3. Emergency Power Act, 1961

4. Obscene Publication Act, 1961
5. Official Secret Act, 1961
6. Seditious Meeting Act, 1961
7. Newspaper Amendment Act, 1964

The Military government that seized power in the First Republic and afterwards made the following decrees;

1. Circulation of Newspaper Decree No. 2 1966
2. Defamation and Offensive Publication Decree No. 44 1966
3. Newspaper Prohibition from Circulation Decree No. 17 1967
4. Public officers (Protection against False Accusation) Decree No 11. 1976.
5. Newspaper (Prohibition of circulation validation) Decree No 12, 1976.
6. Nigerian Press Council Decree No 13 1978.
7. Daily Times of Nigeria Decree 1978
8. Daily Times of Nigeria (Transfer of Certain shares) Decree No 101. 1979.
9. Constitution (Suspension and Modification) Decree No. 1 of 1984 and No 107 of 1993.
10. State Security (Detention of Persons) Decree No 4 of 1986.
11. Public Officers (Protection against False Accusation) Decree No 4 1984.
12. The Federal Military Government (Supremacy and Enforcement of Powers) Decree No 13 of 1984
13. Newspaper Registration Decree No 43 of 1993
14. Newspaper (Prohibition and Prevention from Circulation) Decree No 48 of 1998
15. The Nigerian Media Council Decree 59 of 1988 (A repeat of NPC Decree No 13 of 1978)
16. The Nigerian Press Council Decree No 85 of 1992 (A repeat of Nigerian Media Council Decree No 59 of 1988)
17. Offensive Publications (Prohibition) Decree No 39 of 1993
18. Treason and Treasonable Offences Decree No 29 of 1993
19. The Nigerian Press Council (Amendment Decree) of 1999

[33]Offor, O. The Media and Law:Insight and Applications. Enugu.Ceta Nigeria Ltd.2004 p.64

In this research work, the constitutionally made press laws will be issues to be focused or beamed in reference to right to freedom of expression under Nigerian law. They are;

1. Criminal Code Act (Harmful Publication) Act
2. Defamation Act
3. Seditious Act
4. Invasion of Privacy Act
5. Copyright Act
6. Obscene and Indecent Publication Act
7. Contempt of Court Act
8. Official Secret Act
9. Freedom of Information Act

4.3) CHALLENGES AND LIMITATIONS TO RIGHTS TO FREEDOM OF EXPRESSION

The challenges of section 39 of 1999 are the inconsistencies, conflicting and double standard observed in the clauses.

Here right of freedom of expression and press provides:

1. *Every person shall be entitled to freedom of expression, including freedom to hold opinions and to receive and impart ideas and information without interference.*
2. *Without prejudice to the generality of subsection (1) of this section, every person shall be entitled to own, establish and operate any medium for the dissemination of information, ideas and opinions.*
   Provided that no person, other than the government of the federation or of a state or any other person or body authorized by the President on the fulfillment of conditions laid down by an Act of the National Assembly, shall own, establish or operate a television or wireless broadcasting station for any purpose whatsoever.
3. *Nothing in this section shall invalidate any law that is reasonably justifiable in a democratic society;*
   (a) *For the purpose of preventing the disclosure of information received in confidence, maintaining the authority and independence of courts or regulating telephone, wireless broadcasting, television or the exhibition or cinematography films;*
   (b) *Imposing restrictions upon persons holding office under the government of the federation or of a state, members of the armed forces of the federation or members of the Nigerian Police Force or other Government security services or agencies established by law.*

What can we therefore say, where a subsection of the constitution provided that every person shall be entitled to own, establish and operate any medium for the dissemination of information, ideas and opinions while there is also a Caveat barring the person except with authority by the President of the federation on the fulfillment of conditions laid out by an Act of the National Assembly.

Right to freedom of expression guaranteed under the Nigerian Constitution is derivable from Chapter 4 [Fundamental Human Rights] 1999

Graudston submits that:

> *Human Right is something of which no man may be deprived without a great affront to justice. There are certain deeds which should never be done, certain freedoms which should never be invaded, something which are supremely sacred*

In giving credence to this right Eze insisted that:

> *... in strict legal terminology, only a right recognized and protected by the legal system can be considered as a right.*

Furthermore Eze continued that; Human rights are natural right which are conferred by natural law on every human being and are;

> *... not the particular privilege of citizens of certain states but*

How can we justify this clauses in respect to the postulations of these erudite scholars in the Human Right Advocacy?

What happened to journalist like Dele Giwa, Senator Chris Anyanwu, Tunde Thompson, etc? What about media houses closed down by State Security Agencies? Can we vividly say that subsection3[b]is an aberration? There is a Lacuna to be filled in this platform.

[35]. Cranston M.Human Rights Real and Supposed in Raphael[ed.]Political Theory and Rights of Man Bloopington. Indiana University Press 1967 p.45

[36] . Eze O.C. Human Rights in Africa.Some Selected Problems.Lagos.Macmillan/NIIA.1984 P.16

[37] Eze O.C[1984] *cit.3*

SEDITION ACT AS A LIMITATION TO FREEDOM OF EXPRESSION

Sedition is a conduct which is directed against a government and which tends towards insurrection but does not amount to treason. Sedition is a speech, writing or actions intended to encourage people to disobey a government or speaking or publishing of words which excite public disorder or defiance of lawful authority.

Sedition is provided for under the Nigerian law in sections 50-52 of the Criminal Code and States in parts: section 51

(1) Provides

Any person who

(a) Does or attempts to do or make any preparation to do, or conspires with any person to do, any act with a seditious intentions;

(b) Utters any seditious words;

(c) Prints, publishes sells, offers for sale, distributes or reproduces any seditious publications;

(d) Imports any seditious publications unless he has no reason to believe that it is seditious.

Until 1979 constitution came, sedition was a very notable limitation on the right to free speech as many decided cases from colonial times.

In **R. V. Agwuna**, the accused were members of Zikist movement, a radical anti-colonial nationalist organization. They organized and delivered a public lecture in Enugu titled "A Call for Revolution" in protest of the killing of coal miners by the colonial police in 1949. Their conduct was considered seditious and they were accordingly convicted and sentenced to various prison terms. In **DPP v ChikeObi** ,**Nwankwo v the state** and **Tony Momoh v Senate**.

The Court of Appeal laid down a useful approach to the interpretation in the matter covering section 39 of the 1999 constitution (right to freedom of expression) and sections 50, 51 and 52 of the criminal code in **Arthur Nwankwo v the State** in contrary to **DPP v. Chike Obi**. By looking at the constitution in the light of the existing law so as to accommodate and save provisions of existing law, is inconsistent with the constitution, the existing law is null and void to the extent of that inconsistency.

[38] . Section 51 Criminal Code Act

[39] [1949]12 WACA 456

[40]. [1961] 1All NLR 186

[41][1983] 1NCLR 366

[42] . [1981]1 NCLR 377

DEFAMATION AS A LIMITATION TO FREEDOM OF EXPRESSION

Defamation is any expression or publication that damages the reputation of another person. Thus defamation is the publication of information that lowers a person in the estimation of right thinking persons generally. According to Sir Percy H. Winfield [56] he said that;

> "*Defamation is the publication of a statement which tends to lower a person in the estimation of right thinking member of the society generally or which tends to make them shun or avoid that person".*

Therefore, there should be a standard of right thinking members of the society to be used as a yardstick to measure and determine who and when that statement can be regarded as defamatory.

The person or organ of state that determines that standard of right thinking members of the society is the court of law. In the case of **Egbuna V. Amalgamated Press of Nig. Ltd**, in finding out the standard of the right thinking members of the society, the Supreme Court said that:

> *"The court usually rules out on the one hand, persons who are so lax or so cynical that they would think none the worse of a man whatever was imputed to him and other hand those who are so censorious as to regard even trivial accusations, if they were true as lowering another's reputation, or who are so halty as to infer the worst meaning from any ambiguous statement ... the ordinary citizen ... is neither unusually suspicious nor usually naïve and he does not always as would a lawyer, for he is not inhibited by a knowledge of the rules of construction"*

In essence, for a tort of defamation to pass the standard acceptable to all, the statement must be false and capable of damaging the reputation of another person in the estimation of a reasonable or right thinking member of the society

LIBEL

A libel is a defamatory statement made in visible permanent form such as written or printed statement. For example, books, newspapers, notes, circular, painting, photograph, films, letters and memoranda. Section 3 Defamation law (1961) and section 3 law of Lagos State (1973) cap 34 also provides that any defamatory words contained in a radio and television broadcast, and any recorded audio-visual materials are within the ambit of libel.

In **Sketch Publishing Co Ltd V. AjagbeMokeferi**, it was held that in Libel, the defamatory statement remains in a permanent form long after publication and may be referred to by any person in future and cause damage to the person or his family, except the materials are withdrawn from circulation or destroyed by the defendant at the order of the court

Section 373 – 380 Criminal Code Act also provide that criminal libel is a crime i.e. where a defamation tends to breach the peace, arrest and prosecution may follow a defamatory publication.

SLANDER

Slander is a statement made in a transitory form or not in a permanent form, most often through medium of spoken words or gesture. Slander is only actionable on proof of damages, unless in the exceptions where slander operates like a libel.

In **Yesufu, V. Gbadamosi**, it was held that in slander, the alleged defamatory words relied upon must be pleaded and proved in evidence.

In other words, slander is not actionable per se unless it inputs a crime, contagious disease, unchastity in a woman, or it damages a person in any trade, profession carried on by him.

4.4) THEORETICAL FRAMEWORK

A theory is an organized and systematic body of knowledge that explains a phenomenon. Theoretical framework therefore is a process that applies the postulations, assumptions and principles of a theory in describing and analyzing the research problem. It is also seen as describing, analyzing, interpreting and predicting phenomenon and involves in associating or linking the problem of a study and joining it back and credibility.

Among the theories of Human Rights are

(a) **State of Nature Theory** that become popular in the 17th and 18th centuries with the idea that before society was constituted, men lived in a state of nature and that in order to discover what are the natural rights of men, one should attempt to discover the conditions which men lived in that state of nature. This approach was shared by Hobbes, Locke, Rousseau and Blackstone, and now John Rawls and Robert Nozick. Abstracting from many differences between these thinkers are that individuals are subject to the constraints of any political community or of social institutions; therefore we can describe that state as one of perfect liberty.

(b) **Social Contract Theory:** Many of the theorists who defended the state of nature theories complemented it with social contract theory in reference to other rights especially to political rights. Thus, for Hobbes, the state of nature was a condition of "a war of every Man against every Man" in which man's life was "solitary, poor, nasty, brutish and short.

According to these theories, this unbearable condition led men to agree to enter into a social contract by which they agreed to live together in society. The terms of this social contract provided that in order to make social life possible men would give up some of their original rights and acquire some duties towards each other to which some new rights would correspond.

(c) **Intuitionist Theories:** Some writers have claimed that the fact that human beings have some basic rights is the direct object of an immediate moral intuition. Thus, Thomas Jefferson, in the American Declaration of Independence (1776) held it to be self – evident that all humans equally have certain rights.

(d) **Duty – Based Theory:** This theory is different and, it is submitted, more successful way of justifying human rights. All these theories presented above take rights to be ultimate, that is they assume that one has to start by establishing what are the basic rights of men and, once that issues is settled one can deduce the existence of the corresponding duties to respect those rights.

The duty based theory follows a radically different procedure. It starts by identifying the basic duties or responsibilities of human beings and then attributes rights to the beneficiaries of those duties or responsibilities. Here the right to freedom of expression cannot be guaranteed where an individual under section 51 of the criminal code publishes, sells, offer for sales, distributes or reproduces any seditious publication. While sedition takes its toll on the right to freedom of expression from the state or public interest. Among the human right theories analyzed, this research work hinges on the Duty-based theories of Human Rights propounded by Hohfeld.

5) RESEARCH METHOD

According to Okeke (2008), research method is the logical basis of collecting data and of interpreting and analyzing the findings. It refers to different techniques employed by the researcher in the actual execution of the research work. In this study, the researcher used **doctrinal** research method. It involves analysis of Case Laws and Statutory provisions by application of the powers of reasoning. It also involves an enquiry into conceptual basis of legal rules, principles or doctrine. The main characteristics of doctrinal research method according to Gasiokwu are;

1. The scholar organizes his study around legal prepositions, and
2. Primary sources are the main source of data, secondary sources play only supportive roles.

Doctrinal research is the research into law as a normative science, that is the science which lays down norms and standards for human behavior in a specified situation or situations enforceable through the sanctions of State. Doctrinal research is a research into law as it stands in the books, it is speculative in nature. It provides stimulus and intellectual infrastructure for empirical research though it is not empirical.

6.) SUMMARY

The Right to freedom of expression under Nigerian constitution has generated a lot of inconsistencies and tension in the country right from the colonial days.

> *During this period the colonists used the administrative powers to gag against movement by the Nigerian nationalists who may raise questions as to their discrimination and other actions which saw Nigerians as second class citizens in their own land. In this bid, they enacted laws like the Newspaper Ordinance law of 1903, Sedition offence ordinance of 1909, Newspaper Act of 1917 and Press Registration Act of 1933. These enactment were not to make for a responsible press but to gag the nationalist for agitation for self government.*

In **R.V Agwuna**, members of Zikist movement, a radical anti-colonial nationalist organization, organized and delivered a public lecture Enugu titled "A call for Revolution" in protest of the Killing of Coal miners by the Colonial Police in 1949. Their conduct was considered seditions and they were accordingly convicted and sentenced to various prison terms.

Soon after the independence, another sedition case came up.

In **DPP V. ChikeObi** . The defendant was prosecuted for distributing a pamphlet in August 1960 titled "The People: Facts that you must know" which as claimed contained seditious publications. It took the excellent defense of his legal counsel Chief Rotimi Williams SAN to argue that section 50, 51 and 52 of the Criminal Code Act cannot contest with the Constitution which is the grundnorm that guarantees and protects the Fundamental Human Rights but the court ruled that the section was not inconsistent with the constitution.

In **State V. Nwankwo Authur** . The defendant published a book "How Jim Rules Anambra State" where he criticized the governors' actions. He was jailed for that publication but the Appeal court overruled because the trial Judge based his judgement on Criminal Code Act under the Seditious Publications as against the Constitution where Freedom of Expression was guaranteed. The court was of the opinion that 1979 Constitution is a Presidential one in which candidates canvass for votes and are subjected to political attacks and if one feels defamed could sue for defamation. In **Adikwu V. Federal House of Representatives** and **Momoh**.**V Senate.** The House of Representatives and Senate respectively mandated the editors to disclose their sources of their information as against Section 36 of 1979 Constitution which guaranteed confidentiality of Information. Their Fundamental Human clauses were invoked and they were let off the hook.

During the military administration, it reached its crescendo when media houses were shut down indiscriminately, journalists locked up, killed and summarily jailed. In **FRN V Tunde Thompson** and others, these journalists were jailed under Public Officers[Protection against False Accusation] Decree No.4 [1984]

Example of these laws are legion in Nigerian legal system which tends to assert limitations to citizens who would want to exercise their Rights to freedom of expression as guaranteed by the constitution.

7.) CONCLUSIONS

The Right to freedom of Expression is a right under Chapter 4 (Fundamental Human Rights) guaranteed by section 39 of 1999 Constitution

This right as guaranteed in the constitution provides the legal basis for freedom of Expression as well as legal restriction to make a peaceful democratic society. A person cannot lay claims to this right when there is no duty. You cannot violate the right to Defamation, Sedition, Invasion of Privacy, Obscenity and Indecent Publication, Official Secret,Contempt of Court and Information Act without reprimand by either the individuals or the state.

It calls for concerted effort by court of law to interpret the laws as enacted without using certain clause to convict a person as done in **Nwankwo V. the state**. The criminal code Act or any other law cannot be used against the constitution which is the grundnorm of the country.

8.) RECOMMENDATIONS

The researcher has in the course of this project arrived at these recommendations;

In the case of Defamation, the citizens should not see the right to freedom of Expression and press as a license to insult and unnecessarily injure peoples' reputation but should be duty bound to the approved ethical

The freedom to publish does not mean the freedom to incite the people against the state. It is therefore a duty to person not to publish seditious materials.

It is also illegal to publish such information about a person that is not of public interest and as well as highly "offensive to a reasonable person" under the invasion of privacy.

Under copyright, the law should protect the intellectual property of the individuals and where it could be copied, the author should be acknowledged.

Articles that tend to deprave and corrupt the minds of persons should not be exposed to the public as it is against the obscenity and indecent publications.

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THE ROLE OF EFFICIENT ROAD NETWORK ON ECONOMIC SUSTAINABILITY OF ABA SOUTH L.G.A, ABIA STATE

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ABSTRACT:
Road network are series of roads connecting the constituents part of the urban environment and its surrounding hinterland. It plays a key role in the urban spatial structure. The problem with the study area is the inefficient nature of the road network that has resulted to regular traffic jams, leading to loss of man hours, reduction in trip generation and consummation, reduction in productivity etc. This research therefore aimed at examining the role of efficient road network on economic sustainability in Aba South L.G.A. The researcher applied connectivity index formula to determine the connectivity index ratio using Beta index statistics to solve for the connectivity ratio while questionnaires were used to determine the physical surface conditions of road networks. Findings from the work revealed that Aba South L.G.A is properly connected and this should promote economic development and its sustainability. However, the study further reveals that connectivity does not determine the physical surface condition of the roads which can form an impediment to functional connectivity of the roads. Based on the findings, the recommendations were targeted towards the engagement of public private partnership to invest in the management and use of the existing road system for more efficient and adequate maintenance that will lead to a better distribution of the roads to encourage free movement of car, public transport, pedestrian walk etc; improve physical management system of the surface condition of the roads along the routes that connects the town to other neighbouring states of the federation; and developing an adequate enforcement of policies that restrict street parking and control institution to improve traffic laws.
Keywords: Road Network, Economic Sustainability, Functional Connectivity

INTRODUCTION

Road network is the system of interconnected roads designed to accommodate wheeled road going vehicles and pedestrian traffic. It consists of a system of interconnected paved carriageways which are designed to carry buses, cars and lorries etc; and generally forms the most basic level of transport infrastructure within urban areas, that links with all other areas both within and beyond the boundaries of the urban area [Adedeji, 2006].

A high quality road network is essential not only for connecting key urban centers but for improving connectivity of more isolated local communities for whom many public transport options are limited or not available. Road network connect remote communities with the areas where employment options are more concentrated and services and facilities more readily available.

A good road network facilitates movement of persons and marketing of goods from one point to another. The essence of road network construction is to bring about economic growth in the community. And because road network transport is valued primarily as an input to other socio economic activities, it is easy not to appreciate its critical importance and the debilitating consequences of the absence of its affordable availability.

Road network are mostly described by regular street patterns as an indispensable factor of human existence, development and civilization. Road network coupled with increased transport investment will result in changed levels of accessibility reflected through Cost Benefit Analysis, savings in travel time, and other benefits. These benefits are noticeable in increased catchment areas for services and facilities like shops, schools, offices, banks, and leisure activities. Furthermore, the evaluation of road networks involves assessing factors such as accessibility, connectivity, traffic density, level of service, compactness, and the

concentration of specific roads.

Road network in relation to road transport is the most dominant mode of transport in Nigeria. It accounts for over 90% of the total mode of transportation in the country. This is so because in Nigeria, the emphasis of transport development has, for a long time now, been on road construction [Eno, 2006].

Inadequacy in this aspect limits a nation's ability to utilize its natural resources, distribute food and other finished goods, integrate the manufacturing and agricultural sectors; and access to education, medical and other infrastructural facilities. There is the need therefore to give adequate attention to road network development, maintenance and improvement of the road infrastructure for urban economic growth.
Functional road network plays a major role in the economic development of urban centers, like the study area, Aba South L.G.A. It also has a broader role in shaping development and the environment. In every urban area, it is expected that well designed road network should provide services to business, households, social institutions and other aspects of mutual interactions. It is against this background that this work examined the role of efficient road networks on the economic development of Aba South Local Government Area.

Road Networks of Aba South Local Government Area seems inefficient. The Aba South L.G.A still experiences traffic-jams especially during the peak periods [7-9am and 3-5pm], the state of the road network were observed to be deplorable, covered with potholes, flood water, solid wastes, abandoned household properties and vehicles, such that movements within and around these existing networks are difficult. Furthermore, increased ownership of vehicles by the population placed much demand on the existing road networks which are inadequate.
The capacity of the road networks are sub-standard, in other words road network services are less functional. The understanding that the strength of the city's economy, which boosts the state and national economics, and the vitality of the humanistic endeavors are all dependent on the worthiness of road network system which signals effective urban information flow for effective urban economic optimization, is observed to be lacking in Aba South L.G.A. It is in this regard that this work examined the role of the efficient of road networks in economic sustainability of Aba South L.G.A.

Furthermore, this study discusses the characteristic of the existing road network of Aba South and its economic effect in the society. Against this background, the study considers new ways or strategies that are efficient, more user responsive, more environmentally friendly, and more resourceful in using both the public and private sectors through efficient delivery of road network infrastructure that shall enhance economic development. Recommendations are made to help reduce the problems identified. The scope of the study therefore covers the geographical location of Aba South Local Government Areas which is the principal commercial town of the State.

REVIEW OF LITERATURE

In most developing nations especially in Africa, road systems originated from the coast and extended inland linking up centers of population, mining and farming areas, hence the expenditure model. The expenditure model was developed by Carruthers, Krishnamani and Murrary [2009]. It is a model that is based on the concept of connectivity which presumes that the purpose of transportation infrastructure is to facilitate transport services that connect people with one another, with markets and with the social services that are available to urban centers. The extent and quality of transport infrastructure networks, its facilities and the standard to which they are maintained are obviously critical to the notion of connectivity, as poor infrastructure cannot provide reliable base for reasonable access to people, places, markets and services [Gwilliam, 2011]

ROAD NETWORK PATTERN AND ANALYSIS

Road network consists of large number of interwoven roads exhibiting many patterns ranging from star-like to grid-like with irregular patterns becoming recognized [Zang and Lund University, 2004]. It consists of large amounts of roads that interweave with each other to exhibit a pattern.

The route network is a set of nodes representing spatial locations and displays topological and geometric variations, while topology itself refers to the arrangement and connectivity of nodes and links of a network [Wyatt, 1997]. The route network consists of primary and secondary roads known as arterial and minor roads respectively. Arterials are types of roads designed to carry high volumes of motorized traffic. They are an integral part of transportation systems worldwide. Arterials provide access to diverse commercial and cultural resources and mediate traffic flows between local streets and larger freeways. They often lined with residential, cultural, and commercial destinations that generate and attract local and multimodal trips. As a means of optimizing access, arterials can have pedestrian- and transit-oriented designs, driveways and parking that make car access safer and easier, and land use nodes that concentrate activity instead of strip development. Carolyn McAndrews et.al (2017)

According to Aderamo [2003], road network constitutes an important element in urban development as roads provide accessibility required by different land uses and the proper functioning of such urban areas depends on efficient transport network, which is a backbone to their very existence. The analysis of the road network involves the recognition of the patterns and qualities of the roads. Zacks and Tversky [2001] examined the idea of events as objects and argued that patterns themselves are objects bounded in space, organized hierarchically, and recognizable by a set of distinctive qualities. The qualities can be emphasized through the process of abstraction and symbolization, by which pattern is viewed as complexes of primitive objects and relationship between the primitives.

ROAD NETWORK AND ECONOMIC DEVELOPMENT

As it relates to economic development and sustainability, Road networks facilitate the transport and movement of people, goods, and services. Road networks played a crucial role in the economic development of the 20th century, enabling relatively fast individual transportation for the masses from the second part of the 20th century. The **weight of the road transport sector within the economy is considerable,** not only in quantitative terms [tons transported], but also in economic terms such as source of wealth, employment and in terms of support given to other economic activities. Investments in the road sector yield widespread societal benefits through various channels. They grant access to different regions, enabling efforts for poverty alleviation. As a result, the road infrastructure fosters a positive interplay, bolstering social unity and inclusivity by affording citizens equal access to opportunities.

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According to Aderamo [2003], road network constitutes an important element in urban development as roads provide accessibility required by different land uses and the proper functioning of such urban areas depends on efficient transport network, which is a backbone to their very existence. The analysis of the road network involves the recognition of the patterns and qualities of the roads. Zacks and Tversky [2001] examined the idea of events as objects and argued that patterns themselves are objects bounded in space, organized hierarchically, and recognizable by a set of distinctive qualities. The qualities can be emphasized through the process of abstraction and symbolization, by which pattern is viewed as complexes of primitive objects and relationship between the primitives.

ROAD NETWORK AND ECONOMIC DEVELOPMENT

As it relates to economic development and sustainability, Road networks facilitate the transport and movement of people, goods, and services. Road networks played a crucial role in the economic development of the 20th century, enabling relatively fast individual transportation for the masses from the second part of the 20th century. The **weight of the road transport sector within the economy is considerable,** not only in quantitative terms [tons transported], but also in economic terms such as source of wealth, employment and in terms of support given to other economic activities. Investments in the road sector yield widespread societal benefits through various channels. They grant access to different regions, enabling efforts for poverty alleviation. As a result, the road infrastructure fosters a positive interplay, bolstering social unity and inclusivity by affording citizens equal access to opportunities.

There is no doubt that a relationship exists between transportation and economic development. Local economies need strong national networks [Town and Country Planning Association, 2010]. TCPA further emphasizes that "If we are to achieve a thriving national economy, with all areas playing their part, we need a national framework that connects cities, regions and sub-regions across the country". According to Litman [2010], Transport policy and planning decisions often have significant economic development impacts by affecting government and consumer expenditures, employment opportunities, resource consumption, productivity, local environmental quality, property values, affordability and wealth accumulation.

The process of development requires goods, services and people to be moved for one reason or the other and from one place to another. As the people move, they help to generate economic activity which enhances economic development. Edith, A. O & Adebayo, A. E [2013]. This assertion is justified by Ighodaro [2008] who affirmed that the potential significance of road development for investment, trade, growth and poverty alleviation has long been recognized. Not only does road transport infrastructure facilitate the direct provision of services to consumers, it also provides intermediate inputs that enter into the production of other sectors and raise factor productivity. This is exemplified by the opening of many residential areas across the nation as a result of road construction or improvement.

An efficient road network transport system lowers the cost and reduces the time of moving goods and service to where they can be used more efficiently. Since roads penetrate more into such areas [with relative greater flexibility] their development adds value and spurs growth. Overtime, this process has resulted in increasing the size of market which is a pre-condition for realizing economies of scale. Good road projects have clearly contributed to poverty reduction in the country by improving the living conditions of people and by augmenting the opportunities available for trade and employment.

Road network transportation system enhancement is in turn a means of maintaining or improving economic opportunities, quality of life and ultimately income for people in a particular region [Edith et.al 2013].

It is universally recognized that road transport is critical for sustained economic growth and modernization of a nation. Adequacy of this vital infrastructure, Muktar [2011] reiterates, is an important determinant of the success of a nation's effort in diversifying its production base, expanding trade and linking together resources and markets into an integrated economy. It is also necessary for connecting villages with towns and market centers and in bringing together remote and developed regions closer to one another. Road transport, therefore, forms a key input for production processes and adequate provision of transport infrastructure and service helps in increasing productivity and towering production costs in Nigeria.

Scholars have established the fact that road network, economic development and economic sustainability are the bedrock of the modern world. They facilitate the trade and specialization of tasks that is fundamental to economic growth since the industrial revolution. The work of Anyanwu, Oakhena and Dimowo [2003] on maintenance of Highway in Nigeria among so many others observed that the growth of economic activities in Nigeria depended on the level of improvement on the roads. Roads and transportation are very essential to every member of the society for meaningful living.

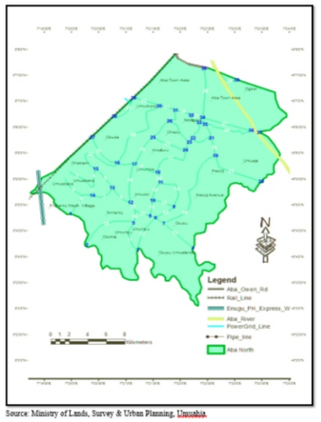
Road network transportation is very critical to economic growth; hence [Owen, 1964, Queiros and Gautam, 1992] postulated that a direct relationship exists between a country's economic prosperity and kilometers of paved roads. The emphasizes of this work is to cover the void in literatures as it relates to the condition of the road network in occupational/business locations of urban areas, in Aba South L.G.A and as well as the implications of the existing road networks on economic activities, opportunities, growth potentials and sustainability.

METHODOLOGY

This research work adopted connectivity index ratio, a model that is based on the concept of connectivity to determine the connectivity ratio of road networks in Aba South L.G.A and to know what values the road connectivity ratio of Aba South will have when compared using connectivity index ration formula. This was done by using Beta index statistics to solve for the connectivity ratio. Existing Maps was utilized for the identification of the roads, while quota sampling technique was adopted in sampling the questionnaires and statistical tables used in analyzing the questionnaires. For the purpose of this work, we utilized all road networks as shown in Fig 1 for assessment of the connectivity ratio. There may be new roads which were not shown in the map and as such they were not considered. Selection of roads for distribution of questionnaires was based on the number of economic activities observed in the area. To this end, 8 roads were selected. The respondents and roads selected are presented in Table 1.

Table 1: Selection of Respondents

Roads	No. of Respondents
Port Harcourt Road	15
Crystal Park Avenue	12
Cemetery Road	20
Omuma Road	12
Ohanku Road	20
Ngwa Road	20
Obuohia Road	12
Ibere Street	9



Source: Ministry of Lands, Survey & Urban Planning, Umuahia

Figure 1: Map of Aba South Local Government Area.

The Beta index statistic was adopted to solve for the connectivity ratio which is given as

$$\beta = \frac{e}{v} \quad \text{----------[1]}$$

Where β is Beta

V is vertices [nodes or junctions]

E is edges [straight lines]

$$\beta = \frac{\text{Number of edges}}{\text{Number of vertices}} \quad \text{----------[2]}$$

Thus Network connectivity is measured by the ratio of the number of edges to the number of vertices defined as the Beta [β] Index.

Analysis of the copies of questionnaire retrieved from the field were carried out with frequency distribution Tables.

MEASUREMENT OF NETWORK CONNECTIVITY RATIO FOR ABA SOUTH L.G.A

Edges – 55

Vertices (nodes)- 40

$$\beta = \frac{e = 55}{v = 40} = 1.375$$

$\beta = 1.375$

DECISION RULE: The more complex the networks, the higher its degree of connectivity and generally speaking, the better it serves the area over which it was extended.

Maximum Connectivity: Since β value of 1.375 is > 1.0. Aba South L.G.A is maximally connected hence economic development would be enhanced.

IMPLICATIONS

1. Aba South L.G.A has a higher connectivity ratio of $\beta = 1.375$ because it is > 1.0.
2. Connectivity ratio helps to define accessibility; hence Aba South L.G.A is accessible for all level of interactions, economic, social, institutional, recreational etc.

Looking at the findings on the connectivity of the road network, Aba South L.G.A can be attributed as the powerhouse of the state economy and the major feeder to the surrounding states of the nation. It has the capacity to provide adequate economic activities, promote business, create employment and drag foreign investors that will make both the city and the state more economically vibrant. Its accessibility potential will promote business and occupational locations and the major markets locations like the Ekeoha Shopping Center, Cemetery Market among so many others.

However, it is worthy of note that connectivity does not show whether the roads are passable or not, hence the assessment of the physical nature of the roads are important.

IMPEDIMENTS TO EFFECTIVE CONNECTIVITY OF THE ROADS AND IMPACTS ON ECONOMIC ACTIVITIES

In a bid to strike a balance in the assessment of road networks of Aba South L.G.A in relation to economic development, and the analytical results showing that Aba South L.G.A is accessible for all level of interactions, economic, social, institutional, recreational etc, there is need to consider those factors that have impeded the effectiveness of the connectivity of the roads in Aba South as observed and its impact on the economic activities and development of the area.

We therefore employed the use of questionnaires to sample peoples opinion of the present physical conditions of the road networks in Aba South. A total number of 120 questionnaires were sampled on the physical surface condition of the road in Aba South L.G.A. This was identified by the respondents as a major impediment to road network connectivity of the town that ought to have been effective, judging from the analytical result of the connectivity index ratio.

From the responses, 10.5% of the sampled population are of the opinion that the surface roads conditions are passable, while 25.4% said the roads are impassable and 64.1% said that the physical surface condition of the roads network in Aba South L.G.A are deplorable and by implication have affected the economic development of the town as it ought to have been.

Furthermore the negative impact of the physical surface conditions of the roads are observed on roads like Port Harcourt road, Ohanku road, Omuma and Cemetery roads from which 64.1% of the respondents that were sampled said the roads are in a deplorable state as a result of either big pot holes that are filled up with water and heaps of refuse dumps that have covered the road. Also, some of these roads are flooded, as a result of inadequate drainage system. These has impeded the effective connectivity of the road network in Aba South and has adversely affected economic development of the area.

A clear observation of these roads further reveals that they are the major carriers of economic land use of Aba South where you have some manufacturing industries, the local manufacturing industries along Port Harcourt road that produces different kinds of local machines for agriculture; power generating engines and vehicle spare parts etc, the Ekeoha shopping center, the home of both local and imported textile along Asa Road, to mention but a few. Also these roads have direct access or connection to all the other major markets in Aba.

This situation has crippled business, made a lot of industries to relocate to other towns, companies moving ir headquarters out from the town and has made investors refuse to invest in the town again.

CONCLUSION AND RECOMMENDATION

From the Beta index statistic that was adopted to solve for the connectivity ratio and the findings of Pounds [1980] that opines that "the more complex the networks, the higher its degree of connectivity and, generally speaking, the better it serves the area over which it was extended. Thus regions or urban centers with β-indices over 1.2 are characterized as maximally connected, therefore signifying better opportunity of economic growth. While β indices of less than 1.0 shows a lesser connectivity ratio, meaning that the place will be low in economic development".

The result arising from the assessment of connectivity ratio of road network in Aba South shows β index 1.375. We concluded that Aba South Local Government Area is maximally connected and therefore should promote the level of economic development. Connectivity ratio helps to define accessibility; hence Aba South L.G.A is accessible for all level of interactions, economic, social, institutional, recreational etc. but there are certain impediments to effective connectivity of the roads network in Aba South in promoting accessibility which has impacted on economic development of the area as was discovered from the study. Finding from the questionnaires reveals that although the road networks in Aba South L.G.A are adequately connected but the physical surface condition of the roads is deplorable and by implication have affected the economic development of the town as it ought to have been.

RECOMMENDATIONS

- The engagement of Public private partnership to invest in the management and use of the existing road system for more efficiently and adequate maintenance that will lead to a better distribution of the roads to encourage free movement of cars and public transport, pedestrian walk and even cycling.

Improve physical management system of the surface condition of the roads along the routes that connects the town to other neighboring states of the federation.

Development and adequate enforcement of policies that restrict street parking and control institutions to improve traffic laws.

Functional road network will reduce commuting costs and time, allowing business operation the opportunity to devote more time to income-earning activities. This also will be essential towards maintaining an acceptable quality of life in Aba South L.G.A. Involvement of road users and other stakeholders in the road network planning and management has been found in some countries to provide the key to effective, efficient and financing measures particularly since governments are usually reluctant to create or construct new roads and properly maintain the existing once. There is therefore a need to consider involving urban road users on how to manage the road. If members of the community are to be made stakeholders they may be willing to pay more for roads, but only if the money is seen to be judiciously utilized in road network construction and maintenance.

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THE ROLE OF INFORMATION LITERACY IN INFORMATION UTILIZATION

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ABSTRACT

In today's digital age, the abundance of information has transformed the way we access, process, and utilize data. Information literacy, the ability to locate, evaluate, and effectively use information, has become a pivotal skill for individuals and organizations alike. This paper explores the role of information literacy in utilization of information. It explore on information literacy skills, types of information literacy skills, characteristics of an information literate individual, information utilization, role of information literacy in information utilization

Keywords: *Information Literacy, Information Utilization*

INTRODUCTION

One of the critical prerequisites in the 21st century information age is to be information literate. Information literacy has become a gateway for a person to be able to navigate into the world of information in different forms, formats, location and even in organization. Uhegbu (2011) notes that as information is continuously generated so are its complexities and characteristics, and therefore requires that a person must have the knowledge and skills to be able to know, understand, find, access and utilize such information. And this is the whole essence of information literacy whether for individual use in solving problems or for life-long learning. Information literacy is a must if one will be able to navigate successfully in the complex world of information explosion.

Ojedokun (2007) argues that the concept of

information literacy presupposes that an individual recognizes the need for information and know how to find, evaluate, and subsequently use information effectively to solve a particular problem or to make decisions. Whether information comes from the Internet, or the World Wide Web, online database, posters, pictures or other images or any number of other possible sources, the concept of information literacy is the ability to understand and critically evaluate the information. According to the 1989 American Library Association Presidential Committee on Information Literacy Final Report, cited in Breeu and Fallon (2005), to be information literate, a person must be able to recognize when information is needed and have the ability to locate, evaluate and use effectively the needed information. Information literate people are those who have learnt how to locate and, because they know how information is organized, also know how to find and utilize information.

According to Hornby (2000), to utilize means the ability to make practical use of something, to use effectively. Uhegbu (2007) posits that utilization is the actual putting into appropriate use of something. It is the process of making use of something available. Utilization differs from person to person and from corporate organization to another according to their information needs and other socio- economic imperatives. Utilization is influenced by the kind or nature of things carried out. It is governed by several principles such as the goal identification which aims at solving a problem or enhancing a better understanding of an already known situation; availability which implies that the thing/information is within reach of the user; the medium which ensures that information is easily communicated or disseminated from one source to the other through oral medium or written form such as bulletins, circulars, memoranda, newspapers and so on.

The ultimate purpose of utilization is to satisfy the seeker's need because user's needs are varied, their satisfaction amounts to high level achievement for them. User's satisfaction is influenced by the means of accessing information. Without possessing information literacy skills, information utilization will be impaired. Therefore, information utilization refers to the process of extracting value and insights from data and information, and then applying that knowledge to decision-making or problem-solving. It involves the transformation of raw data into useful information that can be used to gain a competitive advantage, increase efficiency, or drive innovation. Information literacy is paramount in information utilization for effective user satisfaction.

INFORMATION LITERACY SKILLS

The concept of information literacy is traceable to Paul Zurkowski in 1974 in a proposal submitted to the National Commission on Libraries and Information Science (NCLIS). He posits that “people trained in the application of information resources to their work can be called information literates because they have learnt techniques and skills for utilizing the whole range of information tools as well as primary sources in molding information solutions to their problems and drew a relatively firm line between the “literates and information illiterates”. From its inception in 1974, the concept has gained national and international attention across the universe which has led to its definitions, conceptualization and explanations from various scholars and institutions with interest in the information profession (Igwe, Emezie and Uzuegbu, 2014).

The basic definition of information literacy (IL) is the ability to find, evaluate and use information. In the contemporary world, the term “information literacy is evolving and in fact has become a buzzword. Experts in library and information management variously refer to it as: info literacy, informacy, information competency, information empowerment, information fluency, and information handling skills, information literacy and skills, information mastery, information mediacy, information problem solving skills (Aniebo and Ibenne, 2012).

The Association of College and Research Libraries (ACRL) (2000) defines information literacy as a set of abilities requiring individuals to recognize when information is needed, have the ability to locate, evaluate and use effectively the needed information. In the view of Bruce (2002), information literacy is a systematic information behavior that involves task definition, the development of information seeking strategies, locating and accessing information, using information, synthesizing and evaluation information. Barefoot (2006) opines that to solve information related problems, one need to be information literate and to be information literate, one need to learn a new set of skills, which includes how to locate and use the information needed for problem solving and decision making efficiently and effectively. Individuals need literacy skills to obtain and use information effectively, to act as informed players and to manage interactions in a variety of contexts (Nwosu and Onwubiko, 2014).

According to IFLA/ALP (2007), information literacy is defined as a self-empowering attitude and commitment by individuals and people, at all levels of society, to seek, access, analyze, translate, transform information and create knowledge to solve problems, to achieve personal, social, occupational and learning goals for the improvement of their quality of life. Information literacy is basically a set of skills allowing people to make the most of both formal and informal learning opportunities.

There are several definitions of information literacy given by scholars in one context or the other. Most of the definitions seem to be similar, but one thing that is clear is that the primary goals of information literacy are to make people think critically about the information they encounter and build in them the ability to use that information to create new knowledge. Information literacy is not only knowing how to use computers to access information but also evaluating the nature and impact of information in relation to its technical infrastructural, and its social, cultural and philosophical context (Aniebo and Ibenne, 2014).

TYPES OF INFORMATION LITERACY SKILLS

According to Dadzie (2009) information literacy is seen as a term that encompasses media literacy which refers to a set of skills, attitudes and knowledge necessary to understand and use different types of media and forms in which information is communicated such as images, sound and video. It also includes the ability to know when and how to use newspapers, journal, magazines, radio, broadcast, television, cable television, CD-ROM, DVD, mobile phones HTML, text format and so on. It also involves numerical literacy which refers to the ability to use and interpret numbers; computer literacy which involves a set of skills, attitude and knowledge necessary to understand and operate the basic functions of ICT including personal computers, laptops, and mobile-phones. Others are library instruction which comprises instruction on how to evaluate information, source and how to use library resources such as the catalogue and other bibliographic databases; traditional literacy which comprises knowledge and understanding of how a country's religions or an ethnic group's traditions, beliefs, symbols and icon celebrations and traditional means of communication impact on the exertion, storage, handling, communication, preservation and archiving of data information and knowledge as well as in using technologies (Horton, 2008).There are visual literacy which refers to the ability to understand graphs and charts (Rockman, 2004).

Network literacy which involves the ability to identify, access, and use electronic information from the network (McClure, 1994).

Shapiro and Hughes (1996) identify seven important components of a holistic approach to information literacy skills. They are tool literacy which involves having the skill to understand, adapt, evaluate and use current and emerging information technology, including software, hardware and multimedia that are relevant to education and the areas of work and professional life that individuals expect to inhabit. Information resources skill which involves having the ability to understand the type, characteristics, format, location and access methods of information resources especially the daily expanding networked information resources. The social structuring literacy skill which refers to the ability to know how information is socially situated and produced and how information fits into the life of a group, about the institutions and social networks such as universities, libraries, research community groups that create and organize information and knowledge and the social processes through which it is generated. Others are the research literacy skill which involves having the ability to understand and use the IT based tools relevant to the work of today's research and scholar. For those in postgraduate studies, this will include discipline related computer software for quantitative analysis, quality analysis and simulation, as well as an understanding of the conceptual and analytical limitations of such software, the publishing literacy skill which refers to the ability to format and publish research and ideas electronically, in textual and multimedia format (WWW, electronic mail and distribution lists and CD-ROMs), to introduce them into the electronic public realm and the electronic community of scholars (Shapiro and Hughes,1996).

There are also the emerging technology tool literacy skill which involves having the ability to continually adapt to, understand, evaluate and make use of the continually emerging innovations in information technology, so as not to be a prisoner of prior tools and resources, and to make intelligent decisions about the adoption of new ones including understanding the human, organizational and social context of technologies, as well as criteria for their evaluation; the critical thinking literacy skill which involves the ability to critically evaluate information sources and information, as well as the intellectual, human and social strengths and weaknesses, potentials and limits, benefits and cost of information technologies. Shor (1999) further defines critical literacy as habits of thought, reading, writing, and speaking which go beneath surface meaning, first impression, dominant myth, official pronouncements, traditional clichés, received wisdom and mere opinions, to understand the deep meaning, root causes, social context, ideology and personal consequences of any action, event, object, process, organization, experiences, text, subject matter, policy, mass media or discourse.

CHARACTERISTICS OF AN INFORMATION LITERATE INDIVIDUAL

An information-literate individual is someone who has developed the skills and competencies necessary to engage in lifelong learning and navigate the complex of information. Some of the characteristics are:

Ability to Identify Information Needs: An information-literate individual knows how to identify what information is needed and understand the context in which it will be used.

Ability to Locate Information: An information-literate individual knows how to use different search strategies and tools to find information efficiently and effectively.

Ability to Evaluate Information: An information-literate individual knows how to critically evaluate the information they find, assessing its reliability, credibility, and accuracy

Ability to Utilize Information Ethically: An information-literate individual understands the ethical and legal issues surrounding information use and knows how to utilize information ethically.

Ability to Communicate Information Effectively: An information-literate individual knows how to present information effectively and appropriately for a specific audience and purpose.

Ability to Adapt to New Technologies: An information-literate individual is comfortable using new technologies and tools to locate, evaluate, and communicate information.

Ability to Learn Continuously: An information-literate individual is committed to lifelong learning and understands that developing new skills and knowledge is essential in today's rapidly changing information landscape.

INFORMATION UTILIZATION

Uhegbu (2007) posits that information utilization is the actual putting into appropriate use of acquired information, even though utilization of information differs from person to person and from one corporate organization to the other according to their information needs and other socio economic imperatives. It can be viewed within the context of need, accessibility and function performed. Thus, utilization of information by any clientele is influenced by the kind of job done, profession or function one performs. Utilization is facilitated by a person's information competency (literacy skill), education, gender, age, belief system residence and sometimes by peer- group influence (Oakleaf and Owen, 2010). Utilization of information can be influenced by the source and nature of information, contents, arrangement, and packaging, language of communication, time and cost of acquisition. (Issa, Igwe and Ugwuogu, 2014).

ROLES OF INFORMATION LITERACY IN INFORMATION UTILIZATION

Information literacy plays a crucial role in the effective information utilization. According to Etim (2007), information literacy has to do with the ability to recognize when information is needed and how to locate, evaluate, effectively use and communication information in its various formats. Some of the roles of information literacy in information utilization include:

Efficient and Effective Information Search: Information literacy enables individuals to conduct efficient and effective searches for information. With information literacy skills, individuals can identify the most appropriate sources of information, evaluate the relevance and reliability of the information, and use the information to address their information needs.

Accurate and Critical Evaluation of Information: Information literacy skills enables individuals to evaluate information critically, assess the credibility and authority of sources, and distinguish between fact and opinion. This helps individuals to make informed decisions and avoid misinformation.

Ethical Utilization of Information: Information literacy skills promote ethical use of information. Individuals with information literacy skills can properly cite sources, avoid plagiarism, and respect intellectual property rights.

Creation of New Knowledge: Information literacy skills enable individuals to synthesize information from various sources and create new knowledge. By using information literacy skills, individuals can combine information from multiple sources to create new insights and ideas.

Lifelong Learning: Information literacy skills promote lifelong learning. With information literacy skills, individuals can continue to acquire new information, stay current on developments in their field, and adapt to new technologies and information resources.

CONCLUSION

Information literacy plays a vital role in information utilization. It equips individuals with the skills to critically assess, access, and interpret information, enabling them to make informed decisions and contribute meaningfully to their personal, academic, and professional pursuits. Through cultivating information literacy, individuals can navigate the vast sea of data, discern credible sources, and extract valuable insights, ultimately enhancing their ability to harness information to its full potential. As the digital landscape continues to evolve, fostering information literacy remains essential in empowering individuals to thrive in an increasingly information-driven world.

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OBSERVATIONS

1. State the problem the paper is addressing clearly in the abstract.
2. Number the information utilization roles with roman numerals
3. Number the characteristics and the roles accordingly.
4. However the introduction should be separated from Literature Review and placed distinctively in this paper.

THE SCANDALOUS PATH OF AFRICAN FEMINISM: WOMEN EMANCIPATION TAKEN TOO FAR IN CHIMAMANDA ADICHIE'S *PURPLE HIBISCUS*

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ABSTRACT

Women have kept quiet for so long in a male-dominated world, hence, they have been subjected and trodden upon by men, until recently when women began to rear their heads and raise it above water level, so as not to drown. Conferences of high magnitude have been organized to stop gender inequality and create a genuine liberation. Female writers have also fought the tiger of male dominance through their writings by creating heroines and super women in their writings until Adichie wrote **Purple Hibiscus** where she created a super heroine who murdered her husband to achieve freedom. But is this the best tool to achieve freedom? Is it the right method? Is this not an extreme? These are the questions this paper is attempting to answer.

KEY WORDS

Scandalous: An adjective that describes extremism or an extreme move to achieve a purpose which is condemnable or unacceptable by the society. Scandalous may not mean a scandal per-se but can be used connotatively to mean 'hasty' 'uncharitable' hopeless' frivolous' or 'unacceptable'. Something adhorable and illegitimate.

African Feminism: African feminism describes attempts by African female writers at bringing women to the front burner by castigating any moves to portray women in bad light or attempts to subjugate them or see them as being inferior to the male counterparts. Thus, they create women in their writings and ascribe noble roles to them thereby making them heroines or champions.

Women Emancipation: Since women began to see themselves as caged or segregated from or cheated in the affairs of the society, they have created certain channels of achieving freedom such as high profile conferences, colloquiums and seminars. All these are aimed at being at par with the men folk in the scheme of things as well as at being placed on the same pedestal with men so as to compete in every area of life. According to them, women's emancipation will see women being set free from male dominance and other things impeding the growth and progress of women.

INTRODUCTION

Gender inequality in favour of men has formed the major discourses and counter-discourses in literary circles. In some quarters, it is logicalized while in others, it is either affirmed or trivialized. Orie, (2011) affirms that this predicament of women, which "keep every women frenetically worried is traceable to the lore of patriarchy, the effect of which is the silencing of women, muffling or muting their voice or browbeating them to remain voiceless" (p4).

It is interesting, however, that Chimamanda Adichie, borrowing a leaf from her predecessors, has equally joined the discourse on the plight of women in today's world with her debut novel – *Purple Hibiscus* in which she presents her "ideologically protesting position" and perhaps, those of every woman, against her "surroundingly emasculating men", Orie, (2011) (p5). Many writers have viewed patriarchy as an ingredient of past coloniality or simply, a post colonial index. Our thinking is that patriarchy is as old as existence, perhaps, instituted by God himself. Otherwise, why did He create a man first and a woman as an after-thought? Or why was the man saddled with the responsibility or ruling over the woman and the woman enjoined to submit to him? Perhaps, the above injunctions by God Himself are not excuses for the way today's woman has been so degraded, dehumanized, silenced and suppressed by her menfolk, a phenomenon which has forced so many women to raise a finder of protest against unfriendliness, cruelty and brutality by men against women, which is simply, Adichie's pre-occupation in *Purple Hibiscus*. In the novel, Beatrice, the symbol of oppression, harassment, brutality and violence, remains submissive, quiet and receptive until she decides to hit at her husband, or to end up the era of brutality and subjugation. She murders him outright, a viewpoint which has received knocks from Adichie's critics as an awful style of acquiring emancipation.

THEORETICAL FRAMEWORK

African feminism includes theories and movements that specifically address the experiences and needs of continental African women. African women have been engaged in gender struggle even before the existence of western-inspired label – "African feminism". However, this paper will examine African feminism with regard to African theories and movements so as to fit into the global feminism context. Since Africa is not a monolith, no single feminist theory reflects the entire gamut of experiences African women have.

Hudson-Weems (1994) came up with the theory called Africana Womanism (a variety of African Feminism in the mid-1980s. According to her, the term –'Africana' indicates that women-focused activism should be inclusive of women in the African continent and African women in the Diaspora. She argues a complete break from white feminism, a movement which was created by and for white women without any incorporation of the African experience. She argues further that Africana men and women have more in common than Africana women do with white women, hence, the need for a new kind of activism.

Finally, she sees Africana Womanism, as something rooted in the ideals of Black life and concerned as much with the Black sexual power tussle as with the world power structure that subjugates Blacks. This paper aligns with the above theory and ideal which is rooted in the emancipation of African women as well as Diaspora African women from the obscurity and redundance that society had hitherto placed them.

ADICHIE'S EXCELLENT PORTRAYAL OF A PATRIARCHICAL SOCIETY

Njoku (2001) cited in Akpuda (2001) describes patriarchy as a social system controlled mainly by men, resulting in sexism which attributes importance

and superiority to the male and inferiority to the female. According to her, since women have no hand in the management of patriarchal institutions, they are marginalized. Wehmeier (2006) defines it as "a society, system or country ruled or controlled by men" (p1068). He further explains that patriarchy gives power and importance only to men, to the neglect of women. From the above insights into patriarchy, and from a very critical analysis of events in *Purple Hibiscus*, it is clear that Adichie sees our society as a patriarchy with Eugene unarguably personalizing it. Beatrice, his wife does not take any decision for the family. It is only Eugene that dictates. No other person is good enough. Beatrice is only to be seen, not heard. More or less, a maid.

She is forced sometimes, to act against her wish and at other times, locked up at the least provocation and beaten to stupor. Eugene does not show any appreciation of his wife's value in the house, instead, she is reduced to the status of a robot. This is patriarchy, raw patriarchy in action. What an over-bearing attitude to household members? He wants perfection and sets goals to achieve it, without giving anybody an opportunity to develop the normal way. Eugene's life is regimented and must not be distorted. No corrections, no challenges. He is dictatorially stubborn and totalitarianly egoistic.

A SCANDALOUS WEAPON FOR DETHRONING PATRIARCHY

Little wonder then, that writers especially the female ones, are shouting themselves hoarse with effrontery, to be heard or recognized, hence, Adichie has lent a voice in *Purple Hibiscus*. In the novel, every female character receives a dose of hegemonic patriarchy such as Beatrice, Kambili, Aunty Ifeoma, Amala and Sisi but Beatrice and kambili are the worst hit in terms of suppression, brutality and trauma. Beatrice's dose of the ugly monster of patriarchy is mostly physical, in form of physical assault, attack, abuse and spanking, while Kambili is mostly psychological. Her father's presence alone sparks of fear in her and keeps her silent as long as the man is around. EVEN THE WORD "silence" or "silent" is everywhere in the novel, especially, on the part of Kambili who hardly says anything without mentioning the word. This is a clear indication that the womenfolk in the novel live in bondage or in "dread and terror" (Hall and Bobby, 2001). Again, Kambili mentions the word "fear" on numerous pages. In order to capture the effect of monstrous patriarchy created by Eugene, the man of the house, Adichie deliberately created scenes where "silence" keeps recurring at the risk of becoming *as nauseam* (Orie, 2011)."The *silence* was broken only by the whir of the ceiling fan …." (7), "… flat in Nsukka began to lift the silence" (16); "Silence hung over the table like the blue-black clouds …" (32); "The *silence* he left was heavy …" (69) etc. these *silent*_moments, no doubt, create the impression that Kambili (Eugene's daughter) is not better than someone in a cage.

On the heels of this deliberate silencing is the stripping of voice from the female characters, including Aunty Ifeoma and her daughter, Amaka, a condition that renders them inferior and defenseless. The day Eugene callously throws a missal (missile) at Jaja (his son) and it misses him but breaks Beatrice's (Mama) priceless glass etagene to pieces, she (Beatrice) does not complain, let alone the day she was beaten to pulp and her "face was swollen and the area around her right eye was the black-purple shade of an overripe avocado" (100).

She took it with equanimity, went somewhere to lick her wounds so as not to be seen as a bad wife which may force her husband to take another wife. What a monstrous scenario patriarchy could create. It is astonishing how Beatrice and Kambili her daughter, whi hitherto had no voice in the novel, suddenly become audible as soon as Eugene dies. In other words, it was the presence of the father-monster,

Eugene that robbed them (herself and her mum) of their voices. Indeed, patriarchy is a robber and its absence restores confidence. At the point of death as a result of cruelty, and pushed to the wall, Beatrice murders her husband, Eugene through a rat poison which means that is easy and cheap to dismantle patriarchy. Even a woman can do it with something as minute as a rat poison. The lesson to learn here is that only women can chase patriarchy out of our shores. Only women can liberate themselves and what they need to do this is very cheap, easy and handy – a pen, which is mightier than the sword. And that is what women are currently doing via feminism.

It is gratifying to note that liberation comes the way of Beatrice and Kambili, her daughter, as soon as Eugene the patriarch dies. Kambili's chain of silence and voicelessness are loosened upon the death of her father and she gets a very swift liberation and declares – "My voice was loud. I was almost screaming" (290). She funds liberty to choose the church to attend and even encourages her mother. She says _ "I can talk about the future now" (306). This is the voice of liberation, no doubt.

Nevertheless, Adichie has recently come under fire from fellow writers and even readers on the rationale of using murder as a tool to liberate womenfolk as we see in *Purple Hibiscus.* Critically, Beatrice's (Mama) action of murdering her husband to achieve emancipation, would be argued to be right or wrong. Must violence be applied in this case? Have other avenues been exhausted, or is Adichie saying that if murder can solve the problem, then we should go ahead with it? If so, then how many men will women kill for the society to get rid of patriarchy? Patriarchy is here with us. Although obnoxious, but resorting to murder, to my mind will amount to digging a pit to fill a pit. Can illegality beget illegality? To our mind, Adichie has faltered by creating a scenario where murder is used to solve an existing problem, thereby creating more serious problems than patriarchy.

Nnolim (1999) asserts that murder is murder and a crime under the laws of all human societies. He demands what on earth could lure a woman to murder whereas she is a symbol of nurturance. He posits that it is inexcusable for any woman to commit murder in the name of fighting patriarchy or gaining freedom. Nnolim, instead, encourages women to aspire fro education and economic independence as more potent weapons to fight domination. He urges the society to condemn all ferminist efforts at showing unwholesome freedoms that lead to immorality, murder or crime.

We join Nnolim in his criticism of female writers who create scenes where wives kill their husbands, or where women kill men to achieve freedom. This is unwholesome, barbaric, illegitimate, criminal, uncharitable and unacceptable. By nature, women are gentle, amiable and full of grace and should uphold the sanctity of womanhood by staying away from crime. This will be going too far or taking women liberation to an ignoble dimension. The fight so far, through writing, is achieving great results. Let our women be educated and let them try to achieve economic independence as well as aspire for governance at all levels. Let them be assertive and compete with men in hitherto male-dominated endeavours. One day, patriarchy will crumble like a pack of cards.

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UNMASKING THE CHALLENGES AND POTENTIAL OF IOT IN MODERN HEALTH CARE SYSTEM

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ABSTRACT

Health is one of the sustainable improvement regions in most countries. Internet of Things (IoT) is a process of interlinked computing devices, mechanical and digital machines, objects, animals, or people that are provided with unique identifiers. Internet of Things (IoT) rises as a powerful domain where embedded devices and sensors can connect and exchange information across the Internet. Among all the applications, IOT has progressively greased the wheels around the globes and has significantly gained a bunch of recognition owing to its competences and immense feat; scientific investigators are working so hard in order to translate almost every device with IOT. In this research work, the role of IOT technology in healthcare system is identified and explained as relating to the subject matter. This technology has become the ultimate building blocks in the development of both healthcare and other monitoring system. Therefore, in this paper, the implementation of IOT in healthcare monitoring systems and the standard model for application in future internet of things healthcare system were also highlighted.

Keywords: Internet of Things (IOT); Health care system; Technology.

INTRODUCTION

Internet of Things (IOT) is a phrase on everyone's lips, and amazingly it has reached every field like healthcare, education, gaming, finance and many more. IOT has been gaining popularity rapidly since its inception into the IT world. AI or Artificial Intelligence has potentially already taken over everyday life. Combined with IOT, AI has taken over the essential part of several processes, right from data manufacturing to processing and analytics. IoT promises market potential in the field of e-health services and the telecommunications industry (Vermesan, & Friess, 2011). IoT can enhance business intelligence in hospitals and ease serving the patients in health sectors (Roman, Najera, & Lopez, 2011). The Internet of Things can improve the health grounds and prevent diseases by providing ongoing monitoring activities to ordinary people or prone patients (Bandyopadhyay& Sen, 2011). Furthermore, it empowers the patients and helps the businesses to profit from this new innovative in the market. Somehow, it improves the patient's social problems, people's concerns about health and the quality of their lives (Helal, Cook, & Schmalz, 2011), also contributes to economic prosperity in health sector (Haller, Karnouskos,& Schroth,2009). With

the help of this technology the hospital activities impact on the environment (Such as production and elimination of hospital waste) can be better managed and less likely to damage the environment (Perera, Zaslavsky, Christen,& Georgakopoulos 2014). Healthcare is an essential part of life. Unfortunately, the steadily population and the related rise in chronic illness is placing significant strain on modern health care systems and the demand for resources from hospital beds to doctors and nurses is extremely high.

The Internet of Things remains a relatively new field of research and its potential use for healthcare in an area still in its infancy. Many definitions of the Internet of Things exist, but at the most fundamental level it can be described as a network of devices interacting with each other via machine to machine (M2M) communications, enabling collection and exchange of data (Fan, Yin,& Zeng, 2014). This paper analyses the IoT technologies in patients' healthcare through remote sensor in tracking information of cancer patient, sentiment analysis through mood aware wearable, monitoring blood sugar level through inter scatter communication, Warfare used in coagulation testing, Real Time Location system to monitor the temperature level, etc., From the literature review its clear that IoT technology not only possess capability to safeguard patient's health but also improve physician to deliver the care as well. This paper analyzes the innovative revolution made in healthcare with modem technologies using IoT. (Catarina Reis & Marisa silva Maximiano, 2019).

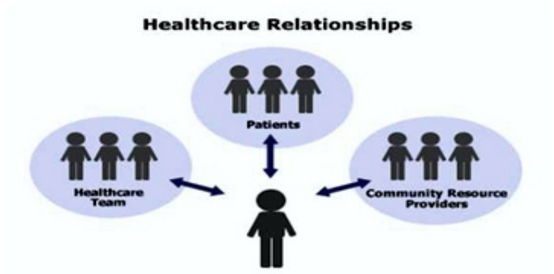


Fig1. Healthcare Relationship

Internet of Things has explored its suitability for healthcare and has highlighted several past works related to healthcare IOT systems. Research in related fields has shown that remote health monitoring is feasible. Patients can be monitored at home rather than in hospitals in remote health monitoring system with the reducing strain on hospital resources such as doctors and beds. In fact, there are few disadvantages of remote health monitoring which include the security risk that comes with having large amounts of sensitive data stored in a single database. It is essential to check regularly the sensors of individual for monitoring accurately and possibility of disconnections from healthcare systems may arise, if the patient was out of cellular range or their devices may run out of battery.

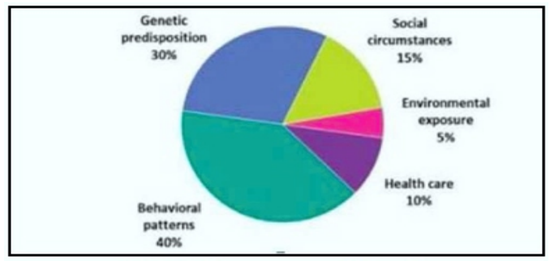


Fig 2. Determinants of Health

LITERATURE REVIEW

This technology enables automation within a large range of industries, as well as allowing for the collection of big data. Hailed as the driver of the Fourth Industrial Revolution (Smart Parking 2017), Internet of Things technology has already found commercial use in areas such as smart parking, precision agriculture. Extensive research has also been conducted into the use of IOT for developing intelligent systems in areas including traffic congestion minimization (Sensus, 2017), structural health monitoring (El-Sayed & Thandavarayan 2017), crash avoiding cars (Arcadius, Gao, Tian, & Yan, 2017), smart grids (Alam, Saini, & Saddik 2018).

While the aforementioned fields appear vastly

different to healthcare, the research conducted within them verifies the plausibility of an IoT-based healthcare system. Existing systems in other fields have proven that remote monitoring of objects, with data collection and reporting are achievable. This can therefore be expanded a as caretakers, doctors, emergency services, and healthcare centres. Cloud technologies have been widely researched due to their usefulness in big data management, processing and analytics.

Several related works have surveyed the literature on using cloud technologies for IoT purposes such as smart grid Tan, Song, Yang, & Das, 2017) and mobile cloud computing for smart phones (Bera, Misra, & Rodrigues 2015) further related works have reviewed the state of cloud centric healthcare. The use of cloud technology for health record storage is considered in which also overviews cloud technologies as a complete field. Another sensor-based system is designed in (Mach & Becvar), with the aim of monitoring patients' emotional states.

Big data management is crucial in this system, as they aim to draw links between emotional responses and physiological changes. Large amounts of physiological data are stored in the cloud module, organized sufficiently to enable data mining techniques for the extraction of important information. Enabling machine learning through appropriate big data management in the cloud is considered in (Lin, Xia, Wang, Tian, & Song 2016). The authors identify that cloud storage is useful for storing high volumes of data in such a way that value can be extracted from it. In this system, physiological parameters and frequency of medical visits are both stored in the patient's health record.

An extremely thorough work on cloud for healthcare is presented in (Sahoo, Mohapatra, & Wu 2016). In this work, all services of cloud technologies are utilized to create a robust system. Patients are monitored by their WBANs, with their data stored in the cloud securely. A signature-based access control mechanism prevents unauthorized users from accessing data in the cloud. Big data management for healthcare is not just a theoretical concept. It is already being implemented in certain parts of the world. In Australia, the Government has recently introduced the My Health Record scheme (Abawajy & Hassan, 2017). Content/find-out this utilizes cloud storage methods. A patient's My Health Record can contain information about any allergies, conditions, current medications and treatments, pathology test results, and diagnostic images. The patient can decide who has access to these records under normal circumstances. In an emergency where the patient is unable to provide the information themselves (i.e., they are unconscious following an accident), then limited-time emergency access can be granted to the responding healthcare providers so that the patient can receive the best possible treatment rapidly (Australian Government, 2017).

The benefits of cloud technologies for big data management are clear. It allows for virtually unlimited storage space, the provision of many useful services, and enables accessibility for patients and doctors. This gives patients more control over their own healthcare, and simultaneously enables doctors to provide more suitable treatments without having to even meet with their patient in person. Several researchers have identified the usefulness of computational offloading in healthcare environments. In (Australian Government, 2017), readings from WBAN sensors are transmitted to a mobile phone, where some basic processing occurs. The information is then transmitted forward from smartphone to cloud, where advanced processing occurs using feature selection and classification techniques.

In Ghanavati, Abawajy & Izadi, 2016, cloud computing is used to process the complex raw data and send the meaningful results back to the patient through their sensing system. This is a strong concept, as it allows for the processing power of cloud to be utilized by complex sensors, whilst also enabling the patient to rapidly access their results and share them with a doctor as needed. Computational offloading for data processing is used in (Lin, Xia, Wang, Tian, & Song, 2016) to determine shapes of ECGs and evaluate whether the shape is consistent with congestive heart failure.

INTERNET OF THINGS (IOT) APPLICATIONS

Open APS: Open APS stands for Open Artificial Pancreas system. Using open-source software patient can continuously monitor the glucose level through connected device. Due to security and practical difficulties such connected devices have taken some time to come to market. (Abawajy & Hassan 2017).

Hand Hygiene Compliance: Maintaining hand hygiene is an inexpensive prevention measure to avoid increasing number of deaths, extra days of hospital stay and costs. Healthcare Acquired Infections (HAI) are infections that are neither present nor incubating when a patient is admitted to hospital. These are risks that hospitals must control to manage the healthcare economically safety for patients. These can be preventable by Hand Hygiene(HH) practice by professionals. (Abawajy & Hassan, 2017).

Tracking during Cancer Treatment: Information about patients will be collected with the help of activity trackers. Patients will wear an activity tracker for some period of months till the treatment over. This type of trackers helps to measure the activity level, logging appetite level and all data will be saved to patient's smart phones through specific app. (Riazul, Daehan, Humaun, & Mahmud2015). This will help in diagnosing the patient's conditions every minute and treatment can be improved much better. This device tracking is particularly useful for cancer treatment.



Fig 4-Connected Inhaler

Connected Inhalers: IOT here allows doctors to keep accurate track of whether patients are strictly adhering the treatment or not. Devices connected to mobile apps allow patients to receive information. Propeller's Bruzhaler device connects its digital platform through a sensor. This type of connected inhalers provides great motivation for patients. (Ben 2017).

Real Time Location Services: Real Time Location systems have the ability to track the specified location of people within a certain area through wireless network. Doctors can use real time location services and track the devices for monitoring patients. Medical apparatus and devices like nebulizers, wheel chairs, scales, defibrillators, pumps or monitoring equipment can be connected with sensors and located easily with IOT. (Bui & Zorzi, 2011).



Fig 5: Temperature monitoring sensors

Connected Contact Lenses: The technology called "inter scatter communication", works by converting Bluetooth signals to wifi signals. This is based on existing method of communication called backscatter which allow devices to exchange information. Inter scatter communication allows Bluetooth signals and wifi signals to talk each other .It would allow devices such as contact lenses to send data to other devices. In order to implement inter scatter communication; the engineers designed a contact lens equipped with a tiny antenna and Bluetooth signal coming from smart watch. The antenna on the contact lens was able to manipulate that Bluetooth signal, encode data from contact lenses and convert it into a wifi signal that could be read by another device. Monitoring blood sugar levels is important for patient with diabetes that can be done with connected contact lenses. (Bandyopadhyay, & Sen, 2011).

Sentiment Analysis: Using sentiment analysis, one can analyze the mood of every human with help of text analytics. In digital medicine, mood-aware wearable will monitor the mental health and well-being. Moreover, it instructs the depression mood and help patient to recover from it. The numbers of connected devices growing massively are designed to bring positive behavioral change. Statistical report says that in 2015, 4.9 billion connected things in use and it will reach 25 billion by 2022. To respond value and positively change our lives, these devices need to be context aware. Emotion chip is attached to the connected devices that possess optical sensor. This can read emotions, facial expressions, and tone of voice, and physiology of a person. To make these things possible, one should make their devices emotion enables. The next wave in computing will be emotionally intelligent and mood- aware internet of things. (Sara, 2016).

Coagulation Testing: Coagulation is measured by recording the thickness of blood at 100 millisecond intervals after adding a reagent called thromboplastin that initiates coagulation. This is measured in lab by scattering light to a blood sample. A company named MicroVisk introduces a home testing kit with a pair of cantilevers, which are immersed in a blood sample and vibrated quickly.



Fig 6. Coagulation Technique

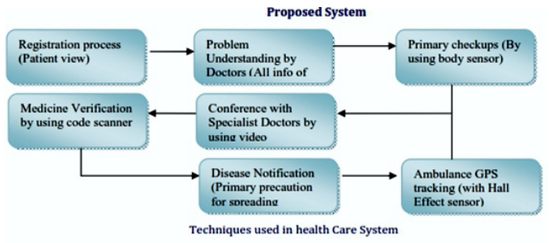
Warfarin is used to treat patients suffering from pulmonary embolism and heart conditions clotting (Rana & Gabi, 2021). Diet, alcohol consumption, infection, and exercise can also influence warfarin's effectiveness and body's ability to form clots. To avoid risks of clotting, drug doses should be managed carefully through regular monitoring of blood coagulation. For this, the device consists of micro-electromechanical sensors and will come to market within three years.

Wheelchair Management: Many researches made for smart wheelchairs with full automation for disabled people. This application provides chair vibration control and monitors the status of the wheel chair user. This development shows that things" can evolve into connected machines controlled by data. The device can monitor the patient, user surroundings for location accessibility.



Fig7-Automated wheel chair

Electrocardiogram Monitoring: Monitoring electrocardiogram is the electrical activity of the heart recorded by electrocardiography includes heart beat rate, identifying basic rhythms, diagnosing myocardial ischemia, etc. Wireless acquisition transmitter, a wireless receiving processor and wireless detection algorithm can be used for monitoring ECG signals (Riazul, Daehan, Humaun & Mahmud, 2015).



Techniques used in health Care System

A. Real Time Wireless Health Monitoring: We have discussed the implementation of the Wireless Health Monitoring System and its components as follows:

i. ECG Electrodes: It is a device attached to certain parts of the patient's body like arms, legs and chest during testing procedure. It detects electrical surge when each time heart beats. The electricity that electrode detects is transmitted through wire to a machine which translates the electricity into wavy lines recorded on the screen.

ii. LM35 Temperature Sensor: The LM35 temperature sensors output voltage is linearly proportional to the temperature in Celsius.

iii. Blood Pressure Sensor: It is a device that measures the pressure of the blood in the arteries as it is pumped around the body by the heart.

iv. Blood Glucose Sensor: is a medical device uses to calculate the blood glucose level.

v. Microsoft Pro Tablet: It is a mobile computer includes display, battery and circuitry in a unit. The system operates on the same principal as the medical professional used three electrodes of ECG on the patient's body and connects the Arduino shield with a temperature sensor, a blood glucose level sensor, and a blood pressure sensor.

From the Arduino shield, we connect a wireless node and the Tablet or the Smartphone that has Lab View software running on it to take reading of the patient's physiological data. The data are saved according to the time and presented in a report format and the data is then published on the internet by using tablet or Smartphone so that the authorized healthcare persons from remote locations at any time can access the patient's report.

B. U-Healthcare System:

Ubiquitous healthcare (U-healthcare) is a technology that promises increases in efficiency, accuracy and availability of medical treatment. It is an emerging technology that provides convenient healthcare service to patients, and to make it is easy to diagnose patient's health condition. It assures increase in the accuracy, efficiency, and the availability of medical treatment. So people can monitor their health through online without visiting the hospital or clinic. Following graph shows some patients details in primary health centres and community health centres.

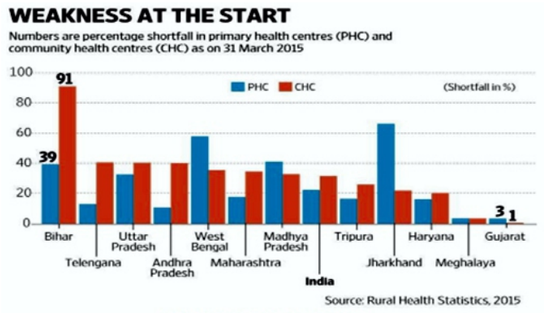


Fig.9. Patients health condition

CONCLUSIONS

In this paper, we found the importance and benefits of implementation of IOT. The sensors in IOT will make a huge impact on every patient's life. The data that is moving between and around the devices and in between the people are aplenty if you have elderly parents living alone, and you are worried about their health or safety you can get an indication of their health condition by connecting devices with smart sensors that would send activity data to your devices. This same data can be sent to their healthcare professionals as well. By implementing IOT technology properly in a secure way, more patients, with peace of mind, can participate in their treatment using IOT devices. As a result, authorities and healthcare workers can better respond to patients. Consequently, the impact of these types of diseases, including infections, hospitalizations, and death rate, can be significantly reduced by using sensors.

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WALKABILITY AND STREET SAFETY CHALLENGES IN LOW-INCOME NEIGHBOURHOODS OF IBADAN, NIGERIA

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ABSTRACT

Walkability and street safety are essential elements of urban design that impact the mobility and safety of residents in low-income neighbourhoods. This paper uses a structured questionnaire to explore the challenges of walkability and street safety in six low-income neighbourhoods of Ibadan, Nigeria. The questionnaire contained physical, social, and economic factors affecting walkability and street safety. A total of 240 respondents were selected through simple random sampling, and data was analyzed using correlation and multiple regression techniques to determine the relationships between variables and the impact of these variables on walkability and street safety. The findings of the study showed that physical factors such as sidewalks, street lighting, crosswalks, and pedestrian signals had a significant impact on the walkability and street safety of the neighbourhoods. The study also identified social factors, such as crime and harassment, and economic factors, such as affordability and accessibility of public transport, as significant challenges to walkability and street safety in low-income neighbourhoods. The study recommends the improvement of physical factors, especially sidewalks, street lighting, crosswalks, and pedestrian signals, to enhance the walkability and street safety of the low-income neighbourhoods in Ibadan. Policymakers and urban planners can use the information provided in the study to identify areas that need improvement and implement measures to improve the safety and accessibility of public spaces in low-income neighbourhoods.

Keywords: Walkability; Street safety; Low-income neighbourhoods; Physical factors; Social factors;

INTRODUCTION

In the global context of rapid urbanization, low-income neighborhoods within cities have emerged as significant focal points for research and policy attention (Freedman& Owens, 2011). These neighborhoods, often characterized by limited access to resources and infrastructure, face distinctive challenges that affect the daily lives of their residents. Among these challenges, two key aspects have gained prominence in urban studies and planning: walkability and street safety (Foster et al., 2010).

According to Brookfield (2017),walkability, as a concept, encompasses the ease with which individuals can navigate their neighborhoods on foot, accessing various essential services, amenities, and social opportunities. It is intrinsically tied to the quality of life, public health, and urban sustainability, as it influences physical activity, social interaction, and access to education, employment, and healthcare (Coughenour, Fuente-Mella, & Paz, 2019). In low-income neighborhoods, achieving optimal walkability can be especially elusive due to various

structural, economic, and social barriers.Walkability and street safety have gained increasing attention in urban planning and public health research as more people live in urban areas worldwide. In low-income neighbourhoods, residents face significant walkability and street safety challenges due to several factors, such as inadequate infrastructure, high levels of crime and violence, and poverty (Chen et al., 2020).

Street safety is another pressing concern, encompassing residents' physical safetyregarding traffic accidents and personal security in the context of crime and violence (Putrik et al., 2014). Low-income neighborhoods frequently contend with inadequate infrastructure, poorly maintained streets, limited public services, and often, higher crime rates, all of which exacerbate street safety challenges (Temelová, Novák, &Jíchová(2016). These issues can result in significant public health consequences and hinder social and economic mobility.

Low-income neighborhoods worldwide have become laboratories for examining the intersection of these challenges. As urbanization continues to transform these areas, the need to address walkability and street safety has become increasingly important.

The urban landscape of Ibadan, one of Nigeria's largest cities, has experienced significant changes in recent decades, reflecting the broader global trend of urbanization. According to Okpala, et al.(2017).While contributing to economic development and increased opportunities, this growth has also given rise to numerous challenges, especially in low-income neighborhoods. These areas, often characterized by limited access to resources and infrastructure, confront particular difficulties related to walkability and street safety(Abubakar & Dano,2018). In this context, walkability refers to the ease with which residents can move within their neighborhoods on foot, accessing various amenities and services. At the same time, street safety encompasses the risk of traffic accidents and concerns about crime and personal security. Due to their socio-economic characteristics, low-income neighborhoods tend to face a unique set of obstacles in ensuring the safety and accessibility of their streets.

In Ibadan, these neighborhoods have transformed from predominantly rural to urban areas, resulting in the coexistence of traditional structures and informal settlements with modern urban infrastructure (Akinyode, Khan, & Ahmad, 2015). This complex urban fabric challenges planners and policymakers seeking to improve walkability and street safety (Chen et al, 2020). Furthermore, there is a need for a more detailed examination of these challenges, given their potential impacts on the residents' quality of life, health, and overall well-being. Thus, this paper aims to comprehensively analyze walkability and street safety issues within the low-income neighborhoods of Ibadan, Nigeria, to offer recommendations for urban planning and policy interventions to address these challenges and foster more sustainable and inclusive urban development.

LITERATURE REVIEW

Definition and Concept of Walkability

Walkability measures how easy and enjoyable walking in a particular area is. It is a concept that has gained increasing attention in urban planning and design, particularly as cities face challenges of traffic congestion, air pollution, and a lack of physical activity. Walkability is determined by a range of factors, including the condition of sidewalks, the presence of crosswalks and pedestrian signals, street lighting, traffic volume and speed, crime and harassment, social and cultural norms, affordability and accessibility of public transport, and economic disparities (Jun and Hur 2015). The concept of

walkability is closely related to a walkable neighbourhood, where people can easily access essential services and amenities on foot (Tuckeland Milczarski, 2015).

The importance of walkability in urban areas cannot be overstated. Walking is one of the most sustainable and healthy forms of transportation. It can reduce the need for car travel, thereby decreasing traffic congestion and air pollution. Moreover, walkable neighbourhoods promote physical activity, social interaction, and a sense of community, positively affecting mental health and well-being (Li 2021). In addition, walkable neighbourhoods are associated with higher property values and economic development (Guo et al.2017).

Despite the numerous benefits of walkable neighbourhoods, low-income neighbourhoods often lack the necessary infrastructure and resources to create safe and attractive walking environments. Walkability and street safety are particularly crucial in low-income neighbourhoods, as residents are more likely to rely on walking and public transportation as their primary modes (Knuiman et al. 2016). Furthermore, low-income neighbourhoods are often characterized by a lack of physical activity opportunities, limited access to healthy food options, and high rates of obesity and chronic diseases (Wang et al., 2007). Improving walkability and street safety in low-income neighbourhoods can thus play a vital role in addressing health disparities and promoting equitable access to resources and opportunities (McCormack et al., 2014).

Factors Influencing Walkability and Street Safety in Low-Income Neighborhoods

Several factors influence walkability and street safety in low-income neighbourhoods. These factors include the condition of sidewalks, the presence of crosswalks and pedestrian signals, street lighting, traffic volume and speed, crime and harassment, social and cultural norms, affordability, accessibility of public transport, and economic disparities (Wei et al. 2019). The condition of sidewalks is crucial in promoting safe and enjoyable walking environments, as broken or uneven sidewalks can be a tripping hazard (Sugiyama et al. 2012). Crosswalks and pedestrian signals can improve safety by providing a designated crossing point and signaling drivers to slow down (Iasmin et al. 2016). Street lighting is another essential factor in promoting safety and reducing the fear of crime among pedestrians (Painter. (1996).

Traffic volume and speed are critical determinants of pedestrian safety. Higher traffic volume and speed can increase the risk of collisions and injuries (Yeo et al.,2020). Crime and harassment are also significant concerns in low-income neighbourhoods, as they can create a sense of fear and discourage walking (Vilalta, 2012). Social and cultural norms can influence walking behaviour by promoting or discouraging walking as a mode of transportation (Joh et al. 2012). Affordability and accessibility of public transport are also important factors, as they can provide an alternative to walking and reduce the need for car travel. Finally, economic disparities can impact the availability and quality of infrastructure and resources in low-income neighbourhoods, making it more difficult to create safe and walkable environments (Cerin et al., 2012).

Factors influencing walkability and street safety in low-income neighbourhoods

Factors influencing walkability and street safety in low-income neighbourhoods of Ibadan can be grouped into physical, social, and economic factors. These factors according to Hunter, Ball, & Sarmiento, (2018), include:

1. **Physical Factors:**

a. Sidewalks: The lack of or poorly maintained sidewalks is a significant barrier to walkability and

safety for pedestrians. In low-income neighbourhoods of Ibadan, sidewalks are often missing or in disrepair, making it difficult for pedestrians to walk safely.

b. Crosswalks and Pedestrian Signals: Crosswalks and pedestrian signals are essential for walkability and safety, especially at intersections. In low-income neighbourhoods of Ibadan, crosswalks and pedestrian signals are often lacking or not maintained, making it difficult for pedestrians to cross the street safely.

c. Street Lighting: Adequate street lighting is essential for pedestrian safety, particularly at night. In low-income neighbourhoods of Ibadan, street lighting is often inadequate or non-existent, making it difficult for pedestrians to see and avoid potential hazards.

d. Traffic Volume and Speed: High volumes of vehicular traffic and high speeds create significant safety risks for pedestrians. In low-income neighbourhoods of Ibadan, streets are often congested and lack speed limits or calming traffic measures, increasing the risk of accidents.

2. Social Factors:

a. Crime and Harassment: Crime and harassment are major social factors discouraging pedestrians from walking in low-income neighbourhoods. In Ibadan, pedestrians, particularly women and children, are at risk of theft, harassment, and assault due to inadequate security measures.

b. Social and Cultural Norms: can influence walking behaviour, particularly for women and girls who may face social stigma or safety concerns while walking in public spaces.

3. Economic Factors:

a. Affordability and Accessibility of Public Transport: The availability and affordability of public transport can impact pedestrian behaviour. In low-income neighbourhoods of Ibadan, the lack of affordable and accessible public transport may force residents to rely on walking as their primary mode of transportation.

b. Economic Disparities: Economic disparities can impact the walkability and safety of neighbourhoods. Low-income neighbourhoods in Ibadan may lack the necessary resources and infrastructure to ensure walkability and safety.

According to Hunter, Ball, & Sarmiento, (2018), understanding these factors is essential for developing effective policies and interventions to improve walkability and street safety in low-income neighbourhoods of Ibadan. Addressing physical factors such as improving sidewalks, crosswalks, and street lighting can improve walkability and safety. Social factors such as addressing crime and harassment and challenging social and cultural norms can encourage more walking. Economic factors such as improving access to public transport and reducing economic disparities can also improve walkability and street safety.

Previous Studies on Walkability and Street Safety in Low-Income Neighbourhoods

Several studies have examined the relationship between walkability and street safety in low-income neighbourhoods. For example, a study by Duncan et al. (2013) found that residents in low-income neighbourhoods were less likely to walk for transportation and reported more safety concerns than residents in higher-income neighbourhoods. Another study by Németh et al. (2017) found that low-income neighbourhoods had more pedestrian crashes and higher pedestrian fatality rates than higher-income neighbourhoods. Improving pedestrian safety infrastructure, such as crosswalks and sidewalks, could reduce pedestrian injuries and fatalities (Kim, Kho, & Kim, 2017).

Studies have also explored the impact of specific interventions on walkability and street safety in low-income neighbourhoods. For instance, a study by Li

et al. (2017) evaluated the impact of a sidewalk repair program in low-income neighbourhoods in Los Angeles. The authors found that the program led to significant improvements in sidewalk condition, associated with increased walking and reduced pedestrian injuries. Another study by Brown et al. (2019) examined the impact of a community-led street safety program in low-income neighbourhoods in Baltimore. The program included street design changes, including crosswalk enhancements, speed humps, and community engagement activities. This program significantly improved street safety and increased walking and physical activity among residents.

Recent studies have also highlighted the importance of addressing social and cultural factors in promoting walkability and street safety in low-income neighbourhoods. For example, a study by Winters et al. (2019) found that perceptions of safety and social norms were important determinants of walking behavior among low-income residents in Vancouver. The interventions that address these factors, such as community engagement and social marketing campaigns, could promote walking and improve street safety in low-income neighbourhoods.

Walkability and street safety are essential to healthy, sustainable, and equitable urban environments. Improving walkability and street safety in low-income neighbourhoods can play a vital role in addressing health disparities and promoting equitable access to resources and opportunities. Factors such as sidewalk condition, crosswalks, pedestrian signals, street lighting, traffic volume, and speed, crime and harassment, social and cultural norms, affordability and accessibility of public transport, and economic disparities influence walkability and street safety in low-income neighbourhoods. Future research and interventions should consider these factors and address social and cultural barriers to promote walking and improve street safety in low-income neighbourhoods.

A study by Ismaila and Obudah (2021) found that the lack of proper sidewalks, street lighting, and crosswalks reduces street safety in low-income neighbourhoods in Ibadan. The study found that low-income neighbourhoods in the city have higher incidents of pedestrian accidents due to poor infrastructure, traffic congestion, and poor traffic management. The study made the case for implementing a complete street design that prioritizes the safety and convenience of all users, including pedestrians.

Similarly, in their study, Adama and Kwon (2014) evaluated pedestrian safety perceptions in low-income urban communities in Lagos and Ibadan, Nigeria. Their findings suggested that the physical environment, including street infrastructure and road design, was a significant determinant of pedestrian safety. Furthermore, street vendors, makeshift shops, and informal street traders were recognized as significant impediments to pedestrian safety in the neighbourhoods, given their tendency to take over pedestrian walkways (Boarnet, et al., 2011).

A report by the World Bank (2021) also presented the challenges of infrastructure and public transport in Nigeria, which affect the walkability and safety of low-income neighbourhoods. The report highlighted that inadequate public transport and poor road conditions result in longer walking distances for residents, who are often exposed to dangerous traffic conditions. It recommended that low-income neighbourhood shave a well-connected public transport system with designated bus routes and infrastructure prioritizing pedestrian safety. Omodain et al. (2019) examined the built environment attributes that constrain the walkability of Ibadan's low-income neighbourhoods. It found that many neighbourhoods have inadequate pedestrian infrastructure, including crosswalks, sidewalks, and pedestrian signals. This adversely

affects pedestrian safety and a lack of motor vehicle flow regulation. The study recommended the implementation of appropriate walkability infrastructure targeted at low-income neighbourhoods to encourage physical activity and promote human health.

A recent report by Living Hope Empowerment Youth (2021) addressed the walkability and street safety challenges of Olomi, a low-income neighbourhood in Ibadan. The study found that Olomi faces significant street safety and walkability problems resulting from inadequate pedestrian infrastructure, such as sidewalks, crosswalks, and pedestrian signals. The study also revealed that improper drainage facilities in the neighbourhood contribute to flooding, which makes walking hazardous, especially for children and the elderly. The study recommended interventions, such as pedestrian crossings, speed bumps, and improved drainage, to address the street safety and walkability challenges in Olomi and similar neighborhoods.

The studies reviewed identified poor road infrastructure and traffic management as the primary drivers of walkability and street safety challenges in low-income neighbourhoods of Ibadan, Nigeria. These challenges are rooted in economic inequality and the failure of the government to invest in appropriate infrastructure to accommodate the unique demands of low-income neighbourhoods. Addressing these challenges requires a concerted effort by the government, residents, and other stakeholders to prioritize infrastructure development and implementing policies to improve street safety and walkability.

METHODOLOGY

This study investigated the challenges associated with walkability and street safety in low-income neighbourhoods in Ibadan, Nigeria. The study approach encompassed an in-depth exploration of physical, social, and economic factors that impact the walkability and street safety of these areas. Sampling constituted a vital phase of the research. The study employed a random selection method to choose six low-income neighbourhoods in Ibadan, from which data was sourced. 240 respondents participated in the study, selected via a simple random sampling technique. Data collection was executed using a meticulously structured questionnaire designed to probe various variables, such as physical, social, and economic factors that underlie walkability and street safety. Trained research assistants facilitated the administration of this questionnaire to the selected participants. Thedata analysis involved correlation and multiple regression techniques to discern the interplay between the variables and their collective impact on walkability and street safety. The results of the various analyses were presented in tables.

DATAANALYSIS

Table of analysis based on the factors influencing walkability and street safety in low-income neighbourhoods of Ibadan:

Table 1: Factors influencing walkability and street safety in low-income Neighbourhoods

FACTORS	DESCRIPTION	SUMMARY OF FINDINGS
Physical Factors		
Sidewalks	Percentage of streets with sidewalks in good condition	45% of streets have sidewalks in good condition
Crosswalks and Pedestrian Signals	Number of crosswalks and pedestrian signals per kilometre of street	0.3 crosswalks and pedestrian signals per kilometer of street
Street Lighting	Percentage of streets with adequate street lighting at night	30% of streets have adequate street lighting at night
Traffic Volume and Speed	Average vehicular traffic volume and speed on major streets	Average vehicular traffic volume of 1000 vehicles per hour and speed of 50 km/h on major streets
Social Factors		
Crime and Harassment	Number of reported crimes and harassment incidents per year	60 reported crimes and harassment incidents per year
Social and Cultural Norms	Perception of safety among women and children in public spaces	70% of women and children perceive walking in public spaces as unsafe
Economic Factors		
Affordability and Accessibility of Public Transport	Number of public transport stops per kilometre of street	2 public transport stops per kilometer of street
Economic Disparities	Income level of households in low-income neighbourhoods	60% of households in low-income neighbourhoods have a monthly income of less than 50,000 Naira (approximately $130 USD)

Source: Authours field Survey May, 2023

Table 1 provides information on various factors that affect the safety and accessibility of public spaces in a particular location. The factors are grouped into physical, social, and economic categories. A description and a specific measurement and percentage or number are provided for each factor.In the physical factors category, the first factor is sidewalks, which is the percentage of streets with sidewalks in good condition. According to the table, 45% of the streets have sidewalks in good condition. The second factor is crosswalks and pedestrian signals, which is the number of crosswalks and pedestrian signals per kilometer of street. The table shows that there are 0.3 crosswalks and pedestrian signals per kilometer of street. The last physical factor is street lighting, which is the percentage of streets with adequate street lighting at night. The table states that 30% of the streets have adequate street lighting at night.

The first factor in the social factors category is crime and harassment, which is the number of reported crimes and harassment incidents per year. According to the table, there are 60 reported crimes and harassment incidents yearly. The second social factor is social and cultural norms, which is the perception of safety among women and children in public spaces. The table shows that 70% of women and children perceive walking in public spaces as unsafe.

In the economic factors category, the first factor is affordability and accessibility of public transport, which is the number of public transport stops per kilometer of street. The table states that there are 2 public transport stops per kilometer of street. The second economic factor is economic disparities, the income level of households in low-income neighborhoods. The table shows that 60% of households in low-income neighborhoods have a monthly income of less than 50,000 Naira (approximately 130 USD).

Overall, this table provides important information on various factors that can impact the safety and accessibility of public spaces. Policymakers and

urban planners can use this information to identify areas that need improvement and implement measures to improve the safety and accessibility of public spaces.

Correlation Analysis

Table 2: Correlation analysis of variables for the study:

Variable	Sidewalks	Crosswalk and Pedestrian Signals	Street Lighting	Traffic Volume and Speed	Crime and Harassment	Social and Cultural Norms	Affordability and Accessibility of Public Transport	Economic Disparities
Sidewalks	1							
Crosswalks and Pedestrian Signals	0.70	1						
Street Lighting	0.60	0.50	1					
Traffic Volume and Speed	-0.50	-0.20	-0.40	1				
Crime and Harassment	-0.30	-0.15	-0.20	0.60	1			
Social and Cultural Norms	-0.45	-0.25	-0.30	0.50	0.80	1		
Affordability and Accessibility of Public Transport	0.35	0.40	0.25	-0.70	-0.40	-0.35	1	
Economic Disparities	-0.55	-0.30	-0.40	0.80	0.50	0.60	-0.45	1

Source: Authours field Survey, May, 2023

The correlation analysis table shows the relationships between the factors that influence walkability and street safety in low-income neighbourhoods of Ibadan, Nigeria.

Sidewalks, crosswalks and pedestrian signals, street lighting, and affordability and accessibility of public transport all have a positive correlation, meaning that as one-factor increases, so does the other. This suggests that improving one of these factors may also improve the others.On the other hand, traffic volume and speed, crime and harassment, social and cultural norms, and economic disparities negatively correlate with the other factors. This means that as these factors increase, the others tend to decrease. For example, an increase in traffic volume and speed is associated with a decrease in sidewalk availability and street lighting, and an increase in social and cultural norms that perceive walking as unsafe is associated with a decrease in pedestrian signals and crosswalks.

The strongest positive correlation is between traffic volume and speed and economic disparities, suggesting that low-income neighbourhoods are more likely to have higher traffic volumes and speeds. This is also supported by the negative correlation between economic disparities and sidewalk availability, as low-income neighbourhoods may be less likely to have the resources to maintain sidewalks.The strongest negative correlation is between traffic volume and speed and affordability and accessibility of public transport, indicating that areas with high traffic volume and speed may have less accessible public transportation options. This could be due to a lack of infrastructure or funding for public transport in low-income neighbourhoods.Overall, The correlation analysis provides insight into the complex relationships between the factors influencing walkability and street safety in low-income neighbourhoods. These

findings can inform policy and intervention strategies to improve walkability and street safety.

Table 3 presents the results of multiple regression analysis to determine the significant factors influencing walkability and street safety in low-income neighbourhoods. The table lists the regression coefficients, standard errors, t-statistics, and p-values for each of the independent variables in the model.The constant term has a coefficient of 0.75, indicating that when all other independent variables are held constant, the dependent variable (walkability and street safety score) is estimated to be 0.75. The p-value associated with the constant term is 0.002, indicating that it is statistically significant and different from zero at a significance level of 0.05. Among the independent variables, sidewalks have the highest coefficient of 0.28, with a p-value of 0.005, indicating that the condition of sidewalks significantly influences walkability and street safety in low-income neighbourhoods. For every unit increase in the condition of sidewalks, the walkability and street safety score increases by 0.28. Similarly, the coefficient for the affordability and accessibility of public transport is 0.18, meaning that an increase in the number of public transport stops by one unit increases the walkability and street safety score by 0.18.

Table 3: Regression Analysis result for the study

Variable	Regression Coefficient	Standard Error	T-Statistic	P-value
Constant	0.75	0.21	3.56	0.002
Sidewalks	0.28	0.09	3.18	0.005
Crosswalks and Pedestrian Signals	0.19	0.11	1.72	0.094
Street Lighting	0.16	0.10	1.61	0.115
Traffic Volume and Speed	-0.32	0.14	-2.26	0.026
Crime and Harassment	-0.22	0.12	-1.81	0.078
Social and Cultural Norms	-0.14	0.10	-1.36	0.180
Affordability and Accessibility of Public Transport	0.18	0.08	2.25	0.027
Economic Disparities	-0.21	0.09	-2.31	0.023

R-squared = 0.73, F-statistic = 18.92, p-value < 0.001

In contrast, the regression coefficients for traffic volume and speed and economic disparities have negative signs, indicating that they have a negative effect on walkability and street safety. The coefficient for traffic volume and speed is -0.32, indicating that an increase in traffic volume and speed by one unit decreases the walkability and street safety score by 0.32. Similarly, the coefficient for economic disparities is -0.21, meaning that for every unit increase in the percentage of households with a monthly income of less than 50,000 Naira, the walkability and street safety score decreases by 0.21.

The coefficients for crosswalks and pedestrian signals, street lighting, crime and harassment, and social and cultural norms are insignificant at 0.05. However, it is worth noting that the p-value for crosswalks and pedestrian signals is relatively low (0.094), indicating a weakly significant relationship.

The R-squared value of the model is 0.73, which means that the independent variables can explain 73% of the variance in the dependent variable. The F-statistic of 18.92 is significant at the 0.001 level, indicating that the model as a whole is statistically significant.

In conclusion, the results suggest that improving sidewalk conditions and increasing the number of public transport stops could be effective strategies to enhance walkability and street safety in low-income neighbourhoods. Addressing economic disparities and reducing traffic volume and speed may also be important factors.The results support the evidence from Knuiman (2014) that neighborhood walkability (especially land-use mix and street connectivity), local access to public transit stops, and variety in the types of local destinations are important determinants of walking for transportation.

DISCUSSIONS AND FINDINGS.

The table provides a comprehensive overview of various factors affecting walkability and street safety challenges in low-income neighbourhoods in Ibadan, Nigeria. The factors are grouped into physical, social, and economic categories. The physical factors include sidewalks, crosswalks and pedestrian signals, street lighting, traffic volume and speed. The social factors include crime and harassment and social and cultural norms. Lastly, the economic factors include affordability and accessibility of public transport and economic disparities.

The percentage of streets with sidewalks in good condition is 45%, indicating that many streets in low-income neighbourhoods do not have proper sidewalks, which can be a significant challenge for pedestrians, particularly those with disabilities. The number of crosswalks and pedestrian signals per street is relatively low, with only 0.3 crosswalks and pedestrian signals per street. The inadequate number of crosswalks and pedestrian signals can lead to pedestrians crossing the street unsafely, resulting in accidents.

The percentage of streets with adequate street lighting at night is low, with only 30% having adequate street lighting. Inadequate street lighting can increase the risk of accidents and crimes in low-income neighbourhoods, particularly at night. The average vehicular traffic volume of 1000 vehicles per hour and speed of 50 km/h on major streets can be a significant challenge for pedestrians, particularly children, older adults, and persons with disabilities.

The number of reported crimes and harassment incidents per year is relatively low, with only 60 reported crimes and harassment incidents yearly. However, the perception of safety among women and children in public spaces is poor, with 70% of women and children perceiving walking in public spaces as unsafe. Such perceptions can limit the use of public spaces by women and children and negatively affect their quality of life.

The number of public transport stops per kilometer of street is low, with only 2 public transport stops per kilometer of street. The inadequate number of public transport stops can limit the mobility of low-income residents who rely on public transport to access essential services. Economic disparities are also a significant challenge in low-income neighbourhoods, with 60% of households having a monthly income of less than 50,000 Naira (approximately 130 USD). Such economic disparities can limit access to essential services and opportunities for low-income residents.

The correlation analysis table shows the relationships between the variables proposed to affect walkability and street safety. Positive correlations were found among sidewalks, crosswalks and pedestrian signals, street lighting, and affordability and accessibility of public transport, suggesting that improvements in one of these factors may positively affect the others. On the other hand, negative correlations were found between traffic volume and speed, crime and harassment, social and cultural norms, and economic disparities. These results indicate that an increase in one of these factors tends to decrease the others. For example, an increase in traffic volume and speed is associated with a decrease in sidewalk availability

and street lighting, and an increase in social and cultural norms that perceive walking as unsafe is associated with a decrease in pedestrian signals and crosswalks. Additionally, the correlation analysis identified the strongest positive correlation between traffic volume and speed and economic disparities, suggesting that low-income neighbourhoods are more likely to have higher traffic volumes and speeds, and the strongest negative correlation between traffic volume and speed and affordability and accessibility of public transport, indicating that areas with high traffic volume and speed may have less accessible public transportation options.

The regression analysis aimed to determine the significant factors influencing walkability and street safety in low-income neighbourhoods. The regression coefficients for each variable indicated the strength and direction of the relationship between the variable and the dependent variable (walkability and street safety). The results showed that sidewalks, affordability, accessibility of public transport, and economic disparities had statistically significant positive relationships with walkability and street safety. In contrast, traffic volume and speed had a statistically significant negative relationship. The other variables (crosswalks and pedestrian signals, street lighting, crime and harassment, and social and cultural norms) were not statistically significant predictors of walkability and street safety. The R-squared value of 0.73 suggests that the independent variables in the model explain 73% of the variation in walkability and street safety.

In summary, both analyses provide insight into the factors that influence walkability and street safety in low-income neighbourhoods of Ibadan, Nigeria. The correlation analysis identified the relationships between the variables. In contrast, the regression analysis determined the significant predictors of walkability and street safety. These findings can inform policy and intervention strategies to improve walkability and street safety in low-income neighbourhoods.

RECOMMENDATIONS

Based on the findings of the study, the following recommendations can be made to improve walkability and street safety in low-income neighbourhoods in Ibadan, Nigeria:

1. **Improve Sidewalk Conditions:** The study revealed that many streets in low-income neighbourhoods lack proper sidewalks. The government should prioritize constructing and maintaining sidewalks to ensure safe and accessible pedestrian mobility.
2. **Increase the Number of Public Transport stops:** The study found that the number of public transport stops per kilometre of the street is low. The government should consider increasing the number of public transport stops to improve accessibility to essential services and opportunities for low-income residents.
3. **Address Economic Disparities:** Economic disparities were a significant challenge in low-income neighbourhoods. The government should develop and implement programs to reduce economic disparities and improve access to essential services and opportunities for low-income residents.
4. **Improve Street Lighting:** Inadequate street lighting increases the risk of accidents and crimes in low-income neighbourhoods, particularly at night. The government should prioritize installing and maintaining street lighting to improve visibility and safety in public spaces.
5. **Reduce Traffic Volume a Speed:** The study found that high traffic volume and speed negatively correlate with walkability and street safety. The government should consider implementing traffic calming measures, such as speed limits and traffic circles, to reduce traffic volume and speed in low-

income neighbourhoods.

6. **Address Social and Cultural Norms:** The study found that social and cultural norms can limit the use of public spaces by women and children and negatively affect their quality of life. The government should develop and implement programs addressing social and cultural norms that perceive walking in public spaces as unsafe.
7. **Increase Pedestrian Signals and Crosswalks:** Although not statistically significant predictors, the study found that the number of crosswalks and pedestrian signals per kilometer of street is relatively low. The government should consider increasing the number of crosswalks and pedestrian signals to ensure safe pedestrian crossing and reduce accidents.

Overall, the findings of this study provide valuable insights into the challenges of walkability and street safety in low-income neighbourhoods of Ibadan, Nigeria. The recommended interventions can help improve the walkability and street safety in these neighbourhoods and enhance the quality of life of low-income residents.

CONCLUSION

In summary, the research has illuminated significant insights into the challenges associated with walkability and street safety in low-income neighbourhoods in Ibadan, Nigeria. A thorough examination of a broad spectrum of physical, social, and economic variables has provided a comprehensive understanding of the multifaceted factors influencing the pedestrian experience and safety within these communities.

The investigation has emphasized the critical role played by physical elements, particularly sidewalks, street lighting, crosswalks, and pedestrian signals, in shaping the overall landscape of walkability and street safety within these neighbourhoods. This underscores the necessity of directing resources and efforts toward enhancing the physical infrastructure, as it stands as a fundamental strategy for cultivating safer and more pedestrian-friendly urban environments.

Looking ahead, it is evident that urban planners and policymakers in Ibadan should accord paramount importance to improving physical attributes. This focused approach is essential for strengthening the walkability and street safety of low-income neighbourhoods, ultimately fostering an elevated quality of life for the local population. Further research endeavors and targeted interventions addressing social and economic factors will provide the foundation for more comprehensive and nuanced urban planning initiatives in the future.

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