

**THE SOCIOECONOMIC IMPACT OF GULLY EROSION ON RAFIN
GORA COMMUNITY, KONTAGORA LOCAL GOVERNMENT AREA,
NIGER STATE, NIGERIA**

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Abstract

The aim of this study is to examine the socioeconomic impact of gully erosion on Rafi Gora Community of Kontagora Local Government Area, Niger State, Nigeria. The study used both primary and secondary data, frequency percentage statistics was used to analyzed the data. As revealed in the study rainfall/runoff ranked the highest with 47.0%, inadequate drainage system ranked second with 36.0%, human activities ranked third with 17.0% and vegetal depletion ranked the least with 4.0%. This shows that the major cause of gully erosion in the study area were rainfall/runoff and inadequate drainage system. damage to infrastructure ranked the highest with 42.7%, Damage to agricultural lands ranked second with 32.2%, increased surface runoff and degradatation ranked third with 15.7% and increased sediment concentration in rivers/stream ranked the least with 9.4%. This shows that the major impact of gully erosion is damage to infrastructure such as houses, roads and bridges as revealed in the study. The social impact of gully erosion in the study area include destruction of ancestral homeland by gully erosion, loss of source of water supply, gully site frightful and loss of lives while the economic impact include loss of building and furniture, loss of farmland, loss of planted crops, loss of economic trees and lost money as a result of community contribution to gully erosion as indicated in the study. The study recommends that drainages

along these paved roads should be cleared sand dislodged of accumulated debris and silt to enhance free flow of storm water and debris from inhabitants. In addition, areas that have no drainages, drainage system should be constructed with width and depth according to the standard to enable it carry debris and sediment loads, this will help to forestall flood in this area during wet season, it is strongly suggested that, there should be strict compliance with building regulations by the community and proper canalization of the River Suka from its source to a single outflow.

Keywords: Gully erosion, Rafin Gora and Socioeconomic

Introduction

Soil is a natural resource that may look robust and endless, but is in fact the fragile product of thousands of years of formation (Vrieling, *et al.*, 2008). Soil is the upper most part of the earth surface and consider as one of the most important natural resources that is available everywhere. It is the major determinant of physical activities, for instance farmers considers its types, fertility and texture among others for site suitability for farming, civil engineers relate soil types to residential development while the availability of some mineral resources also largely depend on the soil types (Vrieling, *et al.*, 2008).

Mbaya (2013) viewed that despite the fact that soil is very important to the well-being of the physical and socio-economic activities of man, erosion remains a threat to soil quality and quantity. Soil erosion by water has been recognized as the most severe hazard threatening the protection of soil as it reduces soil productivity by removing the most fertile top soil (Vrieling, *et al.*, 2008). Soil erosion by water is the commonest way in which soils are degraded and many forms of soil loss are easily seen during or shortly after periods of heavy rains (Stocking and Murnaghan, 2000). Human activities disturb the land surface of the earth and thereby induce the significant alteration of natural erosion rates.

Onyegbule (2010) defined soil erosion as a process whereby the surface layer of the soil is detached and carried by agents of denudation and a lower in the soil is exposed leaving a topographic roughness on the resulting landscape. Ogboi and Odeh (2012) observed that erosion problems are more common in cultivated farmland, exposed/bare compounds, on poorly constructed road sites and in places of

concentrated buildings and that area plagued by soil erosion has the vegetation cover removed either by cultivation or construction works or bush burning. Accordingly, the factors of soil erosion in Nigeria resolve into two components: physical (geologic or natural) and anthropogenic (human or accelerated)

Gully erosion is a widespread and often dramatic form of soil erosion caused by flowing surface water. Gullies are perhaps the most devastating and wide spread form of soil erosion (Jibo *et al*, 2020). Gullies could be considered as signals of disturbances and accelerated erosion brought about by climate or land-use change. Gully erosion can be an acute problem causing high sediment yield, removal of fertile soil, destabilization of hill slopes, and the lowering of water tables in alluvial aquifers.

Gully erosion has become a serious environmental disaster and also a threat to well-being of people. It has threatened and destroyed many of the physical infrastructures, properties, as well as retarding the social and economic growth and development of the inhabitant. (Jibo *et al.*, 2020). Apart from the loss of fertile soil and continuous diminutions of cultivable land, there is additional loss of properties to include losses of homes, household belongings, farm crops and utilities (Danladi and Ray, 2014). It consists of open, unstable channels that have been cut more than 30 centimetres deep into the ground. Gully erosion is a result of the interaction of land use, climate and slope. It occurs on many different soils and landforms in Nigeria.

Gully erosion had several socio-economic and political implications which caused a wide range of complex issues within the study area. Some of the immediate consequences included the displacement of people, the destruction of infrastructure such as houses and roads. The destruction of roads and other infrastructure delayed on-going development initiatives and political processes.

In the long-term, affected areas had to deal with the spread of infections and water borne diseases, cholera, dysentery and diarrhea which increased the need for safe drinking water and the provision of water purification tablets. This study further observed that the displacement of people and damage to infrastructure has disrupts communities precisely Rafin Gora and its environs in their development effects and impact on the achievement of almost every Millennium Development Goal. Rafin Gora is characterized by many unplanned and haphazard development and attitude that calls for great concern in order to halt the potential danger of gully erosion in the area. Gully erosion disaster is on the increase in Rafin Gora and this is due to reckless and unplanned constructions of building which are carried out without regards to rules and

regulations governing building along floodable areas in Niger State. Therefore this study assess the impact of gully erosion events in Rafin Gora community of Kontagora Local Government Area, Niger State, Nigeria.

Study Area

Rafin Gora as well as community is a stream in Kontagora Local Government Area, Niger State, Nigeria with an elevation of 266 meters above sea level. It lies within latitude $10^{\circ}.16$ N to $10^{\circ}.23$ N and longitude $5^{\circ}.23$ E to $5^{\circ}.26$ E (see figure 1). The community is of linear settlement pattern along Kontagora-Mokwa road and the inhabitants are mostly Hausa speaking people and other minor settlers, their major occupation is subsistence farming growing rice, millet and corn.



Figure 1: Location of the study area

Materials and Methods

The data for this paper was derived from primary and secondary sources. The primary data consist of first-hand information and comprises personal observation, oral interview and questionnaire administration. Secondary data used include published and unpublished thesis, journals and conference papers which were used to add value to analysis.

The study respondents were 398 and simple random sampling was used to distribute the questionnaires among the respondents. Two hundred and fifty five (255) questionnaires were returned for data analysis.

Table 1: Summary of Materials and Methods

S/N	Research Objective	Data Required	Data Source	Method of Analysis
1	To identified the causes of gully erosion in the study area	Questionnaire and oral interview	primary source (questionnaire and interview)	Descriptive statistic (frequency percentage)
2	Examine the socioeconomic effect of gully erosion in the study area	Questionnaire, oral interview. Photography taken in the affected areas	primary and secondary source (questionnaire, interview, observation and photography taken from the field)	Descriptive statistic (frequency percentage)
3	Asses the adaptation put in place to reduce the impact of gully erosion in the study area	Questionnaire, oral interview.	primary and secondary source (questionnaire, interview, observation and photography taken from the field)	Descriptive statistic (frequency percentage)

Results and Discussion

Causes of Gully Erosion in the Study Area

Causes of gully erosion in the study area include depletion of vegetal cover, heavy rainfall and poor urban planning. Depletion of vegetal cover was seen in the study area as a result of agricultural activities and human settlement.

Present of gullies in the study area

Before knowing the causes of gully erosion, the study asked the respondents about the presence of gully erosion and their responses revealed that the study area has gully erosional sites as indicated in Figure 2 of the study.

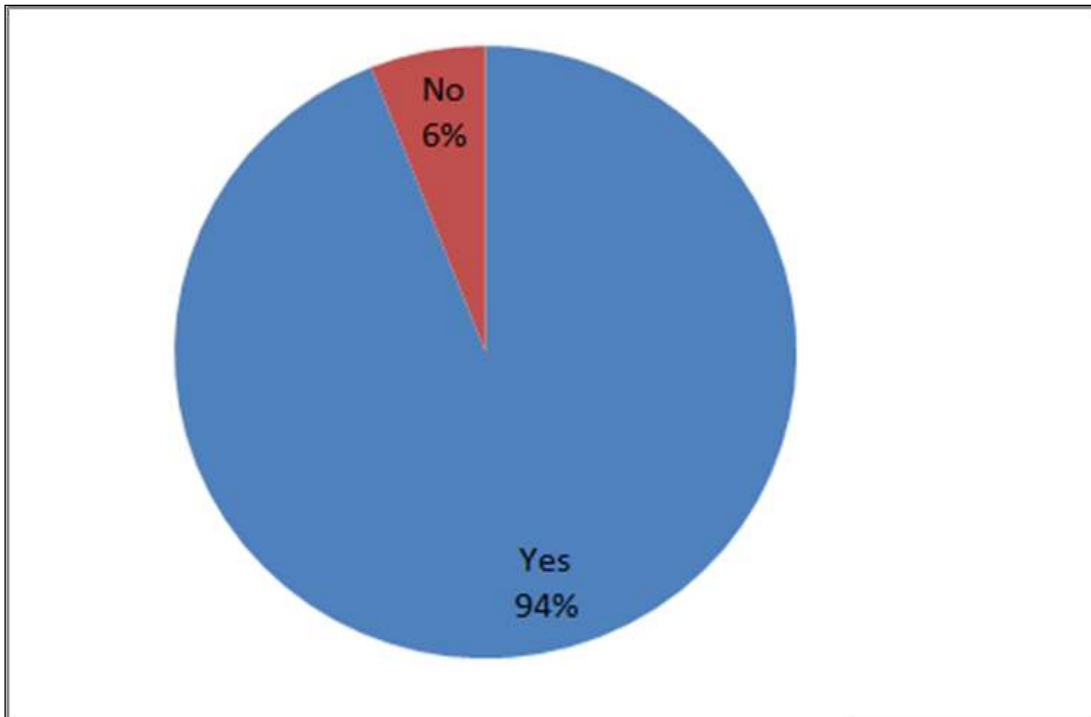


Figure 2: Presence of Gully Erosion Sites observed by the Respondents
Source: Field Survey, 2022

Figure 2 revealed that 94% of the respondents affirmed the gullies in the area while 6% answered in the negative. By implication therefore, most parts of the area are affected by gully erosion. The result obtained indicated that respondent's opinions as to the causative agents of the gullies in the area were of the opinion that the gullies were caused by rainfall. Plate I revealed the presence of gully erosion in Rafin Gora Community.



Plate I: Gully Erosional Site in Rafin Gora Community
Source: Field Survey, 2022

As revealed in Figure 3 of the study, rainfall/runoff ranked the highest with 47.0%, inadequate drainage system ranked second with 36.0%, human activities ranked third with 17.0% and vegetal depletion ranked the least with 4.0%. This shows that the major cause of gully erosion in the study area were rainfall/runoff and inadequate drainage system.

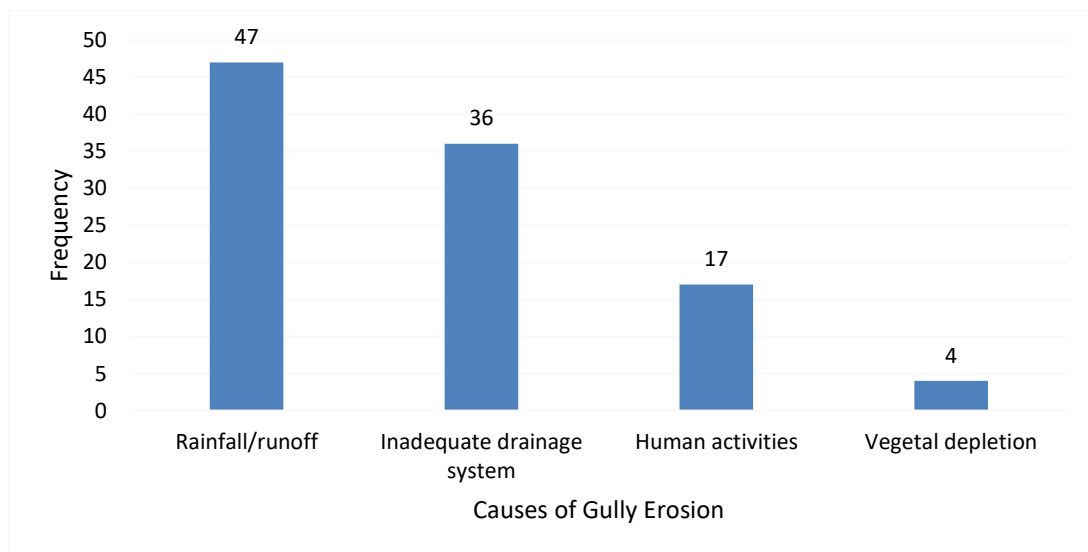


Figure 3: Causes of Gully Erosion in the Study Area
Source: Field Survey, 2022

The detailed of causes of gully erosion in some part of Rafin Gora community include;

- i. Rainfall/runoff:** - This is one of the most active cause that wash down soil surface easily and rapidly especially when associated with sloppy land with poor soil infiltration capacity.
- ii. Inadequate drainage system:** - Inadequate drainage outflow to carry out mixed water from buildings and roads has accelerated gully erosion in the study area. This water flow out to any catchments, it is this concentrated runoff or water body that erodes the soil easily. This however impinges unfavorable upon other infrastructures like roads and houses making the former to develop erosion features while the latter leads to collapse and dilapidation of walls.
- iii. Human activities:** - These are changes inflicted on soil by human induced gully erosion over many years. These human activities involved sand mining of soil for brick making and plastering of building. This however, makes the sand loosed and easily washed away by agents of erosion.
- iv. Vegetal depletion:** majority of the people in the selected areas are observed to be poor and so, they go out to strip fuel wood for domestic cooking and for agricultural activities. This is observed to be the commonest cause influencing gully erosion. This nonchalant attitude tenders the soil loose and unable to infiltrate excess rainfall and thus result to gully formations.

Socioeconomic Impact of Gully Erosion on Rafin Gora Community

Social impact of gully erosion include destruction of ancestral homeland by gully erosion, loss of source of water supply, gully site frightful and loss of lives as indicated in Table 2 of the study. Loss of lives ranked the highest with 36.9%, destruction of ancestral homeland by gully erosion ranked second with 29.4%, loss of source of water supply ranked third with 19.2% and gully site frightful ranked the least with 14.5%. This revealed that the major social impact was loss of lives which include children and adult of the study area.

Table 2: Social Impact of Gully Erosion in Rafin Gora Community

S/No.	Options	Number of Respondents	Percentage (%)
A	Destruction of ancestral homeland by gully erosion	75	29.4%

B	Loss of source of water supply	49	19.2%
C	Gullysite frightful	37	14.5%
D	Loss of lives	94	36.9%
	Total	255	100%

Source: Field Survey, 2022

The economic impact include loss of building and furniture, loss of farmland, loss of planted crops, loss of economic trees and lost money as a result of community contribution to gully erosion as indicated in Table 3 of the study. Loss of farmland/planted crops ranked the highest with 36.9%, loss of building and furniture ranked second with 33.3%, loss of money ranked third with 23.1% and loss of economic trees ranked the least with 6.7% of the total sampled population. This revealed that the major economic impact of gully erosion in Rafin Gora community was loss of farmland/planted crops.

Table 3: Economic Impact of Gully Erosion in Rafin Gora Community

S/No.	Options	Number of Respondents	Percentage (%)
A	Loss of building and furniture	85	33.3%
B	Loss of money	59	23.1%
C	Loss of economic trees	17	6.7%
D	Loss of farmland/planted crops	94	36.9%
	Total	255	100%

Source: Field Survey, 2022

Adaptation strategies put in place to reduce the effect of gully erosion in the study area

The loss due to gully erosion in the study area has increased demand on the land for housing, agriculture and other human activities. This calls for the application of landscaping and other measures such as channelization of floodwater, Geoinformation – Based Early Warning System (GEOBEWS), tree planting and erection of concrete breakers to mention a few in protecting and preserving the environment. The adaptation strategies put in place include gully lining, gully plugs with sand bags and gully plugs with big stones as its shown in Figure 4 of the study.



Figure 4: Adaptation Strategies in the Study Area
Source: Field Survey, 2022

The analysis in Figure 4 shows the respondents use adaptation strategies to reduce the impact of gully erosion in the study area. The use of gully plugs with sand bags constitute 60% of the control measures adopted, the use gully lining constitute 16% and the use of gully plugs with big stones constitute 24% of the respondents’.



Plate II: Rehabilitated road in Rafin Gora

Adaptation Strategies put in place by government to reduce the Impact of Gully Erosion in the Study Area

Another adaptation strategies of minimizing the impact of gully erosion in Rafin Gora community as indicated in Table 4 include reclaiming of gully through proper construction of drainage channels, planting of carpet grass on the reclaimed land, eliminating of grazing along the reclaimed land, maintaining remnant vegetation along drainage lines, avoid excessive cultivation along the upstream of the gully erosional sites and installation of gradient control structures in drainage lines. All these alternative strategies will reduce erodibility of soil, reduce velocity of run-off and flow and reduce run-off volume in the study area.

As indicated in Table 4 of the study, reclaiming of gully through proper construction of drainage channels ranked the highest with 25.5%, planting of carpet grass on the reclaimed land ranked second with 23.1%, maintaining remnant vegetation along drainage lines ranked third with 17.3%, eliminating of grazing along the reclaimed land ranked fourth with 14.5%, avoid excessive cultivation along the upstream of the gully erosional sites ranked fifth with 12.9% and installation of gradient control structures in drainage lines ranked the least with 6.7% of the sampled population. This revealed that the major adaptation strategy in minimizing the impact of gully erosion in Rafin Gora community was reclaiming of gully through proper construction of drainage channels which is already taking place in the study area as depicted in Plate III of the study.

Table 4: Adaptation Strategies put in place by government to reduce the Impact of Gully Erosion

S/No.	Options	Number of Respondents	Percentage (%)
A	Reclaiming of gully through proper construction of drainage channels	65	25.5
B	Planting of carpet grass on the reclaimed land	59	23.1
C	Eliminating of grazing along the reclaimed land	37	14.5

D	Maintaining remnant vegetation along drainage lines	44	17.3
E	Avoid excessive cultivation along the upstream of the gully erosional sites	33	12.9
F	Installation of gradient control structures in drainage lines	17	6.7
	Total	255	100



Plate III: Reclaiming of gully through proper construction of drainage channels in Rafin Gora

Conclusion

From the analysis on the social and economic impact of gully erosion in Rafin Gora community, the study concludes that our environment is a part of our social and economic survival and what happen within the environment we live can impact negatively to our survival. More so, for greater effectiveness, the solution to gully erosion impact is to treat. Gully erosion menace is one phenomenon to which the adage, “A stitch in time saves nine” is most applicable. A number of the severe and

devastating gullies would not have resulted had they been attended to at their incipient stages. It is against this background and based on the findings of this study recommended that the effects due to gully erosion and other natural environmental disasters make the need for an integrated environmental planning and studies very important and urgent. That most of the human activities observed during the study portrayed lack of awareness by the generality of the populace, of the nature and action of erosion as well as of the consequence of their activities and tree planting campaigns should be intensified and there should be legislation/laws for afforestation and against deforestation.

It has been observed that for decades, the people of study area have been facing the threat of gully erosion as one of the most environmental problem. The erosion at this site first appeared as rill and because it has not been checked, it transformed into deep gullies especially, along the river channel that kept increasing every wet season. And if this erosion features are not checked, it will reduce the workable land units and fragment it into smaller parcels that could be of no valuable use. It also breaks up biogeographical environment. Inadequate drainage system and heavy rainfall were the major causes of gully erosion, as people fetch fuelwoods or cut down trees for housing and farming development, the soil become loose and easily dislodge by rain drops as erosion.

From the investigations, most of the paved roads in the study area are eroded by concentration of surface runoff. The drainages along these paved roads should be cleared sand dislodged of accumulated debris and silt to enhance free flow of storm water and debris from inhabitants. In addition, areas that have no drainages, drainage system should be constructed with width and depth according to the standard to enable it carry debris and sediment loads, this will help to forestall flood in this area during wet season. From the observation of dilapidated and collapsed buildings, it is strongly suggested that, there should be strict compliance with building regulations by the people. Proper canalization of the River Suka from its source to a single outflow. This will help to divert the flow of river from areas that are prone to erosion.

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**LEGAL FRAMEWORKS FOR SUSTAINABLE DEVELOPMENT:
ENHANCING ENVIRONMENTAL COMPLIANCE IN TOURISM AND OIL
& GAS IN NIGERIA**

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Abstract

This paper discusses the critical issue of establishing robust legal frameworks to stimulate sustainable development within Nigeria's tourism and oil & gas sectors. Nigeria's abundant natural resources have long attracted significant tourism and large-scale oil & gas operations. However, unchecked exploitation of these resources can lead to severe environmental degradation, infringing on the principles of sustainable development. Recognizing the urgent need for environmental compliance, the paper focuses on the necessity to develop, implement, and enforce effective legal structures to ensure the long-term viability of these key sectors. It aims to bring together legal scholars, environmental experts, policymakers, industry leaders, and civil society advocates to explore the best practices in environmental compliance, examine international norms, and brainstorm innovative strategies tailored to Nigeria's context. Special emphasis is placed on mitigating environmental damage,

prioritizing socioeconomic benefits, and fostering a balance between economic advancement and environmental preservation. The paper is intended to enhance Nigeria's legal frameworks, thereby accelerating the nation's trajectory towards sustainable development.

Keyword: Oil & Gas, Tourism, Frameworks, Sustainable Development, Environmental, Compliance.

Introduction

Nigeria, a growing economic power in West Africa, possesses abundant natural resources that fuel its tourism and oil & gas sectors¹. Tourism is gaining momentum due to the country's diverse wildlife, landscapes, and rich cultural heritage.² Meanwhile, the oil & gas industry has been a key contributor to Nigeria's economy for decades, significantly impacting GDP and foreign exchange earnings³. In the global context, sustainable development is vital, and countries worldwide are recognizing the importance of balancing economic growth with environmental preservation.⁴ The establishment and implementation of strong legal frameworks are essential in driving sustainable development in Nigeria's tourism and oil & gas sectors, preventing environmental degradation resulting from resource exploitation⁵. This research aims to analyze and evaluate the current legal frameworks that govern Nigeria's tourism and oil & gas sectors, with a specific focus on their effectiveness in promoting environmental sustainability. By examining the existing regulations, the study seeks to identify any shortcomings or gaps that may lead to environmental degradation. Furthermore, the research draws insights from international best practices and

¹Central Intelligence Agency. (2022). Africa: Nigeria - The World Factbook.

² Egbali, N., & Nosrat, A. B. (2020). 'Challenges and Opportunities of Tourism in Nigeria'. *Journal of Tourism & Hospitality*, 9(4), 1-9.

³ Iledare, O. O. and Etekpe, A. (2020). The political economy of the petroleum sector in Nigeria: Policy, governance, and institutional framework. *Resources Policy*, 68, 101680.

⁴ World Commission on Environment and Development. (1987). *Our common future*. Oxford University Press.

⁵ Griggs, D. et-al (2013). Policy: Sustainable development goals for people and the planet. *Nature*, 495(7441), 305-307.

innovative approaches to propose enhancements to the legal frameworks. Ultimately, the goal is to suggest measures that will ensure the responsible and sustainable exploitation of resources in these sectors, minimizing their negative impact on the environment. To achieve this the research adopts a doctrinal approach to addressing issues raised herein.

Research aim and objectives

The primary objective of this research is to conduct a comprehensive analysis of the current legal frameworks governing Nigeria's tourism and oil & gas sectors and evaluate their alignment with sustainable development goals. The research aims to make recommendations for enhancing these frameworks to ensure better environmental compliance and contribute to long-term economic and social sustainability. While the specific objectives are :

1. Analyse the existing legal and regulatory mechanisms concerning environmental compliance in Nigeria's tourism and oil & gas sectors.
2. Assess the effectiveness of the current legal frameworks in preventing environmental degradation and promoting sustainable practices.
3. Compare Nigeria's legal frameworks with international norms and best practices to identify areas for potential improvement.
4. Explore the perspectives and roles of various stakeholders, including government agencies, industry players, local communities, and non-governmental organizations, in environmental compliance.
5. Propose amendments or additions to the existing legal frameworks based on identified gaps, international best practices, and stakeholder input.
6. Develop a set of policy recommendations to strengthen legal frameworks for sustainable development in Nigeria's tourism and oil & gas sectors.

By addressing these objectives, the research seeks to provide valuable insights and serve as a resource for policymakers, industry leaders, and scholars who are committed to promoting sustainable practices and developing strong legal structures in these crucial sectors. The ultimate goal is to foster a more sustainable and balanced approach to economic growth and environmental protection in Nigeria.

Overview of Nigeria's tourism and oil and gas sectors

Nigeria's tourism sector has experienced remarkable growth due to its cultural diversity, scenic landscapes, and unique wildlife. The Nigeria Tourism Development Corporation (NTDC)⁶ recognizes the potential of this industry to drive socio-economic growth, create employment opportunities, and foster national integration.⁷ However, the absence of robust legal frameworks may jeopardize the country's biodiversity if tourism activities are not properly regulated and monitored.

On the other hand, the oil & gas sector is a significant driver of Nigeria's economy, contributing substantially to its GDP and export revenue.⁸ Being the largest oil producer in Africa and among the top ten globally, this industry plays a crucial role in the nation's economic landscape. However, it faces various environmental challenges, such as oil spills, gas flaring, and land degradation. The lack of stringent legal and regulatory measures further exacerbates these issues, emphasizing the urgent need for enhanced frameworks that prioritize environmental sustainability.

Analysis of the impact of these sectors on the environment

The tourism and oil & gas sectors in Nigeria have indeed had significant environmental impacts, mainly due to operational activities, weak regulation enforcement, and inadequate environmental management practices. While tourism can contribute to the conservation of natural and cultural heritage, it can also lead to environmental degradation if not managed sustainably. Negative impacts include habitat destruction, pollution, and increased strain on resources. The construction of Tourism infrastructure can result in deforestation, wildlife disturbance, and erosion. Improper waste disposal at tourist sites contributes to soil, water, and air pollution, and excessive tourism demand can lead to the overuse of resources like water and energy. The environmental impact of Nigeria's oil & gas sector is particularly profound, especially in the Niger Delta region, a primary oil-producing area. Oil spills from pipelines and wellheads have caused extensive soil and water pollution, affecting

⁶ This is the primary regulator of the Nigerian tourism Industry statutory established by provision of section 1 Nigeria Tourism Development Corporation Act.

⁷ Organization of Petroleum Exporting Countries. (2022). 'Annual Statistical Bulletin 2022'. OPEC.

⁸ Ibaba, S. I. (2005). 'Understanding the Niger Delta Crisis'. Journal of Sustainable Development in Africa, Vol. 7, No. 2, pp. 199-215.

agriculture and fisheries, which are crucial livelihoods for local communities.⁹ Gas flaring, a common practice in oil extraction, contributes to severe air pollution and adds to global climate change. Additionally, habitat destruction has led to the loss of biodiversity in the region. The environmental impacts of both the tourism and oil & gas sectors pose significant challenges to sustainable development in Nigeria. It emphasizes the urgent need for strengthened environmental legal frameworks and improved sustainable practices within these industries. By addressing these issues, Nigeria can work towards achieving a more sustainable balance between economic growth and environmental conservation.

The significance of legal frameworks for sustainability

The importance of legal frameworks for sustainability cannot be overstated, as they provide the necessary guidelines and regulations for achieving sustainable development. These frameworks shape the context within which businesses operate, societal norms are formed, and governance is conducted.¹⁰ They consist of laws, regulations, and policies that seek to strike a balance between economic growth, environmental conservation, and social equity. From an environmental perspective, legal frameworks are essential for preserving biodiversity, addressing climate change, and reducing pollution.¹¹ They regulate activities that have an impact on the environment, outline the responsibilities of various stakeholders, and establish mechanisms for enforcing compliance and addressing violations.¹²

In the specific context of the oil & gas and tourism sectors, legal frameworks are critical for minimizing negative environmental effects. They can mandate the adoption of clean technologies, enforce proper waste management, and impose penalties for environmental degradation. In Nigeria, a robust legal framework is needed to address environmental concerns in these industries while ensuring that economic benefits are

⁹ UNEP. (2011). 'Environmental Assessment of Ogoniland'. United Nations Environment Programme.

¹⁰Sands, P. and Peel, J., and Fabra, A. (2012). *Principles of International Environmental Law*. Cambridge University Press.

¹¹ Bodansky, D. (2010). *The Art and Craft of International Environmental Law*. Harvard University Press.

¹² French, D. (2005). *International Law and Policy of Sustainable Development*. Manchester University Press.

balanced with environmental protection.¹³ Moreover, these legal structures can empower local communities, promote equitable resource distribution, and help mitigate social conflicts, thus contributing to social sustainability. Therefore, the significance of legal frameworks extends beyond environmental considerations and encompasses broader goals related to sustainability.¹⁴ By adhering to strong legal frameworks, countries like Nigeria can work towards achieving a more sustainable and balanced future for their people and the environment.

Overview of Nigeria's existing legal frameworks for environmental protection

Nigeria has implemented various legal frameworks to address environmental protection, demonstrating its commitment to sustainable development. These laws focus on mitigating environmental impacts across sectors, including tourism and oil & gas. These key environmental protection laws include:

- a. Environmental Impact Assessment (EIA) Act of 1992: This law mandates the assessment of potential environmental impacts before initiating major projects in the tourism and oil & gas sectors, aiming to minimize adverse effects.
- b. Harmful Waste (Special Criminal Provisions etc.) Act of 1988: Prohibits the carrying, depositing, and dumping of harmful wastes on land, territorial waters, and contiguous zones in Nigeria, to control hazardous waste and prevent environmental degradation.¹⁵
- c. National Environmental Standards and Regulations Enforcement Agency (NESREA) Act of 2007 establishes NESREA, responsible for enforcing all environmental laws, guidelines, policies, and standards in Nigeria. NESREA also monitors and controls environmental hazards, including pollution from industrial activities.
- d. National Oil Spill Detection and Response Agency (NOSDRA) Act of 2006: Establishes NOSDRA to implement the National Oil Spill Contingency Plan,

¹³ Ako, R. T. (2009). 'Nigeria's Land Use Act: An Anti-Thesis to Environmental Rights'. In Proceedings of the 4th Annual Colloquium of the IUCN Academy of Environmental Law.

¹⁴ Adedeji, O. H., & Oloke, O. J. (2012). 'Constructive and Non-Constructive Approaches to Community Development in Nigeria'. *Journal of Sustainable Development*, Vol. 5, No. 10, pp. 66-77.

¹⁵ The Federal Republic of Nigeria. (1988). Harmful Waste (Special Criminal Provisions etc.) Act. Cap H1, Laws of the Federation of Nigeria.

tasked with restoring the oil-impacted environment and ensuring compliance with environmental regulations.

- e. Niger Delta Development Commission (NDDC) Act of 2000: Establishes the NDDC with a mandate to formulate policies and guidelines for the development of the Niger Delta region. The act includes mitigating ecological and environmental problems arising from oil exploration in the Niger Delta.¹⁶

However, the effectiveness and enforcement of these legal frameworks in achieving environmental sustainability have been dependent on stakeholders' willingness to comply with them. Stricter enforcement and cooperation among all stakeholders are crucial for ensuring that these laws effectively protect the environment and contribute to long-term sustainability.¹⁷

Comparative analysis of Nigeria's frameworks with international norms

When compared to international norms, Nigeria's environmental legal frameworks in the tourism and oil & gas sectors reveal some deficiencies.

Regulatory Enforcement: Unlike Norway's stringent enforcement in the oil & gas sector, Nigeria has been criticized for weak enforcement of its environmental laws. While the laws exist, their implementation is often hindered by a lack of resources, corruption, and the vast scope of operations, particularly in the Niger Delta.

Incentives for Sustainability: Costa Rica's successful model of incentivizing sustainable practices in the tourism sector contrasts with the situation in Nigeria. While there are efforts to promote ecotourism, the country lacks a cohesive certification system that rewards businesses for sustainable practices.

Public Engagement: In contrast to Botswana's model that fosters community involvement in environmental decision-making, Nigerian frameworks have been critiqued for a lack of stakeholder engagement, especially in the local communities that bear the brunt of environmental degradation.

Use of Technology: The use of advanced technology for environmental protection is evident in Norway's oil & gas sector. Nigeria, however, has been slower in adopting

¹⁶ The Federal Republic of Nigeria. (2000). Niger Delta Development Commission (Establishment, etc.) Act. No. 6, Laws of the Federation of Nigeria.

¹⁷ Imo, C. Y. (2012). 'Law Enforcement and Environmental Protection in Nigeria: An Appraisal'. *Environmental Law Review*, Vol. 14, No. 2, pp. 134-150

and implementing technology for environmental monitoring and protection for instance even though Nigeria has oil theft tracking technology, it has not been applied to stemming the tide of massive theft of crude oil into neighbouring countries. Thus while Nigeria has established environmental legal frameworks for its tourism and oil & gas sectors, there are significant gaps when compared to international norms. This calls for a revision and strengthening of the existing laws, enhanced enforcement, active stakeholder participation, incentives for sustainable practices, and leveraging technology for better environmental management

Exploration of successful international models for environmental compliance in similar sectors

Several countries have successfully implemented environmental compliance mechanisms in the tourism and oil & gas sectors. These international models offer instructive insights that Nigeria could leverage in improving its regulatory frameworks. The efforts of some of these countries are discussed below.

Norway's Oil & Gas Sector: Norway, one of the world's largest oil exporters, has demonstrated successful environmental management in its oil & gas sector¹⁸. The Norwegian Petroleum Directorate enforces stringent environmental regulations, and companies must provide detailed risk assessments and response plans for potential spills. The industry also applies advanced technologies to minimize emissions and implement safe disposal of wastes. Through this model, Norway has achieved a balance between robust oil & gas production and environmental preservation¹⁹.

Costa Rica's Tourism Sector: Costa Rica's sustainable tourism model is internationally acclaimed. The country's Certification for Sustainable Tourism (CST) program rewards businesses that demonstrate eco-friendly practices with a 'green leaf' rating. This incentivizes environmental stewardship among operators and educates tourists about sustainable practices. This proactive approach, combined with stringent

¹⁸ Rygg, B. J. (2012). 'Environmental performance in the Norwegian oil and gas industry'. *International Journal of Sustainable Society*, Vol. 4, No. 1-2, pp. 107-124.

¹⁹ Lahn, G. & Kjærnet, H. (2011). 'Managing Resource Abundance and Wealth: The Norwegian Experience'. The Oxford Institute for Energy Studies, OIES Paper: MEP 5.

environmental regulations, has promoted sustainable tourism development, benefiting both the economy and the environment²⁰.

Botswana's Diamond Mining Sector: Botswana, a major diamond producer, enforces strict environmental laws and industry standards in mining operations⁵. Mines are required to have environmental management plans, including provisions for waste disposal, air and water quality, and land rehabilitation. The mining sector collaborates with environmental scientists to minimize ecological impacts and ensures community involvement in environmental decision-making²¹.

These models underscore that stringent regulations, advanced technologies, incentives for eco-friendly practices, and multi-stakeholder involvement can foster environmental compliance and sustainability in economic sectors.

Challenges to Environmental Compliance in Nigeria

In a bid to reduce environmental degradation arising from the negative impact of activities in the tourism and the oil and gas industry, it has come obvious that there are challenges which affect compliance some of these are ;

A. Weak enforcement of environmental laws

The effectiveness of Nigeria's environmental regulations is often compromised by weak enforcement. A lack of resources and technical capacity, corruption, and inadequate sanctions contribute to this situation. The vast geography of sectors such as the Niger Delta also poses a significant challenge to monitoring and enforcement²².

B. Inadequate funding and resources

Limited resources and funding restrict the ability of regulatory bodies to effectively monitor compliance, implement sustainable practices, and enforce penalties. This often results in breaches of environmental standards going unnoticed or unpenalized.

C. Limited public participation

The lack of active stakeholder participation, particularly from local communities, in environmental decision-making processes impedes effective compliance. This is often

²⁰ Rivera, J. (2002). 'Assessing a voluntary environmental initiative in the developing world: the Costa Rican Certification for Sustainable Tourism'. *Policy Sciences*, Vol. 35, pp. 333–360.

²¹ Mokaya, E., Magole, L., & Magole, I. (2020). 'Managing the impacts of mining on Botswana's water resources'. *Journal of Water Reuse and Desalination*, Vol. 10, No. 3, pp. 284-297.

²² Etikerentse, G. (2007). 'Nigerian Petroleum Law'. The University of Lagos Press.

attributed to a lack of transparency, poor communication, and the top-down approach to governance.

D. Conflict of interests

The government's dual role as regulator and beneficiary (via its share in oil & gas revenues) often leads to a conflict of interest. This often translates to prioritizing economic benefits over environmental protection²³

E. Weak corporate accountability

Many oil & gas and tourism companies operating in Nigeria have weak environmental accountability. The cost of non-compliance often outweighs the cost of potential sanctions, creating a disincentive for companies to adhere to environmental regulations²⁴

Innovative Approaches to Enhancing Legal Frameworks

a. Leveraging Technology for Compliance- Adopting innovative technologies, such as remote sensing and Geographic Information Systems (GIS), can enhance environmental monitoring and enforcement¹. These technologies can provide real-time data on environmental impacts, thus aiding prompt action and policy decisions²⁵.

b. Incentivizing Sustainable Practices- Economic incentives, such as tax benefits, subsidies, or recognition awards for companies that demonstrate sustainable practices can motivate higher levels of compliance. This approach has been successful in countries like Costa Rica and could be replicated in Nigeria²⁶.

c. Strengthening Public Participation- Increasing public participation, particularly from local communities, can foster better compliance. This includes encouraging active engagement in decision-making processes and providing transparent access to environmental data and information²⁷.

²³ Ako, R. T., Okonmah, P. (2009). 'Minority Rights Issues in Nigeria: A Theoretical Analysis of the Historical and Contemporary Consequences'. *Journal of Law and Conflict Resolution* Vol. 1, No. 2, pp. 30-40.

²⁴ Amunwa, B. (2011). 'Counting the Cost: Corporations and human rights abuses in the Niger Delta'. Platform London.

²⁵ Adewale, A. A., & Adesanya, A. (2013). 'Applicability of Remote Sensing and Geographic Information System in Oil Spill Detection and Monitoring in Nigeria'. *International Journal of Engineering and Technology*, Vol. 3, No. 5.

²⁶ UNEP. (2011). 'Environmental Assessment of Ogoniland'. United Nations Environment Programme.

²⁷ Etemire, U. (2012). 'Law, communities and water resource management in Nigeria: the search for an inclusive legal paradigm'. *Journal of Water Law*, Vol. 22, No. 5, pp. 231-238.

d. Establishing Stronger Corporate Accountability -Increasing corporate accountability through stricter regulations and harsher penalties for environmental violations can deter non-compliance. This could be complemented by promoting corporate social responsibility and encouraging companies to adopt sustainable business models²⁸.

e. Fostering International Cooperation -Collaboration with international organizations and adopting global best practices can strengthen Nigeria's legal frameworks. Such cooperation can also provide access to technical assistance, funding, and expertise.

Presentation of potential legal modifications and additions based on international models

Alignment with International Norms

a. Nigeria can align its legal frameworks with international environmental law norms, such as the precautionary principle and the polluter pays principle. These principles have been successfully incorporated into the environmental laws of many countries and provide a solid foundation for environmental compliance²⁹.

b. Adoption of Integrated Environmental Management Systems -integrated environmental management systems like ISO 14001 can promote continuous improvement in environmental performance. This approach has been successful in countries like Australia and could be replicated in Nigeria³⁰.

c. Specific Regulations for Key Environmental Issues -Nigeria can formulate more specific regulations addressing key environmental issues in the tourism and oil & gas sectors, such as waste management, water pollution, and gas flaring³¹.

d. Inclusion of Climate Change Provisions -Given the global concern for climate change, incorporating legal provisions that address climate change mitigation and

²⁸Idemudia, U. (2009). 'Oil Extraction and Poverty Reduction in the Niger Delta: A Critical Examination of Partnership Initiatives'. *Journal of Business Ethics*, Vol. 90, pp. 91–116.

²⁹Sands, P., Peel, J., Fabra, A., & MacKenzie, R. (2012). *Principles of International Environmental Law*. Cambridge University Press.

³⁰ISO. (2020). 'The ISO 14000 family - Environmental management'. International Organization for Standardization.

³¹Eze, R. C. (2012). 'Gas Flaring, Transportation and Sustainable Energy Development in the Niger Delta, Nigeria'. *Journal of Sustainable Development and Environmental Protection*, Vol. 2, No. 1, pp. 22-29.

adaptation strategies, as seen in countries like the UK and Sweden, would strengthen Nigeria's environmental legal framework³².

e. Strengthening of Environmental Impact Assessment Laws

Refining and strengthening Environmental Impact Assessment (EIA) laws to ensure that all projects (private or public) are subject to rigorous environmental impact assessments could improve compliance³³

Detailed examination of successful initiatives for environmental compliance within Nigeria and similar economies

a. Nigeria's Oil Spill Detection and Response Agency (NOSDRA)- NOSDRA is a government agency in Nigeria tasked with the responsibility of coordinating the implementation of the National Oil Spill Contingency Plan (NOSCP). The agency has initiated measures such as the Oil Spill Monitor, an online platform that provides information on oil spills in Nigeria, as well as actions taken to mitigate them. This tool has increased transparency and accountability in oil spill management.³⁴

b. Costa Rica's Payment for Ecosystem Services (PES) Program -Costa Rica, a country with a thriving tourism industry, has implemented an innovative PES program that provides financial incentives to landowners for preserving forests and their biodiversity. This initiative has significantly reduced deforestation rates and can serve as a model for promoting sustainable tourism in Nigeria³⁵.

c. Ghana's Environmental Impact Assessment (EIA) Process -Ghana's EIA process is recognized for its comprehensive approach to environmental management in the oil & gas sector. The process involves thorough environmental auditing, public participation, and post-project evaluation. The implementation of a similar EIA process in Nigeria can enhance environmental compliance in the oil & gas sector.

d. The Extractive Industries Transparency Initiative (EITI) in Azerbaijan

³² Bodansky, D. (2010). *The Art and Craft of International Environmental Law*. Harvard University Press.

³³ Holder, J., & Lee, M. (2007). *Environmental Protection, Law and Policy: Text and Materials*. Cambridge University Press.

³⁴ Appiah-Opoku, S. (2001). 'Environmental Impact Assessment in Developing Countries: The Case of Ghana'. *Environmental Impact Assessment Review*, Vol. 21, No. 1, pp. 59-71.

³⁵ Hasanov, F., & Alirzayev, I. (2019). 'Extractive Industries Transparency Initiative and Its Reflections in Azerbaijan'. *Resources Policy*, Vol. 61, pp. 196-209.

Azerbaijan, a country with a similar resource-driven economy, has successfully implemented the EITI. This initiative has increased transparency in the oil & gas sector by requiring companies to publicly disclose payments made to the government. Nigeria, a member of the EITI, can further strengthen its implementation to enhance transparency and accountability in its oil & gas sector.

Stakeholder Perspectives and Roles in Environmental Management

- a. Government -As the primary regulator, the government formulates, implements, and enforces environmental laws. It has the authority to incentivize or penalize industries based on their adherence to environmental standards. Collaboration with international entities is sought for guidance and support in environmental management.
- b. Industry: The oil & gas and tourism sectors are key stakeholders with direct environmental impacts. They are responsible for complying with environmental regulations, adopting sustainable practices, and investing in eco-friendly technologies. Collaboration with the government and local communities is essential for effective environmental management.

d. Local Communities:

Local communities, often affected by environmental degradation, play a critical role in monitoring industry activities and reporting non-compliance. Their participation in decision-making processes ensures socially inclusive and effective environmental policies.

d. Non-Governmental Organizations (NGOs):

NGOs play a significant role in advocating for stricter environmental laws, raising public awareness about environmental issues, and holding industries accountable for their ecological footprint. They act as intermediaries between the government, industry, and local communities

e. International Organizations:

International organizations, such as the United Nations Environment Programme (UNEP) and the World Bank, provide technical assistance, funding, and policy advice to enhance Nigeria's environmental legal frameworks. They also facilitate knowledge transfer and capacity-building initiatives.²

Conclusion

In conclusion, the research provides a comprehensive analysis of the current legal frameworks and practices for sustainable development in Nigeria's tourism and oil & gas sectors. It emphasizes the significance of stringent environmental regulations, effective enforcement, and stakeholder engagement in achieving environmental compliance and overall sustainability. Comparative analysis with international norms and successful initiatives underscores the potential for improvement in Nigeria's legal and policy structures. The research also highlights the pivotal role of technology in ensuring environmental compliance and the importance of understanding and addressing socio-economic, cultural, and political barriers.

Research findings

This research has shed light on the current state of environmental compliance within the tourism and oil & gas sectors in Nigeria, the shortcomings of existing legal frameworks, and the impacts of these sectors on the environment. findings of the research include:

1. While Nigeria has some legal frameworks in place for environmental protection, these are insufficiently enforced and have not been successful in ensuring sustainability in the tourism and oil & gas sectors
2. Current practices in the tourism and oil & gas sectors are contributing significantly to environmental degradation, which underlines the necessity for improved regulatory oversight and industry practices
3. The environmental impact of these sectors is considerable, including pollution, habitat destruction, and contribution to climate change.
4. A comparative analysis with international norms shows a gap between Nigeria's current frameworks and the best practices adopted in similar economies.
5. The research identifies multiple barriers to environmental compliance in Nigeria, including socio-economic factors, cultural beliefs, political dynamics, and technical barriers.
7. Technology can play a crucial role in improving environmental compliance, through better monitoring, reporting, and sustainable industry practices.
8. Successful environmental compliance requires the active participation of all stakeholders, including government, businesses, communities, and NGOs.

9. A detailed examination of successful initiatives within Nigeria and similar economies indicates potential pathways for enhancing environmental compliance.

Recommendations

Based on the findings of this research, the following are recommended strategies for advancing sustainable development in Nigeria's tourism and oil & gas sectors:

1. **Strengthen Legal Frameworks:** The need for more robust legal frameworks cannot be overemphasized. There should be clear, stringent, and enforceable environmental regulations for these sectors¹. The legal provisions should also cover compulsory Environmental Impact Assessments for major projects.
 2. **Enhance Enforcement:** The implementation and enforcement of existing laws must be stepped up. This will require adequate funding and capacity-building for relevant regulatory bodies and severe penalties for non-compliance.
 3. **Promote Corporate Social Responsibility (CSR):** Companies in these sectors should be encouraged, and possibly mandated, to adopt CSR strategies that promote environmental sustainability⁴. These might include investment in eco-friendly technologies and practices, support for local communities, and initiatives to offset their environmental impacts.
 4. The government should consider policies that incentivize sustainable practices, such as tax breaks or subsidies for companies that exceed environmental standards or adopt sustainable technologies.
 5. Requiring companies to publicly report on their environmental performance can create public pressure for improved practices, and enable regulators and stakeholders to hold them accountable.
 6. **Engage Stakeholders:** All stakeholders, including local communities, non-governmental organizations, and industry representatives, should be involved in decision-making processes related to environmental regulations and practices.
 7. This could involve public consultations, partnerships with NGOs, and increasing the involvement of local communities in managing natural resources.
- Adopt International Best Practices:** Collaboration with international bodies can help Nigeria adopt and implement the best practices for environmental compliance.

8. This can involve participation in international agreements and cooperation with countries with similar economies and challenges. Invest in Technology: The use of technology for monitoring, reporting, and implementing sustainable practices in these sectors should be promoted

In the long run, achieving sustainable development in Nigeria's tourism and oil & gas sectors will require not only changes in laws and policies but also shifts in attitudes and behaviours at all levels - from government and industry to local communities and individuals.

ANALYSIS OF TRAFFIC CONGESTION AND CHALLENGES IN MINNA METROPOLIS

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Abstract

Large populace are currently residing in Minna either by birth, for job or commercialization, and because of this fast urbanization and population expansion, more traffic is generated as people rely more on vehicular transit for varied everyday activities. The to and fro movement of this populace led to scrambling for the right of way among all road user, which consequently results to traffic conflicts. This paper seeks to analyze the effect of traffic congestion and challenges in selected road section in Minna. To achieve this; ArcMap was used to convert satellite images and maps to their digital form for easy analysis. Volumetric Traffic Count was conducted from 6:00am to 6:00pm. The result revealed that the most observable congestion problem along the study corridors was during the morning peak hour (between 8:00 am and 10:00am) and the evening peak (between 4:00pm and 6:00pm). The study appraised the menace of traffic congestion in Minna metropolis and it was seen that the problem of traffic congestion are ostensible in the area.

Key words: Transportation, Traffic congestion, Population, Analysis, Urbanization

INTRODUCTION

Transportation is naturally important for the growth of any nation and its economy, not only because it is required for human survival, but also because it has an impact on every element of human life (Oyesiku, 2002). Oni (2004) depicted transportation

as the lifeblood of any city. Life as we know it now would be impossible without transportation, which is essential for the transfer of knowledge, information, and economic commodities (Oluwasegun, 2015). However, in addition to urban prospects, Nigeria is experiencing an increase in the problem of urban mobility (Oyesiku, 2002). According to Ogunsanya (1983), urban mobility issues arise because of increased urbanization and lead to traffic congestion.

There is no universally acknowledged definition of traffic congestion, according to some academics. This is due to the operators' and users' perceptions (Fadairo, 2013). The Joint Transport Research Centre (2007) of the Organization for Economic Co-operation and Development (OECD) and the European Conference of Ministers of Transport (ECMT) provides many definitions of traffic congestion to illustrate the various broad perspectives. According to the first definition, traffic congestion is any situation in which demand for road space exceeds supply. The second viewpoint holds that congestion is the impediment that vehicles impose on one another because of the speed-flow relationship when a roadway approaches capacity. Congestion, according to the third definition, is mostly a relative issue related to the gap between what consumers expect from a transportation system and how it really operates.

Nigerian cities are plagued by traffic congestion. It occurs when a city's road network can no longer handle the volume of traffic that passes through it; it raises travel costs and creates physical and mental pain (Jaco, 2008). All the traffic corridors in Minna Metropolis are in a state of chaos (Badamasi, 2014). As a result, many people and automobiles may be observed creeping along the key highways across the Minna Metropolis (Badamasi, 2014). Furthermore, because the roads are frequently in poor condition, traffic congestion persists (Badamasi, 2014). There is no free vehicle circulation, mobility is limited, and there is a great deal of discomfort on the road. Additionally, a great deal of time is wasted on the road, all of which has a significant impact on the state economy. Minna's traffic congestion is a severe transportation issue. If this is the case, efforts will be focused on a cost-effective solution to the problem (Ogunsanya, 2002).

RESEARCH METHODOLOGY

The survey research design and the cross-sectional research design were used in this study. Survey was conducted on the field using an instrument for on-the-spot data collection.

Table 2.1 Research Methodological Table

The Study Objectives	Type Of Data	Instrument/method Required	Method Of Data Analysis
Identify the primary road network and traffic congestion hotspots in the Minna metropolitan.	Primary data	Reconnaissance survey and Google earth map, handheld Garmin 76CSX GPS receiver	Descriptive method and maps
Examine the frequency of traffic congestion on the road network and in specific areas.	Primary data	Reconnaissance survey, paper and pencil and digital camera.	Frequency distribution, tables, and charts
Examine the factors that contribute to traffic congestion at those points.	Primary and secondary data source	Questionnaire and Reconnaissance survey.	Frequency distribution tables and charts methods of data analysis
Develop measures for dealing with vehicle traffic congestion in the city.	Primary and secondary data source.	Questionnaire and reconnaissance survey (field and office recce)	Frequency distribution tables and charts.

RESULT AND DISCUSSION

The results presented in this chapter are graphical representation of volumetric traffic count, in fulfilment of the objectives of this research; a volumetric traffic count was carried out to ascertain the frequency of traffic congestion along the selected road corridors (corridors A-D). This volumetric traffic count was conducted between the hours of 6am to 6pm from Monday to Friday

The traffic distribution for the observed days of the week along corridors (Corridors A-D). The most noticeable traffic congestion problem along this corridor was during the peak hours of (between 8:01-10am) while coming from Bosso through Dutsenkura Hausa and DutsenkuraGwarri to Kpakungu and (4:01-6pm) along the same route. The type of congestion experienced during this period is the synchronized-flow characterized with significant drop in speed of vehicles with no noticeable change in flow rate.

Time	Type of vehicles						Total
Perio	Cars	Tricycl	Buse	Truck/Trailer	Motorcycle	Bicycle	
6AM-	115	1008	11	7	1247	10	3435
8:01-	132	1248	28	11	1852	2	4467
10:01	109	915	13	9	1185	1	3218
12:01	988	839	6	5	1122	1	2961
2:01-	120	929	19	9	1285	1	3451
4:01-	131	1140	7	8	1577	3	4054
Total	708	6079	84	49	8268	18	2158

Table 3.1: - Volumetric Traffic count for Monday along corridor A.

Time	Type of vehicles						Total
Period	Cars	Tricycle	Buses	Truck/Trailers	Motorcycles	Bicycles	
6AM-8AM	1032	841	13	11	1179	12	3088
8:01-10AM	1415	1131	23	8	1309	1	3887
10:01-12PM	1002	992	14	10	1013	2	3033
12:01-2PM	989	814	8	7	1111	1	2930
2:01-4PM	1144	920	17	6	1297	1	3385
4:01-6PM	1209	1132	22	12	1428	3	3806
Total	6791	5830	97	54	7337	20	20129

Table 3.2: - Volumetric Traffic count for Tuesday along corridor A.

Time	Type of vehicles						Total
Period	Cars	Tricycle	Buses	Truck/Trailers	Motorcycles	Bicycles	
6AM-8AM	976	904	8	4	1101	2	2995
8:01-10AM	1313	1098	14	8	1318	2	3753

10:01-12PM	1057	707	8	3	1157	0	2932
12:01-2PM	997	603	4	2	997	1	2604
2:01-4PM	1223	1074	6	10	1299	0	3612
4:01-6PM	1398	1147	3	6	1490	3	4047
Total	6964	5533	43	33	7362	8	19943

Table 3.3: - Volumetric Traffic count for Wednesday along corridor A.

Time	Type of vehicles						Total
Perio	Cars	Tricycl	Buse	Truck/Trailer	Motorcycle	Bicycle	
6AM-	980	931	14	9	1037	14	2985
8:01-	135	1147	21	11	1480	2	4017
10:01	894	979	16	8	1009	1	2907
12:01	932	813	11	6	997	0	2759
2:01-	104	1037	17	7	1141	1	3250
4:01-	131	1240	16	7	1357	2	3938
Total	652	6147	95	48	7021	20	1985

Table 3.4: - Volumetric Traffic count for Thursday along corridor A.

Time	Type of vehicles						Total
Perio	Cars	Tricycl	Buse	Truck/Trailer	Motorcycle	Bicycle	
6AM-	982	892	8	6	1010	2	2900
8:01-	128	1094	12	11	1570	1	3972
10:01	100	892	10	8	1097	1	3014
12:01	974	709	11	6	1004	1	2705
2:01-	112	1089	6	9	962	1	3188
4:01-	134	1129	5	5	1659	0	4140
Total	670	5805	52	45	7302	6	1991

Table 3.5: - Volumetric Traffic count for Friday along corridor A

Time	Type of vehicles						Total
Perio	Cars	Tricycl	Buse	Truck/Trailer	Motorcycle	Bicycle	
6AM-	106	962	9	242	1211	11	3503
8:01-	140	1298	14	193	1801	1	4708

10:01	978	999	7	166	1110	1	3261
12:01	100	989	5	127	1023	1	3154
2:01-	132	1198	17	176	1289	2	4009
4:01-	157	1372	10	267	1553	1	4773
Total	735	6818	62	1171	7987	17	2340

Table 3.6: - Volumetric Traffic count for Monday along corridor B.

Time	Type of vehicles						Total
Perio	Cars	Tricycl	Buse	Truck/Trailer	Motorcycle	Bicycle	
6AM-	100	836	13	256	1131	12	3255
8:01-	153	1109	14	199	1512	0	4365
10:01	993	631	8	170	1210	1	3013
12:01	909	871	5	131	1129	1	3046
2:01-	105	933	21	193	1231	2	3435
4:01-	129	1112	14	281	1513	2	4214
Total	678	5492	75	1230	7726	18	2132

Table 3.7: - Volumetric Traffic count for Tuesday along corridor B.

Time	Type of vehicles						Total
Perio	cars	Tricycl	Buse	Truck/Trailer	Motorcycle	Bicycle	
6AM-	973	898	6	309	1083	3	3272
8:01-	120	1055	11	232	1403	1	3908
10:01	971	782	14	181	908	1	2857
12:01	990	715	9	184	853	1	2752
2:01-	102	911	12	197	1220	1	3362
4:01-	112	1009	8	252	1523	0	3915
Total	628	5370	60	1355	6990	7	2006

Table 3.8: - Volumetric Traffic count for Wednesday along corridor B

Time	Type of vehicles						Total
Perio	cars	Tricycl	Buse	Truck/Trailer	Motorcycle	Bicycle	
6AM-	988	1097	17	261	1097	12	3472
8:01-	134	1149	11	189	1670	3	4369
10:01	979	951	7	172	1097	1	3207

12:01	841	978	6	167	1021	1	3014
2:01-	116	1011	19	178	1240	1	3610
4:01-	137	1201	21	249	1589	4	4434
Total	668	6387	81	1216	7714	22	2210

Table 3.9: - Volumetric Traffic count for Thursday along corridor B

Time	Type of vehicles						Total
Perio	Cars	Tricycl	Buse	Truck/Trailer	Motorcycle	Bicycle	
6AM-	872	941	11	361	942	6	3133
8:01-	124	1120	16	196	1313	1	3894
10:01	895	788	10	177	971	1	2842
12:01	797	624	9	160	991	2	2583
2:01-	112	1077	13	182	1201	0	3598
4:01-	124	1114	8	246	1447	1	4058
Total	617	5664	67	1322	6865	11	2010

Table 3.10: - Volumetric Traffic count for Friday along corridor B.

Time	Type of vehicles						Total
Perio	Cars	Tricycl	Buse	Truck/Trailer	Motorcycle	Bicycle	
6AM-	120	1099	14	12	1204	6	3537
8:01-	167	1321	28	18	1640	2	4683
10:01	118	1057	15	15	1140	1	3411
12:01	102	998	31	22	1079	1	3154
2:01-	125	1114	13	7	1216	2	3611
4:01-	139	1279	16	13	1421	2	4124
Total	773	6868	117	87	7700	14	2252

Table 3.11: - Volumetric Traffic count for Monday along corridor C.

Time	Type of vehicles						Total
Perio	Cars	Tricycl	Buse	Truck/Trailer	Motorcycle	Bicycle	
6AM-	109	932	116	19	1298	13	3470
8:01-	164	1208	26	15	1731	1	4623
10:01	101	1006	17	14	1010	1	3059
12:01	107	1014	29	18	1055	1	3188

2:01-	123	1167	15	21	1291	0	3733
4:01-	158	1209	17	14	1777	2	4607
Total	764	6536	220	101	8162	18	2268

Table 3.12: - Volumetric Traffic count for Tuesday along corridor C.

Time	Type of vehicles						Total
Perio	Cars	Tricycl	Buse	Truck/Trailer	Motorcycle	Bicycle	
6AM-	108	1015	6	7	1092	4	3211
8:01-	138	1242	22	21	1583	1	4253
10:01	990	1103	14	11	1281	1	3400
12:01	101	1011	7	10	1099	2	3143
2:01-	121	997	16	13	1212	1	3454
4:01-	148	1214	19	23	1445	1	4190
Total	717	6582	84	85	7712	10	2165

Table 3.13: - Volumetric Traffic count for Wednesday along corridor C.

Time	Type of vehicles						Total
Perio	cars	Tricycl	Buse	Truck/Trailer	Motorcycle	Bicycle	
6AM-	979	912	10	13	1191	6	3111
8:01-	134	1210	13	16	1479	4	4062
10:01	100	940	10	9	1121	1	3082
12:01	980	816	8	11	921	0	2736
2:01-	114	1092	16	12	1192	1	3454
4:01-	127	1149	24	14	1341	2	3800
Total	671	6119	81	75	7245	14	2024

Table 3.14: - Volumetric Traffic count for Thursday along corridor C.

Time	Type of vehicles						Total
Perio	cars	Tricycl	Buse	Truck/Trailer	Motorcycle	Bicycle	
6AM-	929	949	14	9	1005	2	2908
8:01-	138	1113	24	13	1606	1	4140
10:01	102	779	20	10	1011	1	2844
12:01	947	795	17	21	1067	2	2849

2:01- 4PM	112 1	1015	26	12	1443	1	3618
4:01-	130	1100	11	9	1682	2	4105
Total	670	5751	112	74	7814	9	2046

Table 3.15: - Volumetric Traffic count for Friday along corridor C.

Time	Type of vehicles						Total
Perio	Cars	Tricycl	Buse	Truck/Trailer	Motorcycle	Bicycle	
6AM-	997	1238	13	10	1157	11	3426
8:01-	137	1177	27	23	1731	1	4331
10:01	108	941	16	17	1113	1	3171
12:01	989	997	9	11	1037	0	3043
2:01-	110	1203	15	17	1386	3	3726
4:01-	130	962	22	19	1667	2	3975
Total	684	6518	102	97	8091	18	2167

Table 3.16: - Volumetric Traffic count for Monday along corridor D

Time	Type of vehicles						Total
Perio	Cars	Tricycl	Buse	Truck/Trailer	Motorcycle	Bicycle	
6AM-	100	997	8	6	1120	14	3146
8:01-	139	1295	16	17	1602	2	4323
10:01	102	992	11	8	1111	2	3153
12:01	993	971	6	5	1120	1	3096
2:01-	120	1011	13	13	1342	0	3580
4:01-	143	1211	9	17	1531	7	4206
Total	704	6477	63	66	7826	26	2150

Table 3.17: - Volumetric Traffic count for Tuesday along corridor D.

Time	Type of vehicles						Total
Perio	Cars	Tricycl	Buse	Truck/Trailer	Motorcycle	Bicycle	
6AM-	997	942	12	11	1172	5	3139
8:01-	138	1235	26	23	1587	1	4254

10:01	103	1047	18	14	1199	1	3310
12:01	981	997	7	7	1021	1	3014
2:01-	109	1054	18	11	1201	0	3381
4:01-	128	1127	24	21	1479	0	3932
Total	676	6402	105	87	7659	8	2103

Table 3.18: - Volumetric Traffic count for Wednesday along corridor D.

Time	Type of vehicles						Total
Perio	Cars	Tricycl	Buse	Truck/Trailer	Motorcycle	Bicycle	
6AM-	979	911	11	11	1171	8	3091
8:01-	132	1214	15	14	1590	3	4157
10:01	978	908	10	10	1009	1	2916
12:01	909	931	7	9	1020	1	2877
2:01-	112	1021	13	14	1297	1	3474
4:01-	129	1150	14	16	1409	1	3887
Total	661	6135	70	74	7496	15	2040

Table 3.19: - Volumetric Traffic count for Thursday along corridor D.

Time	Type of vehicles						Total
Perio	cars	Tricycl	Buse	Truck/Trailer	Motorcycle	Bicycle	
6AM-	992	941	11	9	922	4	2879
8:01-	139	1101	21	10	1420	1	3951
10:01	100	997	16	13	997	0	3026
12:01	999	941	9	11	903	1	2864
2:01-	112	1010	17	8	1103	1	3260
4:01-	123	1201	14	16	1399	1	3870
Total	675	6191	88	67	6744	8	1985

Table 3.20: - Volumetric Traffic count for Friday along corridor D

Below presents traffic volume composition by vehicle types to ascertain the traffic components that plies the road corridors under study from Monday to Friday frequently as well as to determine the type of vehicle that is most likely affected by traffic congestion.

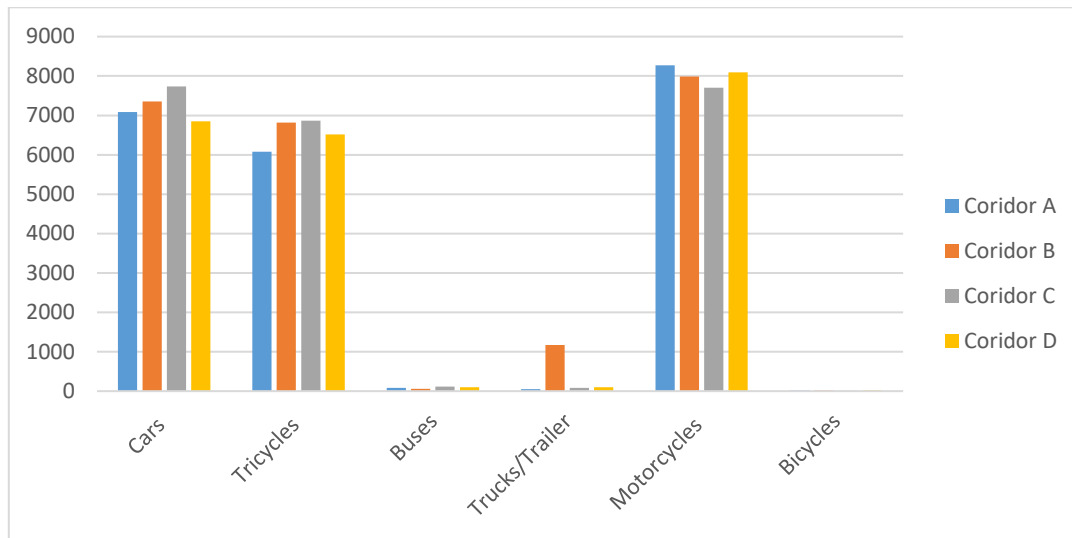


Fig.3.1 Traffic volume composition by vehicle types for Monday

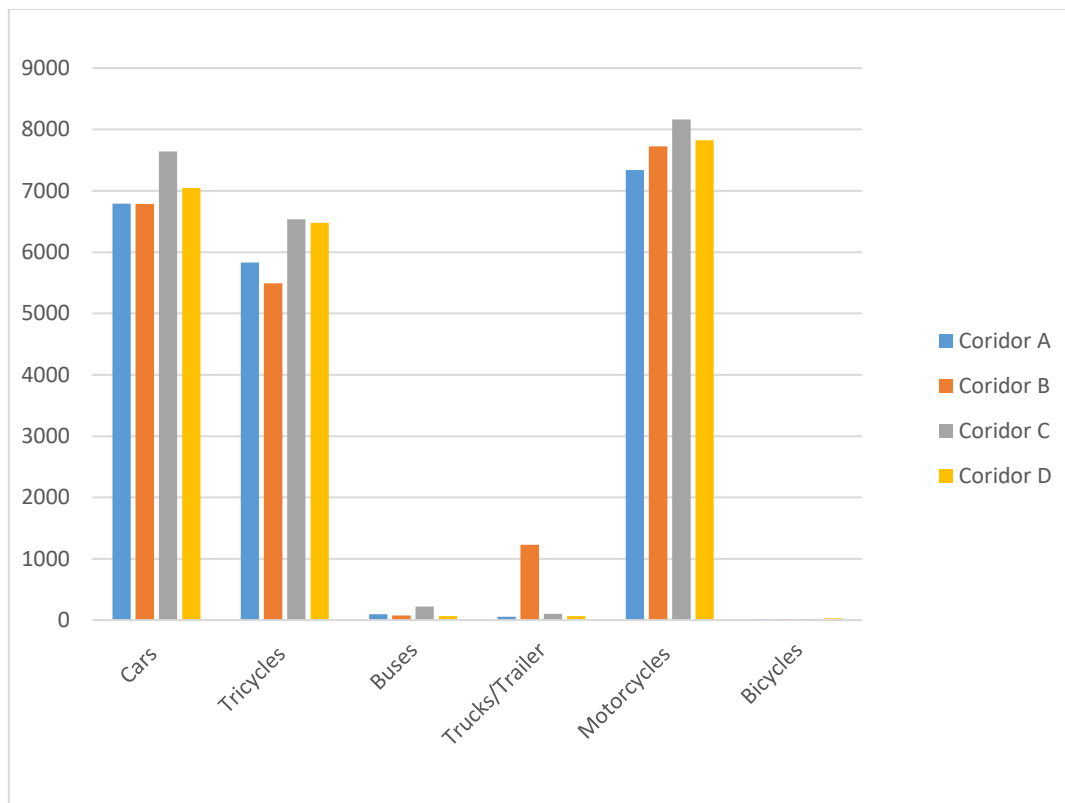


Fig.3.2 Traffic volume composition by vehicle types for Tuesday.

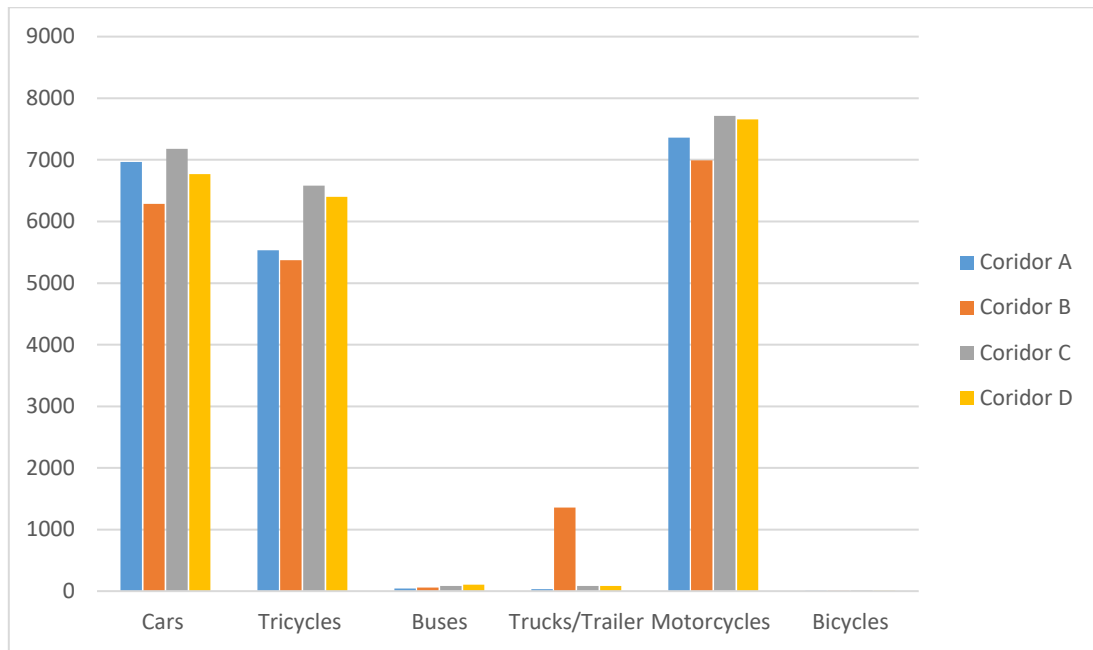


Fig.3.3 Traffic volume composition by vehicle types for Wednesday.

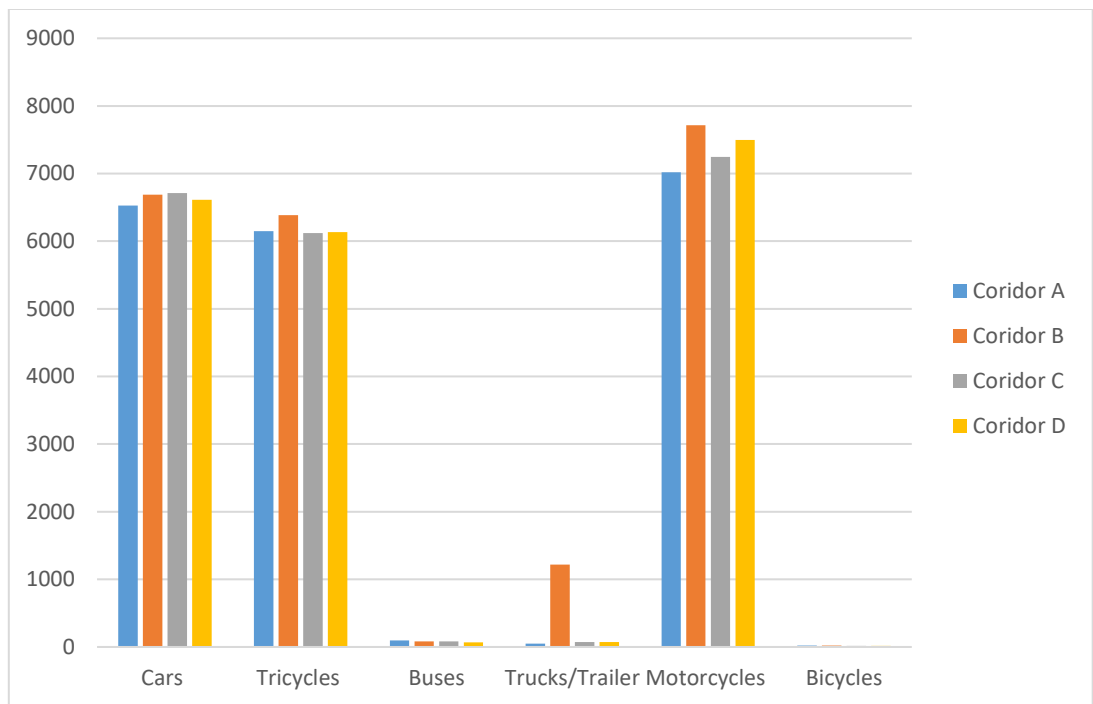


Fig.3.3 Traffic volume composition by vehicle types for Thursday.

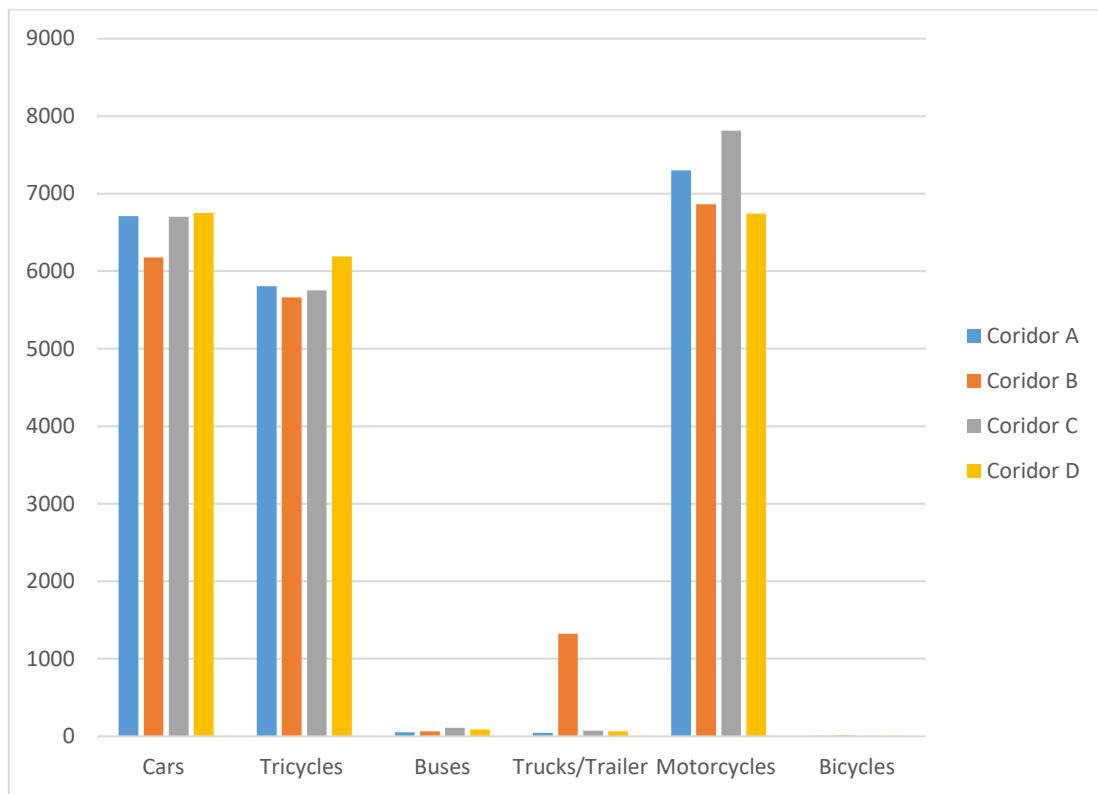


Fig.3.5 Traffic volume composition by vehicle types for Friday.

From the results, it reveals that from Monday to Friday, according to survey along all the corridors; motorcycles, cars and tricycles are the transport vessel that most frequently ply the corridors respectively.

CONCLUSION

This study has brought into focus the issue of traffic congestion in some selected areas in Minna metropolis. The main causes of congestion have been considered indicating that poor driving habits, poor road network, inadequate road capacity, and lack of parking facilities are the greatest causes of traffic congestion within the area considered.

Conclusively, it is quit pertinent to note that urgent attention should be focused on regulating the traffic situation in these selected corridors in order to attain sustainable urban transportation in the City.

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**LEARNERS RETENTION OF YORUBA LANGUAGE AND CULTURE
CONCEPTS USING COMPUTER-BASED PACKAGE IN SELF-DIRECTED
AND COLLABORATIVE ENVIRONMENTS IN SECONDARY SCHOOLS
OF OSUN STATE.**

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ABSTRACT

The study examined the effectiveness of computer-based learning package in improving students learning outcomes in Yoruba language and culture concepts when used in collaborative and self-directed environments in secondary schools of Osun state. It also investigated the effectiveness of the computer-based learning package in enhancing students retention of Yoruba language and culture concepts when used in both environments. The study adopted the pretest-posttest quasi experimental control group research design. Three schools were selected using purposive sampling technique based on availability of computers in the schools. The samples for the study were Senior Secondary School Two(SS2) students. Three classes were selected from the three senior secondary schools using random sampling technique. Forty students of one served as Experimental Group A (the collaborative group), another as Experimental Group B (the self-directed group), while the third (the control group) was taught using conventional method. One instrument was used for data collection. This was Yoruba Achievement Test (YAT) which measured the students' performance and retention level. Data collected were analyzed using One Way Analysis of Variance(ANOVA). The results showed that the computer-based learning package was effective in improving students' performance in Yoruba language and culture ($F=24.2$), $p<0.05$. The results also showed the package effectively enhanced students retention of concepts learnt when used in collaborative and self-directed learning environments ($F=45.7$), $p<0.05$. The study concluded that computer-based learning package improved

students' performance and enhanced their retention of concepts learnt in the two environments on Yoruba language and culture.

Introduction

Yoruba tribe is one of the populous and very social ethnic group in Nigeria as such, their language and culture is expected to be one of the official languages for medium of expression in the country's education and business enterprises. Judging by Fafunwa's (1982) efforts of propounding a theory of an Integrated Primary School Curriculum Schemes in Nigeria: A six –year project, which was aimed at helping the child to develop his natural abilities by creating the necessary environment that will stimulate, challenge and involve him socially, physically and emotionally in the art of learning s application of knowledge. It is therefore the duty of the school to create the ideal situation for the child to discover things for himself. Primary education according to him (Fafunwa) is to develop a whole child through a variety of activities; language arts, science exploration, manipulative activities, civics, mathematical processes, physical exercises, creative thinking and the like. However, is not the case for Yoruba language as majority of Yoruba elites and parents believe the language is a derogatory one with the term “Vernacular” which make it a prohibited language in most elite homes.

This development has no doubt affected the development of the language negatively making the Professionals Egbe Akomolede Yoruba to cry out. Krauss (1992) corroborated the fear of the Egbe Akomolede Yoruba when he said that Yoruba Language is nearing extinction. It is therefore not surprising to witness downward enrolment, poor students' performance and lack of motivation among students. At the primary school level, the situation is not better, many of the pupils cannot recognize and pronounce Yoruba alphabets let alone read Yoruba sentences correctly. It was also observed that the conventional method of teaching which is teacher-centered, the environment which is always unconducive for learning and unavailability of teaching materials that are interactive for students experiential learning is not helping the situation. There is therefore the need to come up with alternative methods of teaching and learning the subject.

Objectives of the study were to:

- (1) examine the effectiveness of computer-based learning package in improving students' performance in Yoruba language and culture in a collaborative and self-directed learning environment in secondary schools,

- (2) investigate the effectiveness of the computer-based learning package in enhancing student's retention of Yoruba language and culture concepts when used in collaborative and self-directed learning environments in secondary schools

Research questions

- a) How would the use of computer-based learning package improve students' performance in both collaborative and self-directed learning environment?
- b) How would the use of this package in both collaborative and self-directed learning environments enhance students' retention of whatever they learnt in Yoruba language?

Research hypotheses

- (1) there is no significant difference between the students' performance when taught in a conventional way and computer-based package in the learning environments.
- (2) there is no significant difference between the student's retention level of Yoruba concepts learn during conventional method of learning and computer-based learning package.

Literature Review

Fabunmi and Salawu (2005) identify other factors different from the above, they termed it parental factors. These schools of thought argued that most parents derogatorily termed Yoruba as a Vernacular which is prohibited in many elite homes and in some schools. Hence, in these homes English Language is the medium of communication. It is also a reflection of social class. Any child or student seen speaking Yoruba in the public is therefore regarded as not well to do or the poor. The schools are also partly to blame for the poor state of development of Yoruba Language. As most schools do not faithfully implement the sub-section of the National Policy on Education that made the teaching and learning of indigenous language compulsory at the junior secondary school level. Complicating the situation the more is the fact that there is shortage of qualified Yoruba Language teachers to teach the students in schools.

According to Slavin (1996), for collaborative learning to be effective, there should be both "group goals" and "individual accountability". This means that the collaborative learning task must ensure that every group member has learnt something. Ideally, a collaborative learning task would allow for each member to be responsible for some concept necessary to complete the task. This implies that every group member will learn their assigned concept and will be responsible for explaining/teaching this to other members of the group. As most teachers have discovered, we usually learn more by teaching than we ever learnt as "learners"! Indeed, this sentiment is backed up by research - it has been consistently found that students who learn most are those who give and receive elaborated explanations about what they are learning and how they are learning it.

Gibbon (2008) viewed, self-directed individual involves himself/herself in initiating personal challenge activities and developing the personal qualities to pursue them successfully. In schools, teachers can work towards self-directed learning a stage at a time. Teacher emphasizes SDL, skills, processes, and systems rather than content coverage and tests. In view of the above, self-directed learning can be equated to independent learning.

Performance-based learning can be described as an organizational structure for learning/teaching that requires advanced description of the knowledge, skills and attitudes learners must demonstrate upon successful completion of a learning experience. Performance-based learning aligns performance assessment, teaching and learning with intended outcomes. Performance-based learning is an approach to learning and teaching in which the required results or competencies are specified before the instruction. Learners must demonstrate or perform those skills successfully to complete the learning experience.

Yoruba Language as a mother tongue is expected to direct the thinking ability of a Yoruba child, in order to function as a responsible person in an egalitarian society. This will help us develop our own science and technology, have a buoyant economy as well as to be able to compete favourably with the developed countries of the world. However, it has been found out that students' performance in Yoruba Language at the SSCE is gradually declining when compared with what it used to be in those days. West African Examination Council (WAEC) Report 2008-2013 of some of the schools used have shown that students who wrote the subject did not perform well in their SSC Examination.

The Table below gives a detail of the students' performance within a period of 6 years.

**Grade Point Performance of students in Yoruba Language between 2008-2013
Adapted from WAEC Result of Schools Used**

S/No	Year of examination	Total number of students	A1-B3	C4-C6	D7-E8	F9	No passed with credit	% passed with credit
1	2008	316	039	168	066	038	207	65.5
2	2009	239	036	115	056	047	151	63.2
3	2010	218	015	080	056	067	095	43.5
4	2011	228	005	085	053	045	090	39.4
5	2012	235	003	087	120	022	090	38.2
6	2013	286	-	074	132	080	074	25.8

*Adapted from WAEC Results of Schools Used

It is in view of this declining performance that the researcher is suggesting an innovative instructional delivery system that will assist teachers and learners in improving performance at both internal and external examinations.

Methodology

The study adopted the pretest-posttest quasi experimental control group research design. Three schools were selected using purposive sampling technique based on availability of computers in the schools. The samples for the study were Senior Secondary School Two(SS2) students. Three classes were selected from the three senior secondary schools using random sampling technique. Forty students of one served as Experimental Group A (the collaborative group), another as Experimental Group B (the self-directed group), while the third (the control group) was taught using conventional method. One instrument was used for data collection. This was Yoruba Achievement Test (YAT) which measured the students' performance and retention level. Data collected were analyzed using One Way Analysis of Variance(ANOVA) and Analysis of Covariance (ANCOVA).

Results

The result of analysis of data collected from the pretest were as presented in the table below

How would the use of computer-based learning package improve students' performance in both collaborative and self-directed learning environments?

Table 1 Mean score for pre-test of control group and experimental groups

Learning Group	Observation	Mean	SD
Conventional	40	43.1	5.9
Collaborative	40	43.9	8.2
Self-directed	40	43.1	5.9

Field Survey 2016

Table 1 shows that there were slight differences in the mean scores of the experimental and control groups at the pre-test. At the pre-test, the mean score for the control group was 43.1 and the mean score for the first experimental group was 43.9. While that of the second experimental group was 43.1. This indicates they all had the same entry knowledge.

Table 2: Results of Post-test

Learning Group	Observation	Mean	SD
Conventional	40	35.5	14.9
Collaborative	40	62.0	11.2
Self-directed	40	62.6	6.9

Field Survey 2016

Table 2 shows that there are differences in the mean scores of control group and experimental groups at the end of the post-test. During the experiment, the mean score for experimental group 1 was 62.0 with the standard deviation of 11.2, the mean score for experimental group II was 62.6 with a standard deviation of 6.9. This result indicates that there was greater difference between the performance of the students in experimental groups and the control group. This implied that the use of computer-

based learning package in both self-directed and collaborative environments yielded positive performance.

How would the use of this package in both collaborative and self-directed learning environments enhance students' retention of whatever they learnt in Yoruba language?

Table 3: Result of Retention Ability 1

Learning Methods	Observation	Mean	SD
Conventional	40	30.4	12.6
Collaborative	40	60.2	11.3
Self-directed	40	59.3	6.9

Field Survey 2016

The table 3 above showed the descriptive statistics of retention scores across the learning methods. It also showed the mean and standard deviation across the learning methods. While collaborative learning method showed a mean score of 60.2 and Standard Deviation 11.3, mean scores of 59.3 and 30.4 and Standard Deviations of 6.9 and 12.6 were respectively observed for self-directed and conventional learning methods.

Table 4: Results of Retention 2

Source	Partial SS	Df	MS	F	Prob > F
Model	31955.14	3	10651.71	296.18	0.0000
Learning methods	3285.70	2	1642.85	45.68	0.0000
Pretest	8889.34	1	8889.34	247.18	0.0000
Residual	4171.78	116	35.96		
Total	36126.93	119	303.59		
Partial eta ² = 0.4406					
Adjusted R-squared = 0.8815					

Field Survey 2016

Table 4 presents the summary of the ANCOVA results conducted to explore the relationship between Retention scores, pretest scores and the learning methods. Table 4.3.3 above showed that there was a statistically significant effect of pretest and the learning method on the students Retention score, $F(1, 119) = 247.18$, $p < 0.05$. The partial η^2 showed the proportion of variation in the Retention scores due to the covariates (pretest and learning method). The effect size is 0.440 and this indicated that the dependent variable (Retention scores) was associated with learning methods and pretest scores. In addition, the results further showed that 44% of the variation across the in the retention scores was accounted for by the learning methods and pretest scores.

Table 5: Results of Retention, Pretest and Posttest Compared

Source	Partial SS	Df	MS	F	p-value
Model	35556.06	4	8889.02	1790.69	0.0000
Learning methods	327.07	2	163.53	32.94	0.0000
Pretest	42.97	1	42.97	8.66	0.0039
Posttest	3600.92	1	3600.92	725.41	0.0000
Residual	570.86	115	4.96		
Total	36126.93	119	303.59		
Partial $\eta^2 = 0.3642$					
Adjusted R-squared = 0.9836					

Field Survey 2016

Presented in the table 5 is the results of the ANCOVA conducted to explore the relationship between Retention scores, Pretest, Posttest scores and the learning methods. Table 4.3.4 above showed that there was a statistically significant effect of pretest scores, posttest scores and learning methods on the Retention scores, $F(1, 119) = 42.97$, $p < 0.05$ and posttest, $F(1, 119) = 725.41$, $p < 0.05$. The partial η^2 showed the proportion of variation in the Retention scores due to the covariates. With an effect size of 0.364, it showed that the dependent variable (Retention scores) was associated with the covariates, with 36% of the variation in the retention scores accounted for by

pretest, posttest and learning method. This implied that pretest, posttest and learning methods have significant effects on the students' retention level.

Conclusion

Based on the findings of this study, the study concluded that Computer-based learning package improve students' performance and enhanced the retention level of Yoruba language and culture concepts learnt during the course of study in Osun state secondary schools.

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**STUDIES ON ANTI-TYPHOID PROPERTIES OF ETHANOL AQUEOUS
LEAVES EXTRACT OF *MITRACARPUS SCABER* (RUBIACEAE) IN RATS**

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ABSTRACT

Ant-typhoid properties of aqueous leaf extract of *Mitracarpus scaber* was investigated in this study. Sixteen laboratory rats were used divided into 4 groups of 4 rats. They were distributed in separate apartment and injected intravenously with typhoid fever Bacteria as causative organism. A widal test was carried out to confirm their infection by the typhoid fever. Group 1,2 and 3 were been placed on oral treatment with different concentration of the extract of 250mg/ml, 500mg/ml and 750mg/ml respectively for five days, while group 4 were left without treatment and all died before the 5th day. The blood of the surviving spacemen on 3rd and 5th day were been obtained and widal test were been carried out on the blood serum. The widal test showed that the oral treatment for 5 days was effective against *Salmonella typhi* growth especially in group 3 having the highest concentration followed by group 2 and finally group 1 with lowest concentration of the extract.

Key words: *Mitracarpus scaber*, *Salmonella typhi*, Anti-Typhoid, Rats

INTRODUCTION

Different parts of medicinal plants were used as medicine by the local traditional healers. Among the different plant parts, the leaves were most frequently used for the treatment of diseases followed by whole plant parts, fruit, stem and root. A good number of populations still rely on medicinal plants to meet their health care in many part of the developing Nation.

From the very beginning of human existence man has familiarised himself with plants and used them in a variety of ways throughout the ages (Arshad *et al.*, 2009). People living in rural areas are highly dependent traditional herbal medicine. Therefore, standardization of the medicinal plants in used for various ailments is necessary to safeguard their rational and safe use (Sam *et al.*, 2011).

Medicinal plants provide basic raw materials for different industries such as pharmaceutical, cosmetic, perfumery and food (Sachiya *et al.*, 2008). Plants used for traditional medicine contain a wide range of substances that can be used to treat chronic as well as infectious diseases (Alam *et al.*, 2009). Due to less communication

means, poverty, ignorance and unavailability of modern health facilities, most people especially rural people are still forced to practice traditional medicines for their common day ailments. Many plants have been used in Africa continent for the treatment of different diseases such as fever, dysentery, cholera, which are typical disease of a tropical country (ajayi and Akintola., 2010)

Mitracarpus scaber (ZUCC) formally known as *Mitracarpus villasus* (SW) DC is native to Africa, and is wide spread in Tropical Africa, West Indies and South America. It belongs to the family Rubiaceae. It is an annual herbal plant that usually grows to about 60cm tall. The inflorescence is dense clustered together with small white flowers at the leaf axils that are usually thick. *M.scaber* vary in its habitat and reproduces by seed. It is a common weed in upland areas of savanna. The plant is widely used traditionally among most communities as poultice in the treatment of skin disease such as scabies, eczema, itching and dandruff. *M.scaber* is widely employed in traditional medicine in West Africa for headaches, toothache, venereal diseases, amenorrhoea, dyspepsia, hepatic disease and leprosy (Bisignano *et al.*, 2000).



Plate 1: Mitracarpus Scaber plant.

Typhoid fever is an infectious disease caused by bacterial of *Salmonella* group-*salmonella paratyphi* A, B or C. The organisms are gram-negative, flagellated, non encapsulated, non sporulating, and facultative anaerobic bacillus (Wanoff *et al.*, 1997). *Salmonella paratyphi* A and B causes paratyphoid (enteric) fever. The disease is generally mild with *salmonella paratyphi* A and B being less invasive than *salmonella typhi*. C These are usually characterized with diarrhoea and especially in salmonella paratyphi B infection. In tropical and other developing countries paratyphoid is more commonly caused by *salmonella paratyphi* A than salmonella paratyphi B (WHO, 2000).

MATERIAL AND METHODS

SAMPLE COLLECTION

The fresh sample of *Mitracarpus scaber* was collected locally from Humbutudi District Maiha Local Government Area Adamawa State Nigeria. The samples of the plant material were taken to the Botanical garden of the Department of biological sciences, Adamawa State University Mubi. The collected plant samples were washed clean with tap water and air dried under the shed for 10 days. After which they were ground into powdered form using a pestle and mortar. The powdered plant samples were put in black polythene bag for extraction.

EXTRACTION PREPARATION

The cool method was used for the extraction. A 260g of the leaf powder of *Mitracarpus scaber* was extracted using 200ml of distilled water in a separating funnel. It was allowed to stay for 48 hours for filtration after rewashing. The filtrate was then poured into an evaporating dish and placed over a water bath for concentration to obtain the semi dried solid extract at a very low temperature of about 45°C. A scraper was used to scrap the dried plant extract from the evaporating dish into well ladled screw cap bottle for safe keeping.

TOXICITY STUDIES

Acute toxicity test is usually involved in the estimation of the LD50 that is the least dose which has proved to be lethal (causing death) to about 50% of the tested group of animals (Akhila *et al.*, 2007). The acute toxicity test for this study was carried out on Mice using the methods described by Lork (1983). The oral administration method

was used to administer the extracts using the oral administration canola. The toxicity study was divided into two phases.

In the first phase nine (9) Mice of both sexes were divided into three (3) groups of three mice each. Group A receive 10mg/kg body weight of extract while group B and C received 100 and 1000mg/kg respectively. The animals were observed for sign of toxicity continuously for 2 hours and then occasionally for a further 4 hours, and finally over night to note mortality.

In the second phase three (3) Mice were separated, the first received extract at a dose of 1600mg/kg, while the second and third were given 2900mg/kg and 5000mg/kg body weight. The animals were also observed for mortality as done to phase one.

COLLECTION OF BACTERIAL (*Salmonella typhi*)

The bacterial was collected from Diagnostic division of the National Veterinary Research Institute Vom, Plateau state, Nigeria. The bacteria were kept in Biological Research Garden laboratory Adamawa State University, Mubi inside the incubator for 24°C ready for injecting the Laboratory Rats.

EXPERIMENTAL ANIMALS

The laboratory rats were purchased from the House of Dr., Ezekiel T. William of Department of Chemistry of Adamawa State University, Mubi. They were transported to the animal house of the Department of Biological Sciences, Adamawa State University, Mubi. After which they were fed on poultry feed and water for a week to acclimatized to new environment.

Sixteen Rats were distributed into four groups with four Rats in each group in separate apartments. The Rats group I, II, III and IV were injected intravenously with typhoid fever bacteria causative organism (*Salmonella typhi*). Their respective behavioural changes (movement, Activeness) were been noted and recorded. Widel tests were carried out on them to confirm if they are infected with typhoid fever. Group I, II and III were been placed on oral treatment with 250mg, 500mg and 750mg/kg of the extract respectively, while group IV were left out with no treatment in order to serve as control. The blood of the surviving specimen at the 3rd day and 5th day of the treatment were been obtained from the tail using syringe needle and a widal test carried out on the blood serum.

RESULT AND DISCUSSION

Plants have been used for medicinal purposes for long before recorded history. Since the beginning of creation plants have provided human beings with a source of essentials of life such as food, medicine and raw materials for clothing and shelter. The use of herbal medicine predates the introduction of antibiotics, and predates social, economic and religious barriers (Akinyemi *et al.*, 2000).

The efficacies of many plants for various diseases have been described by different traditional herbal medicine practitioners. Natural products from plants are a source of synthetic and traditional herbal medicine. Herbal medicine sometimes referred to as herbalism, phytotherapy or botanical medicine is the use of herbs for their therapeutic or medicinal values. An herb is a plant or plant parts that is valued for its medicinal, aromatic or savoury qualities.

Typhoid fever is systematic infection caused by the bacterium *Salmonella enteric* subspecies of

Serotype typhi, which is acquired by ingestion of contaminated food and water, (Iroha *et al.*, 2010). Each year the disease affects at least 16 million people worldwide, most of whom resides in developing countries of South east Asia and Africa, (CDC, 2008). According to Iroha (2010), mortality rates associated with typhoid fever vary from region to region, with highest report from Indonesian, Nigeria and India.

The result of phytochemical screening of the aqueous ethanol leaf extract of *Mitracarpus scaber* indicated the presence of all the eleven constituents except for free anthraquinones and the combined anthracene (table 1).

Table 1: The Synopsis of qualitative phytochemical analysis laef ethanolic extracts of *Mitracarpus scaber*.

Phytoconstituents	Plant part (Leaf)
Carbohydrates	+
Glycosides	-
Free anthraquinones	-
Combined anthracene	+
Cardiac glycosides	+
Steroids	+

Triterpenes	+
Flavonoids	+
Tannins	+
AlkaloidsS	+
Saponnins	+

Key (+) present (-) absent

The leaf extract of *Mitracarpus scaber* does not possess acute toxicity effect on the animal (Mice) used with a dose of (LD50) 5000mg/kg. That is to say the plant was not toxic with large dose of 5000mg/kg over a short period of time. Therefore the plant extract is safe for oral medication. The result of the widal test before treatment and the days of inhibitory effect of the plant on *Salmonella typhi* is shown in table 2.

Table 2: Result of the widal test.

Test groups	Wedal test before treatment	days of inhibitory effect of the plant on <i>Salmonella typhi</i>	
		Day 3	Day 5
Group I (250mg/ml)	H=1/80, O=1/160	H=1/80, O=1/160	H=1/80, O= 1/80
Group II(500mg/ml)	H=1/80, O=160	H=1/40, O=1/80	H=1/40, O=1/40
Group III(750mg/ml)	H=1/80, O=1/160	H=1/40, O=1/40	H=1/40, O=1/40
Group IV(control)	H=1/80, O=1/160	TWO Died	NONE

Titre value 1/80 and above is significant. The O and H are alphabets used to represent the Salmonella antigen.

EFFECT OF PLANT EXTRACT ON SALMONELLA TYPHI

Group I, II, and III were however given oral treatment 250mg/ml, 500mg/ml and 750mg/ml of the extract for 5 days respectively, while group IV was left out with no treatment in order to serve as control.

The results in table 2 of the widal test showed that oral treatment for five days was effective against *Salmonella typhi* growth especially in group II and III with **H** (anti body titre value) and **O** (anti body titre value) of 1/40 which was not significant. While group IV has high values for

H and **O** because of the growth of *Salmonella typhi* was very high in their body, all the rats in that group died. The leaf of *Mitracarpus scaber* therefore can be used as an effective anti typhoid agent on human infected with typhoid fever.

Similar studies were been carried out by Doughari *et al*, (2007) on extract of *Balanite aegyptica* and demonstrated higher activity of 16mm zone of inhibition at 100mg/ml against *Salmonella typhi*. Plants like *Vitex doniana*, *Alstonia boonei*, *Cassia tora* has high anti-typhoid activity against *S. typhi* strains (Iroha *et al*,2010).

CONCLUSION

From the result obtained, the aqueous plant extract was effective as anti typhoid agent against *Salmonella typhi*. The demonstration of anti typhoid activities of *Mitracarpus scaber* is indeed a promoting development that will help to discover new chemical classes of antibiotics that could serve for treating the infection that otherwise has become highly refractive to most of the conventional antibiotics used for its treatments.

RECOMMENDATION

Further studies should be carried out on the plant and extract using not below 500mg/ml and invivo studies would also be required to isolate the bioactive constituents present in *Mitracarpus scaber* for the purpose of developing anti typhoid drug in orthodox medicine.

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THE UNCONSCIOUS AND SOCIO-POLITICAL IMPLICATIONS ON CONTEMPORARY AFRICAN STATES: SATIRIC REFLECTIONS FROM TWO AFRICAN PLAYS

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ABSTRACT

Some playwrights have shown affection to the use of the unconscious in their plays throughout the ages to explicate the phenomenon and nature of collective unconsciousness in dramatic literature in order to show the interface between human psyches and realities. However, existing critical studies on the unconscious and dramas have focused on the investigation of characters' unconscious motives and conflicts, sometimes ignoring the employment of the unconscious as a technique for satiric reflections. This paper, therefore, examines the unconscious as a technique for interrogating the characters' psychic contexts in order to highlight their predicaments and the attendant socio-political imbroglios in their society. The study adopts Sigmund Freud's model of psychoanalysis as the theoretical framework which allows for the investigation into characters' psyches and behaviours and appraisal of the link between the characters' motives and the realities in their society. Two African plays were purposively selected: *No Pennies for Mama* and *Tuti*, they are subjected to critical textual analysis. It is discovered that the patterns of the unconscious that provide the psychic context for the plays are dream and hallucination. They serve as signifiers of the characters' traumas, which are precipitated by their naïve behaviours on the one hand and revelations of their family and societal realities on the other. Dream and hallucination have been used not only as mere patterns of the unconscious but also as a technique to engage satiric reflections and realities.

Keywords: Cultural Dream, Hallucination, The unconscious, Satire, Socio-political realities

INTRODUCTION

The literary world contains countless references to the unconscious, it pays special attention to unconscious states of human minds in general. Subtle differences exist in the treatment of the unconscious and their various patterns in dramatic literature from author to author and society to society. Literary works not only show a continuing fascination with collective unconsciousness and their prototypes like dream, hallucination, fantasies, etc. throughout the ages, but also display shifts in people's belief about the nature and process of the patterns of the unconscious. This study shall dwell on two patterns of the unconscious which are dream and hallucination.

Dreams are successions of images, ideas, emotions and sensations that occur involuntarily in the mind during stages of sleep (Grunebaum, 2000). In the same vein, Adeboye (2010) defines dreams as a series of mental images and emotions occurring during sleep that are likely to dictate the dreamer's life. From Grunebaum's and Adeboye's views, dreams appear to be caused by external powers of the supernatural since they occur when man is asleep and unconscious.

Sigmund Freud writes extensively about dream theories and interpretations. He explains dreams as manifestations of deepest desires and anxieties. He sees dreams as symbolic creations in the minds of the dreamers. He (Freud) calls dreams "royal road to the unconscious" (1949,44). This shows that the context of dreams reflects dreamers unconscious mind. Jung expands on Freud's idea, he describes dreams as messages to the dreamer and argues that dreamers should pay attention for their own good. He believes that dreams present the dreamers with symbolic creations and revelations that can uncover and help resolve emotional, cultural or religious problems and fears (1964,21). Barret (2007) corroborates the subjective approach of Jung to dream as she believes dream serve some adaptive functions for survival. She suggests that dreams serve the purpose of allowing the rehearsal of threatening scenarios in order to better prepare an individual for real-life threats. Weldhorn (1988) focuses on the supernatural and phenomenal nature of dream and sleep and the shifts in beliefs about their natures in Western tradition

Hallucination is a typical example of unconscious state of the mind when a person sees or hears things that are not physically seen or heard by others around him (Sharf, 2008). Fftyche (2012) sees hallucination as illusory symbolic creation or perception in human psyche. Thompson (2006) further classifies hallucination into visual and auditory hallucinations. In addition to Thompson's classification is command

hallucination, Beck-Sander, Birchwood and Chadwick (1997) describe command hallucination as a tool of defence of a crime and as a proclamation of victory. According to them, it is essentially a voice one hears and it tells one what to do.

The existing scholarly engagements on the use of the unconscious in dramatic literature have focused extensively on variety of human behavioural orientations that refer to the idea that feelings and drives unconsciously influence characters' behavior more than the contextual content (Leiper & Maltby, 2004 and Robbins, 1989). Gabbard (2004) sees the involvement of the unconscious as an attempt to provide psychotherapy to both physical and psychological conflicts of the characters and the attendant societal predicaments. However, this study rethinks these positions and argues that the existing critical studies tend towards the phenomenal and conceptual colourations of the unconscious in literary appraisals with little or no consideration for the use of the unconscious as a device for satiric reflections to sift out socio-political failings in human society. This paper, therefore, examines some patterns of the unconscious as a technique for unfolding socio-political realities in contemporary African states.

Two African plays by Ahmed Yerima are purposively selected: *No Pennies for Mama* and *Tuti*. The analysis of the patterns of the unconscious to interrogate socio-political realities and failings in the primary texts will be influenced by psychoanalysis particularly

Sigmund Freud's dream theory as theoretical framework, the essence of psychoanalysis is to privilege the psychic context of the primary texts above their contents, it is also to investigate the characters' motives and the collective archetypes which manifest in form of dream and hallucination. The texts will be subjected to critical textual analysis in both content and form while the research instrument shall be the library, both the conventional and the internet. Contextually, in the selected primary texts, the playwright dwells on two independent African state. *No Pennies for Mama* has its setting in Ghanaian society while *Tuti* has Nigerian society as its locale. *No Pennies for Mama* comments on the suffering masses that are deprived of basic amenities because of the unscrupulous politicians in Ghana who are indifferent to their plight. It reveals the unpalatable friendship or relationship between the masses and the political leaders, which only occurs when the political leaders are seeking their (masses) votes when elections are at hand. Yerima, through *No Pennies for Mama*, exposes how the political leaders use the masses' money and resources from tax

payers to lobotomise the tax payers (masses) because of high level of poverty that has ravaged the masses brutally. On the other hand, the play reveals the density of the ignorance on the part of the masses. The masses are ignorant of their political and fundamental rights. They praise the hypocritical and infinitesimal efforts of the political leaders which are strategically meant to cajole and deceive them. Yerima ridicules the political naivety of the masses and lambasts the elected leaders whose conscience has been marred and blurred by corruption and hypocrisy.

As a play that re-enacts the socio-political happenings in the society, it underscores the need why literary engagements should identify with the masses in a way that their piteous plight can be changed for a better livelihood. This can only be achieved, as we have in this play, through poignant attacks on the failures and mistakes of the political class and through public sensitization and enlightenment of the masses so that they can wake up from their socio-political slumber. Again, Yerima pitches his tent with the masses and, structurally, he explores the hilarity and invective associated with Horatian and Juvenalian satires. Though he artistically portrays highly humorous scenes but his emphasis, structurally, is on pitiable characters that are paupers and live in squalors. Yet, they succumb to the whims and caprices of the political leaders ignorantly. The play serves as a prompter for the masses to fight the forces and powers that have impoverished them.

The synopsis of the plot reveals Katuma who lives in a slum, a mother of six children who were notorious and wayward. In this unpleasant condition she pleads on behalf of the children not to be reprimanded and punished by unwholesomely resigning to fate. Surprisingly, Katuma is also a mother of a Local Government Chairman and a senator. Her son, the chairman, denies her financial assistance because she feels the notorious children will benefit from the money. This is where the title emerges, “No pennies for Mama”. Her children, who are members of the political class, are indifferent to her social state and poverty but they are concerned with petty projects that are white elephants to cajole the people of their constituencies because elections are at hand. They (political leaders) are doling out money in cash to their loyalists whereas the members of their family like Katuma, her children, and neighbours are walloping in abject penury. When Katuma is about to die of starvation when her unidentified or abandoned son, Fibula, who is not a politician appears from a protracted search for his mother and he rescues her from ignominious condition of living and this puts an end to her dolorous existence.

Again, our focus is on the stylistic appraisal of the play with copious reference to the psychoanalytic elements the playwright employs to artistically penetrate the society. The penetration is by linking the social realities of the Nigerian political class with the masses in a way to ameliorate the ills in the society. The playwright, as it has been observed previously, also presents the psychic context of the characters to develop the plot structure, to shape the character, to develop their characterisation and to peep into the social and political upheavals in the society. Notably, the author makes use of dream with special leaning on hallucination.

The protagonist, Katuma, after her physical and social suffering (as a result of thorough beating she received from her younger children including the cursed twins) becomes sapped and dissipated. Surprisingly, she pretends to be undisturbed and pleads that the notorious and cursed children should not be scolded and punished by their elder brother, Magai, the political leader. This infuriates Magai and he decides that there will not be a penny for her again. (13). It is with this psychological trauma that Katuma sleeps and she has a dream:

I had a dream. I saw Fibula. I saw him. He had a beard. No taller than his father. My skin. No smiles for Mama. I was naked, cold and dying. And they were pulling down this house. The only property I have left on earth. Stone by stone. I stood helpless, screaming, crying, shouting for help. But Magai.....just looked through me...my cursed twins Sidila and Sidira were laughing counting money....and Fibula my last hope turned his back on me. (sobs) This broke my heart to a thousand pieces. On my knees, I crawled to him and pulled his black jacket. He did not turn. Instead in a cold stern voice he asked why I abandoned him. Why I hated him so much? To all two questions, I had no answer. Not a word. He accused me of giving him away as a child so that I could have a good time. Me? A good time? I lived through hell without him! My conscience heavier than the Kilimanjaro. Packing the dung of Satan himself. If only he knew....if only Fibula knew....if only he saw how people took me like an orange, sucked all my juicy part and threw me into sewage of life. (46)

The physical trauma and distresses Katuma undergoes metamorphosed into symbolic creations as dream in her sleep. Katuma's dream is generated internally rather than by external powers of the supernatural. It represents the waking thoughts and concerns of her world. Yerima artistically portrays the traumatic psyche of Katuma to achieve three remarkable things in the play. Firstly, it reveals the callous and nonchalant attitudes of the political class to the members of their family, like mother, brother and

sister, to the members of their constituency and the masses generally. In this dream, Magai, the son of Katuma and the chairman of a Local Council just ignores his mother in her piteous plight. This shows the level of egoism and indifference of the political leader. Secondly, the author uses the nightmarish dream to reveal the past of Katuma as somebody who has suffered from inhuman treatment from men. It reveals her as a woman who has experienced a high degree of energy and deprivation from circumstances that are beyond her control. Thirdly, the dream is used as part of the plot structure. Structurally, it heightens both the psychological and physical conflicts of the heroine. He uses it stylistically to represent the climax of the plot because prior to the dream Magai, has declared „no more pennies” to her (13), meaning she will remain in abject penury. With this, she becomes a person without support and a woman that is surrounded by cursed children. This is unbearable for her and she anticipates suicide. Psychologically, she is having glimpses of sudden appearance of Fibula who may come to rescue her from her worrisome plight. Unfortunately, Fibula appears in her dream and attacks her instead of providing succour for her. The author uses the nightmarish dream to unfold the dichotomy between the rich and the poor in the society. Yerima makes the plight of the masses and the extent of the lackadaisical altitude of the leaders and their shameful affluence occasioned by their wholesome avarice and egocentrism known to the audience. Thus, through Katuma’s dream, there is the eruption of social realities in contemporary African state.

Another device employed in the play is hallucination. There are two stages of hallucination. As a result of the nightmarish dream and the prevailing social, political and economic realities in the conscious life of Katuma, she contemplates suicide as the only remedy for her. Like someone in a trance, while narrating her piteous plight and dream to her neighbours, she hallucinates: What are these before me? Angels to take me away?..... their wings flutter and there are feathers everywhere. Lord I am grateful for the time I have been given....but you know my one single prayer to see Fibula before I die. Oh, the pain increases. (50)

The artistic significance of this hallucination is that it is suggestive of denouement or resolution of the plot structure, that is, the plight of the masses may not have a panacea except there is a metaphysical twist or change. The hallucination reveals that only death can bring enviable lifestyle and grandeur to the suffering masses. No wonder, Katuma, the victim of hallucination gives thanks to God to show her appreciation that her death is imminent. For her, this means an end to poverty, lack of comfort,

distressing experiences and physical and mental torture from her own children. The hallucination also suggests a ray of hope to Katuma's plight. That is the reason she pleads for the possibility of seeing Fibula who may be different from her other children.

Thematically, Yerima is telling his audience that a change from socio-political turbulence to enviable and ideal social and political pleasure is achievable if the society can retrace its traduced past and learn. This is symbolised by the pleas of Katuma to be allowed to see her unknown son, Fibula. Yerima is advocating for a rejuvenation of the past and its reconciliation with the present as the needed solace to African social and political hullabalos. This hallucination is aesthetically used as an instrument of foreshadow or prophecy because there is a force like a *deus ex machina* that resolves all Katuma's psychological and physical longings. Fibula symbolises the sudden emergence or materialisation of long awaited hope. Thus, Yerima has concentrated on human psychic context to solve the problems of the physical. The resolution of the plot is clearly revealed in the second hallucination experienced by Katuma:

Haa.....that voice. It comes from my past. Come. (She traces Fibula's face with her hands. Her eyes closed, still hallucinating). The face, this nose.... the smell, oh the pain.... I know this face. It once smelt of starch and khaki white, the steward's top, stole my heart. Fibula, my lover, you return from the past ask for my hand properly. So you were the one chosen to take me through the gates of the world? (50-51).

There is an ironic scenario that Yerima is attempting to create with this hallucination. The hope and succour the rich but egoistic political leader cannot provide for his mother is provided by an unknown and abandoned child who is not a member of the political class. It is then succinct to say that Yerima uses dream and hallucination ironically to ridicule the hollowness, indifference and the altitude of lackadaisical attitude of the political class.

Similarly, Yerima is thematically appealing to mothers and other female members of the society to desist and abstain from the social vice of abandoning children in order to seek greener pasture elsewhere because the pasture is not greener anywhere else. It is perseverance, patience and hard work that can make one succeed and excel in life. Katuma's original belief about her life is that the cursed children and Magai will take her to her ideal world but all this has been dashed, with prevailing realities in her

world. At the dawn of her predicament, she makes a recourse to the child she had once abandoned and neglected. At the end of the play, it is revealed that Fibula is a medical doctor who is searching earnestly for his mother. The reunion of Fibula and her mother complements the resolution of the plot structure as well as the thematic message to women, to be a caring mother in all situations. In the character of Katuma, she becomes a fulfilled woman with a redeemed hope, as she exclaims:

Shattered dreams..... woes. Fibula, to tell you the truth, God forgive me, for now, I have no other child or sons. Just you, son. Take me away from here. Far, far away from here, the filth of this part of the world kills me slowly....(52).

The resolution of the plot structure is made glaring from the submission of Katuma to Fibula. It means that she represents an independent personality who has freed herself from the disillusion that will set in or befall anyone who is beclouded by the hollow and shallow promises of the political class, especially during electioneering campaigns. Yerima has made the heroine to re-enact her ugly past in order to expunge the elements that cannot make her to forge ahead and she embraces it with pragmatic enthusiasm the need to take the bull by the horns to ensure that she liberates herself from the fetters of shame of the past. She, therefore, reneges on her over-reliance and dependence on her son, Magai, the Honourable Chairman of Local Government Council. As a social and political satire, Yerima is appealing to the masses to brace up and fight the forces that impoverish them.

Artistically, he uses the collective memories of unconscious minds to drive home his thematic message, to develop his fictional characters to become metaphors for social and political predicaments and happenings at the cosmic scale. In a simpler language, Yerima is telling his audience or intending audience that man is the only creature that can liberate himself in his challenges. At the moment a man discovers himself and stops leaning on human creatures as solution, that man is bound to make a success.

In Tuti, Yerima beams his artistic search light on the elites in the society. He directs his focus to the mode of life and shortcomings prevalent among the elites in his society. He dwells artistically on the state of social life style of the educated elites, using satire to comment on the intolerance that characterises Nigerian society, especially the issue of civil liberties and human rights. The play presents the socio-psychological nature of the educated elites in order to mock prominent individuals and institution. The institutions Yerima aims to scorn and improve are family, marriage and religion. The

satiric impulse and its ritualised expressions in the play are succinctly carried out to perform the function of resolving the social and religious tensions in the play.

The characters like Father, Tuti, a lawyer and the only daughter of Father and Ayo, Tuti's husband in the play are satirically portrayed as social failures with antisocial tendencies. They are considered social failures because they are haunted especially Father and Tuti, by their past collective memories and imaginations. In the play, Yerima adopts absurdist approach of satire because he combines the attributes of absurdism, comedy of manners or satire of manners to criticise the modes of life of both the common people and the elite. He aims at ridiculing senility, errors or mistakes, self-judgment and religious impropriety that are common among the elitist class in African society.

As it is our major concern to examine the stylistic elements or devices Yerima employs in fastening history or social realities with dramatic talents to produce a social and satirical play. As usual, he (Yerima) delves into the realm of the human psyche to explore the plot structure, to create and develop characters and to portray his thematic concerns. The play presents a happy, peaceful and highly educated family. Father, who is the head of the family is obsessed with Western values, which he inappropriately spends the money belonging to his church on to satisfy his desires. Being the treasurer of the church, he spends the money belonging to the church to send his wife and only daughter to acquire Ph.D in London, to also acquire a building in London. He has it at the back of his mind that he will repay the money, like a loan. Unfortunately, he is unable to redeem the so-called loan. His wife and daughter, the beneficiaries of the so called loan, are unhappy with insult from the Reverend Father of the church. As a result of this, they abandon Father, as he is called at home. Eventually, the wife dies with the wrong feeling that her husband had spent the church money to raise another family elsewhere. So, she dies tragically and in solitude. The death of his wife also causes mental and emotional instability to the Father, but he reveals the truth of the matter to Tuti, his daughter, but it is too late because the father has also been caught with the icy fingers of death.

This is the elitist reality that Yerima brings artistically to the fore through the engagement of hallucination. Father, the protagonist and hero, is introduced in the beginning as a man that is revived from a coma caused by chronic asthmatic attack by his daughter, Tuti. He narrates his experience and hallucination when he was terribly unconscious because of the asthmatic attack:

Oh you stopped me. I almost saw the face of God. He was beginning to stretch his finger to touch my forehead, and you as always....you stopped me..... Why? Who are you? A ghost? Or an angel of death? (10)

This hallucination tells the audience many things about the man. Firstly, it presents him as somebody who has been expecting the cold icy hands of death. Seeing the face of God and smiling at him in the hallucination are pointers that the mindset of the hallucinated Father is fixed on death as the only source of joy and comfort to his life. Another thing the hallucination does is that it reveals the psychological state of Father as a man that is haunted by the mistakes of the past and who has been attempting fruitlessly to leave behind the unpleasant memories of the past. The hallucination further registers his annoyance that his daughter prevents him from transition to the other world, as he explains further that "I am born again. I swear by the angels, I am. I can even hear them sing. I am renewed". (11).

Yerima plays aesthetically with the mental faculty of his character through the hallucination to expose or introduce the conflict of the plot. Father says, "I am renewed" (11). It means there is a lingering of chaos, conflict, tension and unhealthy occurrence of events that make the hallucinated to see internal renewal of life in death. As such, the worries in his mind, which are social, physical and familial issues, are indirectly imagined and they serve as the conflict in his life and, by extension, the conflict of the play. Having seen the exposition of conflict in the play, which has to do with Father's psychological and social problems though not explicitly stated, one now wonders about what the problems are and the ways out of them. Is it through death as Father anticipated or through life as the daughter Tuti envisages?

To answer this question or to clear the cloud, Yerima again peeps into the psyche of his fictional character with a frightful dream, which is suggesting that death is the only option that provides eternal rest from this world's quagmires. Father narrates another pattern of his unconscious recollection:

Death was always close by. Always one step behind. Like a very loyal shadow. (Tries to brighten up) I had the same dream I had before your mother and my parents died, this morning. When I woke up, I wanted to run to you to tell you that my time approaches, and that you should prepare but then my strength failed me. I returned here to sit, pray and wait for you. (29).

Intrinsically, the frightful dream that is not explicitly narrated here gives the audience the glimpse of the source of Father's psychological unrest and that of his failing health.

It is succinctly connected with the death of his wife. Both the father and the daughter are connected with the circumstances that surround the death of Father's wife, as this is unveiled later in the complication of the plot structure. Father hides how he spends the church money from his wife and his wife thinks the money was spent on another woman and perhaps also on the children of the imagined strange woman. The truth which he conceals is that he spends money to upgrade his wife and child so that they can conform to Western high standard of living and a befitting elitist life. Tuti, the only daughter, connives with her mother in the false allegation and the mother and daughter feel dejected and relegated by their loved ones. Therefore, dream, as a stylistic device in the play, has enriched the plot configuration and the characters' formation and roles.

The entire make up of the play is built on collective unconscious. The playwright presents his characters in the play from the perspective of the past memories. The two major characters, Father and Tuti are haunted by the past. The haunting from the past makes Father, a man well above seventy five, to become senile. The author satirically portrays senility as an antisocial stage in the life of man. His senility in the play irritates his daughter, Tuti, She condemns her father with emphasis on the emotional arousal of the evil of the past:

Oh, age, how we change places just to play memories (she shouts, at her father) scrub your teeth, and no water on the floor. (she goes to her mother's photograph) oh, Mama, your little girl is now a woman. But it so difficult being a woman. But he is trying to teach me how to be happy again. I...we love you, Mama. Papa is now a child. Please forgive him, Mama... Forgive him. (31)

The memory of the past here is suggestive of the fact that there has been peaceful harmony and unity between father, mother and daughter in the past, which becomes soured as a result of a misdeed or mistake from the father. The misdeed or mistake causes disintegration. The assumed mistake or misdeed causes the death of wife and mother. This is the reminiscence of the past that brings out the author's existentialist and absurdist style in the play. It is an application of the sense of human purposelessness in a universe without meaning or value. The author uses the bitter memory of the lost peace and harmony in Tuti's family to raise up the impossibility or inability of the Father in the play to try the purposeful action of telling how he spends the church money which later causes the paralysis of his aspiration to raise a high and standard westernized family.

Structurally, hallucination and dream show that the hero and heroine are haunted by bitter memories of the past. It is pertinent to know that Yerima reveals the knotty predicament of the play, which centres on the psychological mindsets of the major characters, Father and Tuti. Through dream motif in the play, the essence of the penetration into the psychic content of the characters has shown that it is only man that can solve his own personal problem. Father realizes at the end of the play that his inability to confront or tell the truth on how he spends the money has led to the untimely death of his wife and the total breakdown of peace and love in his family.

CONCLUSION

Artistically, the playwright uses the collective memories of unconscious minds to drive home his thematic message, to develop his fictional characters to become metaphors for social and political predicaments and happenings at the cosmic scale. In a simpler language, Yerima is telling his audience or intending audience that man is the only creature that can liberate himself in his challenges. At the moment a man discovers himself and stops leaning on human creatures as solution, that man is bound to make a success.

This study has explored Yerima's eclecticism and multiculturalism in form and content respectively. We have seen areas of his adherence to Horatian and Juvenalian satires and his areas of artistic departures from the traditional forms and nature of satires, which have really proven his dramatic uniqueness and idiosyncrasy. His artistic talent in the plays examined in this work lies largely in the penetration into human psyche through the unconscious to show the distinction between socio-political realities and illusions. The exploration of the unconscious as device has afforded Yerima the opportunity to use them to unfold the realistic events in the various cultures, tribes and societies in Ghana and Nigeria.

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DEVELOPMENT AND DEBT CRISIS: MEASURES TO REDUCE THE DEBT IN THIRD WORLD COUNTRIES

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ABSTRACT

This paper investigated issues of development and its relationship with debt crisis, reflecting on how to reduce debt in the third world countries. Conceptual analysis is used in the paper by the researcher to analyze the data collected from a variety of secondary sources. The study forms a theoretical base on the premises of debt overhang theory. Findings from the paper showed that external debt constituted an impediment to long-term development while its short-term effect was development enhancing. Domestic debt had a significant positive impact on long-term development while its short-term effect was negative. In the long term and short term, debt service payments led to development retardation confirming debt overhang effect. The paper recommends that the third world countries' governments should direct borrowed funds to the diversification of the productive base of their economy for long-term economic development, expand the revenue base and strengthen the capacity to repay outstanding debts and reliance on domestic debt rather than external debt for increased deficit financing to reduce debt crisis and ensure greater growth and development.

Keywords: Development, debt crisis, third world, retardation, reliance.

INTRODUCTION

Debt repayment costs, that ranges from principal payments to interest cost, is forcing a choking pressure on the economic development of the third world countries, that are already facing devastated public finances and economic development. As reported

in the International debt report 2022, a publication of the World Bank updated international debt statistics. The external debt service payments on public and publicly guaranteed debt by the world's poorest countries surge by 35 percent from 2021 to over US\$62 billion in 2022. The report explain that, debt service payments take away scarce fiscal resources from health, education, social assistance, and infrastructure investment. Further explaining that payments scheduled for 2023 and 2024 are likely to remain elevated because of high interest rates, maturing principal, and the compounding of interest on Debt Service Suspension Initiative deferrals. The increased liquidity pressures in poor countries go hand in hand with solvency challenges, causing a debt overhang that is unsustainable for dozens of countries. Nearly 60 percent of countries according to the report are subject to the Joint World Bank, International Monetary Fund Debt Sustainability Framework for low Income Countries are at high risk of debt distress or already experiencing it.

According to Dornbusch and Fischer (1986), Third world country's debt servicing, is plunged into a vicious cycle pattern, with no shortage of commentary and explanations on its causes, having roots from the 1980s as the result of ill thought borrowing policies in the debtor countries and ill thought lending policies as well by commercial banks and grantors which take a chance encounter with extraordinarily unfavorable world macroeconomic condition that exposed the vulnerability of both the debtors and the creditors. The central cause of the debt crisis has been indicated as the sudden and unanticipated change in sign of the difference between the growth rate of developing-country exports and international interest rate.

The global debt crisis stems from forces dating to the mid-1970s, and to the first oil price shock (1973-74) in particular. The intensification of the problem in 1982 derived primarily from the effects of global recession from 1980 to 1982, combined with adverse psychological shocks to credit markets caused by events in individual major countries. In a broad sense the problem is a consequence of the transition from inflation to disinflation in the world economy. Funds that were borrowed when inflation was high and real interest rates were low are no longer cheap in an environment of lower inflation and high real interest rates (Cline, 1984).

Cline (1984), opined that "development and debt crisis" can be trace back to the phenomenon that emerged in the 1970s when many developing countries found themselves in a difficult situation of being heavily indebted and unable to repay their debts. The crisis was largely caused by a combination of factors, including the oil

shocks of the 1970s, a rise in interest rates, and poor economic policies pursued by some developing countries.

Many developing countries had borrowed heavily in the 1960s and 1970s to finance their development projects. However, the oil shocks of the 1970s led to a sharp increase in oil prices, which in turn caused inflation and slowed down economic growth. At the same time, interest rates rose, making it harder for developing countries to service their debts. (Udeh, Ugwu and Onwuka, 2016).

As a result, many developing countries found themselves in a situation where they had to borrow more money just to service their existing debts. This created a vicious cycle of debt, where countries were borrowing more and more just to stay afloat. In some cases, countries were forced to take out loans from the International Monetary Fund (IMF) or other lenders on numerous terms that required them to implement austerity measures and other unpopular economic reforms.

Development, debt crisis and third world countries in perspective

Third world countries have, borrowed to finance and support projects, businesses, education, health, security, agriculture and infrastructures. As International, regional, and private financial institutions, have responded through debt measures and restructurings. The fiscal and monetary responses of third world countries and various financial institutions is having consequences for indebtedness, debt servicing capacity, and debt sustainability.

According to Fishlow (1987), debt was an increasing problem across all third world countries and the problem has only exacerbated. In fact, third world countries had been borrowing heavily in the global financial markets in recent years making it a trend that has created both new opportunities and new challenges.

Fishlow (1987), opined that the debt problem is not a temporary difficulty that can be solved by a couple of years of worldwide economic growth. The debt crisis is now a development crisis, and the debtor countries laboring under their debt burden are rapidly falling behind. Debt service with austerity will not restore economic gap, and public policy changes are needed to slow down and reverse the fast accelerating outflows.

According to Hussain and Diwan (1990), rising debt levels have corresponded with rising debt service cost, but countries have not necessarily improved their ability to finance such obligations. Failure to meet debt service obligations will have devastating

impacts, including downgrading of credit ratings (and, hence, future higher costs), heightened pressure on foreign exchange reserves and domestic currency depreciation, and the real possibility of being rationed out of the market and negative reputational consequences.

This paper utilizes data to study issues of development and debt crisis and how both variables affect each other with special reflection on how to reduce or alleviate debt related crisis that hinders or altered growth and development.

Economic Quagmire and the sensitivity of debt crisis in the third world countries

The debt crisis had severe consequences for many developing countries. In some cases, countries were forced to default on their debts, leading to economic collapse and social unrest. In other cases, countries were able to work their way out of the crisis through a combination of economic reforms and debt restructuring.

Today, the legacy of the debt crisis still looms large for many developing countries. Debt levels remain high in many countries, and some argue that the global financial system still favors developed countries over developing ones. However, there have also been some positive developments, such as the creation of debt relief programs and efforts to improve financial stability and promote sustainable economic growth. Although debt servicing continued to rise, the share of total debt servicing rise before trending downward. Most third world countries are not spared in the crisis of underdevelopment and debt crisis. However, there is variation across the third world countries in terms of magnitudes, of development and debt crisis (Sachs, 1981).

The widening economic gap between resource rich countries and debt granting institution on one hand and the dependent debt collectors is also on the rise and the debt servicing costs is of great concern. Possible outcomes emerge as a result of the debt servicing situation inclusive of economic underdevelopment and debt crisis. Many third world countries that are rated by one or more of the three- largest credit-rating agencies experienced credit downgrades (Yusuf and Mohd, 2021). These countries must access future financing at steeply higher costs at the very same time that their financing needs have jumped. While the exact distress landscape is yet to be determined, the signals coming out of the issues of development and debt crisis may be pointing to a distress map likely to be more severe.

Between Development and Debt

The correlation between debt and development has been a subject of several studies and examination with mixed results indicating positive and negative findings. Generalizations from many studies in part, suggest that debt below a certain threshold can promote economic growth while debt well above a certain threshold also could retard and crippled development.

Pattillo, Poirson and Ricci (2004), in their study assessed the non-linear impact of external debt on growth using a panel data of 93 countries over 1969–1998 and found that the impact of debt on development can be very different at low levels of debt and at high levels. At high levels of debt, doubling debt from any initial debt level will reduce per capita income growth by about 1% point while high debt reduces growth mainly by lowering the efficiency of investment. At low levels, however, the effect was generally positive but often not significant. Meanwhile, the negative impact of high debt on growth operated through both a strong negative effect on physical capital accumulation and on total factor productivity growth.

Adofu and Abula (2010), using OLS regression technique and annual data from 1986 to 2005, investigated the empirical relationship between domestic debt and economic growth in Nigeria. The results showed that domestic debt had affected the growth of the economy negatively. The study focused on domestic debt which constitute a segment of total debt stock largely neglecting the external borrowing which is the dominant debt.

Babu, Kiprop, Kalio and Gisore (2015), explored the effect of debt on economic growth in East African countries over the period 1990–2010 adopting the Solow-Swan growth model augmented for debt. The results showed that domestic debt had a significant positive effect on economic growth in East African countries.

Elom-Obed, and Odo (2017), using the Vector Error Correction Model (VECM) and annual data from 1980 to 2015, analysed the relationship between public debt and economic growth in Nigeria. The variables used in the study included RGDP, foreign debt, domestic debt, and domestic private savings. The study findings revealed a significant negative impact of foreign and domestic debt on economic growth in Nigeria.

Gómez-Puig and Sosvilla-Rivero (2017), explored the relationship between government debt and economic growth of Euro Area countries using time series data for the period 1961–2013 and the ARDL method. The results indicated a significant

negative influence of public debt on long-run performance of the Euro Area member states while the short-run effects may be positive depending on the country. The study looked at Euro countries and provided a basis to examine the impact of public debt on economic growth.

Thao (2018), analysed the effect of government debt on economic growth in six ASEAN countries, Indonesia, Malaysia, Philippines, Singapore, Thailand and Vietnam over the period 1995–2015. The General Method of Moments (GMM) estimation technique was adopted to measure the effect of government debt indicators on economic growth. The findings revealed a significant and positive impact of public debt, FDI, GFCF and real effective exchange rate on economic growth while population growth had a significant negative effect on the growth rate of these countries.

Akhanolu, Babajide, Akinjare, Tolulope and Godswill (2018), examined the effect of public debt on economic growth of Nigeria using annual data from 1982 to 2017 and two-stage least square regression technique. The study modelled GDP as a function of internal debt, external debt, savings and capital expenditure. The results revealed that external debt had a significant negative impact on growth while internal debt showed a positive impact.

Mhlaba, Phiri and Nsiah (2019), employ the ARDL method and quarterly data from 2002 to 2016 to examine the long-run and short-run effects of public debt on economic growth for South Africa. The study modelled GDP as a function of gross and net debt, investment, inflation and terms of trade. The empirical results indicated a significant negative impact of public debt on economic growth.

Saungweme and Odhiambho (2019), explored the causal relationship between government debt, debt servicing and economic growth in Zambia for the period 1979 to 2017 using a dynamic multivariate ARDL approach. To achieve this objective, RGDP was modelled as a function of stock of public debt, fiscal balance and savings as a share of GDP. The empirical results indicated a unidirectional causal relationship from economic growth to public debt in Zambia. The study findings supported the hypothesis that the pace of economic growth matters in defining the level of public debt.

There is a complex relationship between development and debt crisis. Generally speaking, a country's level of development can impact its susceptibility to debt crises, but the relationship is not always straightforward. On one hand, developing countries

may be more vulnerable to debt crises because they have limited financial resources, weak institutional structures, and lower levels of economic diversification. As a result, they may struggle to service their debts when faced with economic shocks or changes in interest rates, which can lead to default and a subsequent debt crisis.

On the other hand, developed countries can also experience debt crises, as we have seen in recent years with Greece and other European countries. High levels of public debt, often incurred through spending on social programs or large infrastructure projects, can become unsustainable if economic growth slows down or interest rates rise.

It's important to note that debt crises are often caused by a combination of factors, including poor economic policies, inadequate financial regulation, and global economic conditions. Therefore, it is not accurate to simply say that development level directly causes debt crises.

Theoretical Framework

From a theoretical standpoint, various theories provided different paradigms on hypothesis to explain the effect of debt crisis on economic growth and development. The debt overhang theory, is served as dependable framework upon which this paper was built on.

Eme and Olugboyega (2012), explains debt overhang as whereby the expected repayment amount of debt exceeds the actual amount at which it was contracted. Eduardo (2009), defined debt overhang as one where the debtor nation benefits very little from the returns on additional investment due to huge debt service obligations. The “debt overhang effect” comes into play when accumulated debt stock discourages investors from investing in the private sector for fear of heavy tax placed on them by government. This is known as tax disincentive. Debt-overhang occurs when a nation’s debt is more than its debt repayment ability.

Bamidele and Joseph (2013), relates the concept of debt overhang that when the debt service burden has prevented rapid growth and development and has worsened the social issues. Developing countries expected debt service is seen to be increasing function of output and as such resources that are to be used for developing the economy are indirectly taxed away by foreign creditors in form of debt service payments. This has further increased uncertainty in the economy which discourages foreign investors and also reduces the level of private investment in the economy. The

tax disincentive that persists because of the high debt and as such huge debt service payments, it is assumed that any future income accrued to potential investors would be taxed heavily by government so as to reduce the amount of debt service and this scares off the investors thereby leading to disinvestment in the overall economy and as such a fall in the rate of growth.

Debt overhang theory implies that large borrowing leads to high debt, debt traps and slowing down of economic growth. According to the debt overhang theory, if there exists the likelihood that in the future government debt will be larger than the country's repayment ability, expected debt service costs will discourage further domestic and foreign investment.

The theory argued that the requirement to service debt reduces funds available for investment purposes; hence, a binding liquidity constraint on debt would restrain investment and further retard growth. The theory holds that both the stock of public debt and its service affect growth by discouraging private investment or altering the composition of public spending. Debt service may discourage growth by squeezing the public resources available for investment in infrastructure and human capital. The theory further suggests that public debt may have non-linear effects on growth, either through capital accumulation or productivity growth.

This study is therefore anchored on the Debt Overhang theory. This is based on the premise that the theory goes to a great extent to explain the consequences of external debt on a nation as it described as one of the consequences associated with external debt as discouraging private investors due to high tax rates in order to raise fund to compensate for the debt.

Factors behind Third World's Debt Crisis

A proper grasp of the situation that surrounds debt crisis in the third world must involve understanding why the third world countries seeks deb from the first place. This demands looking at the factors that makes it necessary and persuades third world countries to international loans or borrowing, thus debt and debt crisis. There are both domestic internal factors and the foreign/external factors.

1. Oil Crisis in 1973-1974 and 1979-1980

The major root cause gain ground in the period between 1973-1974 and 1979-1980, when the member of the Organisation of Petroleum Exporting Countries (OPEC primarily Saudi Arabia, Iran and Kuwait) that have the oligopoly position in the world

oil market interrupted the supply of oil and thus the price soared very high. As the result those countries amassed great wealth and caused the global oil crisis. After the two embargo that resulted in oil crises world wide, large amount of extra “petrodollars” was deposited in international and commercial banks.

Those banks were left a huge excess of capital and were anxious to put it in productive use. Governments of many third world developing countries including some less developed OPEC countries such as Mexico and Nigeria were eager to borrow funds, since it was generally assumed that countries wouldn’t default on their repayments. Consequently, loans were flowing into the developing countries at an unprecedented level. Due to the very large amount of money involved, these banks often paid insufficient attention to the viability of the projects on which this money was to be spent.

As the result of the embargo which adversely affect the international economy especially that of the targeted countries. The United States’ economy fell into recession, and they began anticipation to default. On the other hand as third world developing countries fall into same quagmire on these loans under the weight of increased repayments, the third world developing countries received advice from the Bretton wood institutions to shift agricultural production from crops for domestic consumption to crops for export and liberalized trade.

This mean that third world developing countries adopted the policy of structural adjustment which was a policy of import substitution and industrialisation. Therefore it meant that third world developing countries will sought to diversify their economy from being based on agriculture to investing in manufacturing industries. This required investment and this investment was funded by external borrowing. The loans were seen as helping to develop third world economies under pretext.

The resulting gap in the production of these commodities and not well thought policies in trade liberalization, make prices fall straight down at high speed leaving many developing countries with little revenue and less land available for the production of crops for domestic consumption. This combination of lower revenues and less domestic consumption led to a rise in poverty in developing countries thus underdevelopment. These and additional debts have persisted to this day.

2. The Stabilization Program of the Bretton Woods Institution

The Bretton Woods institution come up with stabilization programs in terms of granting debt and financial aid to the third world countries that emphasizes mainly on

the internal economic policies of the third world. Todaro and Smith (2003), outline four basic component included in the programs.

The four (4) basic components include

- a. Liberalization of foreign exchange and import controls.
- b. Devaluation of the official exchange rate.
- c. Stringent domestic anti-inflation program.
- d. Greater hospitality to foreign investment and a general opening up of the economy to international commerce.

This stabilization program was put to test in 32 nations of the third world. But it seemed not to work. Third world developing countries still keep defaulting on their debts. The liberalization of the economy enriched only overseas investors and undermined the local economy of the third world countries. Privatization and denationalization of enterprises and banks extracted and repatriated huge profits and enormous interest payments not actually to the benefits of the greater amounting population of the third world. Deregulation led to financial swindles, massive capital flight and increased debt payments, but no productive expansion (Petra, 2002).

Third world countries keep servicing and financing their repayment of debt only with enormous high social costs of economic stagnation, unemployment and decline of income (World Bank, 2002).

The programs in reality only had exactly the opposite effect, they have further impoverished many of the heavily indebted third world countries to a point where their future economic growth must be seriously doubted. The sobering point is that programs of this sort have been adopted repeatedly, and have failed repeatedly” (Ferraro and Rosser, 1994).

3. Structural Weakness

Charles and John (1989), argues that structural weaknesses in the third world countries blocked most of their economy from achieving the rapid growth necessary to escape their debt difficulties. In their argument they explain that the third world countries are, poorer, and more dependent on primary commodities and lacked a diversified economy and export base which makes it more difficult to adjust to changing world economic conditions.

Similarly population growth is soaring higher making it harder both to increase per capita income and to provide for basic human needs. Living conditions and the quality of human capital are worse, life expectancy is less. Relative to population, the GDP and GNP are not forming favorable match. Economic performance in these countries have been poor, GDP is declining in declining in per capita terms. Since the onset of the international debt crisis in 1982, when new flows of non- concessional capital virtually dried up for these countries, their export growth has been lower, and their per capita consumption has been declining faster. Third world countries export volume is lower and the failure of exports to expand in line with expanding world trade (including that in primary commodities) goes far in explaining the region's debt-servicing difficulties (Charles and John, 1989).

Charles and John (1989), went further to argue that If these countries had simply maintained export volume growth in line with other developing countries, their debt service ratio would have been more than a third lower. Had they simply maintained their market shares in developing-countries' nonoil primary com- modities, the additional export revenue would have amounted to about twice as much as their debt-service payments.

Further buttressing their arguments Charles and John (1989), opined that failure of the third world countries to diversify their exports out of primary commodities has also contributed to their problems in coping with higher debt burdens. Manufactured exports repre- sent the most rapidly growing segment of developing country exports, particularly for the highly indebted mid- dle-income countries. Poor policies have compounded these structural rigidities and contributed to poor performance. These policies must also be rectified if the third world countries are to recover from the debt crisis (Krumm, 1985).

4. Paradoxical Lending

Multilateral, bilateral, and private creditors secretly lent despite their own investigation that the loans will not be properly managed. This kind of irresponsible lending contributed significantly to the debt crisis (Begg, 2001).

In the 1970s, the world economic framework rooted in the Bretton Wood System, provide possibilities and opportunities for poor economies of the third world countries to collect debt. However, the reality of the policies in granting debt and economic capabilities of the new independent nations remain unclear in moving towards development.

The economic conditions of the third world then as explain by Yanhui (2003), suggested that borrowing money and gaining foreign aids were reasonable courses towards deficits and economic development. Western countries showed great willingness of lending money to the third world nations. The result was an unprecedented flows in debt form and international aids from commercial banks and western governments. Many third world countries thus developed very large debts, and the amount of money they owed was quickly increasing (Yanhui, 2003).

Similarly, China as the world largest single creditor has been facing criticism recently for its lending practices to developing countries, accused of leaving them struggling to repay debts and therefore vulnerable to pressure. Its loans to lower and middle-income countries have tripled over the past decade, reaching \$170bn (£125bn) by the end of 2020. According to World Bank international debt statistics. But that is rejected by China, which accuses some in the West of promoting this narrative to tarnish its image.

Research by AidData, an international development body at William & Mary University in the US, finds that half of China's lending to developing countries is not reported in official debt statistics. It is often kept off government balance sheets, directed to state-owned companies and banks, joint ventures or private institutions, rather than directly from government to government.

There are now more than 40 low and middle-income countries, according to AidData, whose debt exposure to Chinese lenders is more than 10% of the size of their annual economic output (GDP) as a result of this "hidden debt". Djibouti, Laos, Zambia and Kyrgyzstan have debts to China equivalent to at least 20% of their annual GDP.

Rising debt and record-high commodity prices are tempting many developing countries to pledge their natural resources to secure the financing they so urgently need. A new strategy that backfire on them. South Sudan for example is already paying the price of a poorly designed oil-backed loan it took on when its production capacity was still strong. Chad is struggling to restructure its debt—because the commercial lenders behind its oil-backed loans have little incentive to cut the government any slack. Zimbabwe recently entered into discussions with a commodity trader to hand over revenues from its lucrative gold and nickel mines to pay off its debts to the company.

5. The Nature of the Debt Deal and Transference

Some loans aren't inherently a bad thing: under specific circumstances, they can be beneficial to poor countries with a wealth of natural resources. But they require a

careful cost-risk and debt sustainability analysis and transparency about their contractual terms. That seldom occurs. As a result, some loans have been more likely to exacerbate debt vulnerabilities than to ease them. Loans extended to central governments and state-owned-enterprises in sub-Saharan Africa from 2004 to 2018 total about \$46.5 billion, or nearly a tenth of the continent's new borrowing during this period. Despite the size of the loans, little information was available on their terms of the loan.

There are several reasons for this. First, countries that rely on such borrowing methods usually have weaker debt-reporting practices. Second, such loans are often contracted by state-owned enterprises or special-purpose vehicles that either do not publish audited financial statements or do not provide the data to the national debt office. Third, contracts often include stringent confidentiality clauses.

Measures to Reduce Debt in the Third World

Most importantly, alleviating acute debt crisis and further preventing its contagious widespread detriment is not solely the responsibility of borrowing countries. It requires a serious change on the part of creditors, debtors and the international systems at large.

Griffiths (2023), highlighted basic measure to concentrate on for the alleviation of debt in the third world countries forming strong base on the management of and deals of the debt as follows:

1. Manage borrowing and lending better

Careful management of the opportunities, costs and risks of different sources of borrowing is crucial for low-income countries. Capacity for debt management remains weak in many low-income countries, and increased support to tackle this is important. But the underlying reasons for the limited improvement in debt management are linked to a lack of demand, accountability and political commitment.

Lenders should play a key role in improving the borrowing options available to low-income countries. Creditors could offer State Contingent Debt Instruments (SCDIs), where repayments are paused if the borrower faces repayment difficulties.

They can also support changes to debt contracts to make restructuring easier, and endorse better contractual terms and conditions. This could entail supporting clauses that allow for restructuring by a majority of creditors, 'standstills' where repayments

are halted during difficult periods, or supporting mediation and arbitration mechanisms.

2. Increase Accountability to Improve the Behaviour of Borrowers and Lenders

There is considerable room for improvement in debt transparency at the country level, so that domestic citizens and parliaments can provide incentives for governments to improve debt contraction, use, and management. In addition, levels of ‘hidden debts’ such as contingent liabilities are high in many countries. Meaning, without greater transparency, the real debt risks that low-income countries face are obscured.

Transparency is a theme that has only been taken up to a limited extent by international initiatives. Good proposals include creating a mandatory public register of lending and requiring both multilateral actors and private sector creditors to use the register. The public disclosure of lending contracts would allow parliaments, journalists, and civil society organisations to examine them, and would also allow other lenders to have the full information before making further loans.

3. Introduce better ways of Managing Shocks and Crises

Low-income countries are vulnerable to crises especially those caused externally for various reasons. A high proportion of their debt is in foreign currency and their economies are small and vulnerable to changes in the prices of commodities or in global financial markets, including the availability and cost of borrowing.

Ensuring debt is managed to deal with potential shocks is an important but difficult element of low-income countries’ debt management. Tools that they can use as part of their national development strategy include capital account management techniques, and the use of public development banks and other institutions to try to direct national savings towards longer term productive investment.

Nevertheless, there are limits to how much individual countries can be expected to insulate themselves from shocks, which is why the role of creditors and the international system is important. Evidences shows that restructuring is a common feature of sovereign debt markets and given that many countries are in or close to crisis, the focus should be on how to restructure unsustainable debt better.

The development of a permanent mechanism for resolving sovereign debt problems has long been on the international agenda and should be revived as the best solution. The key feature of such an institution is that it would be impartial and draw upon expertise, with a legal basis that would make its decisions binding. Fast disbursing

international finance to help developing countries deal with temporary shocks should also be promoted.

According to Muhleisen and Flanagan (2019), three policy priorities can help make a difference in reducing debt crisis in the third world countries.

First, greater efforts are needed to ensure that sovereign borrowing is financially sustainable. Borrowers should carefully set their fiscal spending and deficit plans to keep public debt on a sustainable path. They should also consider closely potential returns on their projects and their ability to repay through higher tax revenues before taking on new debt. Lenders need to assess the impact of new loans on the borrower's debt position before extending fresh credit. This will protect both lender and borrower from entering into agreements that will cause both financial difficulties in the future.

Second, there's need to ensure that all countries adhere to comprehensive and transparent reporting of public debts. There should be room to significantly strengthen the institutions that record, monitor, and report debt in many developing countries. Creditors should have room to allow more full disclosure of the terms and conditions of their borrowing. Greater transparency regarding public debt liabilities can help prevent the build up of large "hidden" liabilities that in due course turn into explicit government debt.

Third, there's need to promote collaboration among official creditors to prepare for debt restructuring cases that involve non-traditional lenders. Given the high level of debt held by new creditors, there's need to think about how to make official creditor coordination work since it is often so critical to resolution of debt crises.

CONCLUSION

This paper investigated issues of development and debt crisis with special reflection on how to reduce debt in the third world developing countries. A conceptual analysis is used to accomplish this task. The paper conclude that external debt retarded long-term economic growth and development especially in the third world countries. But its short-run effect enhances growth.

The study posit that, while debt service lpayment significantly reduced growth in both the long and short-run. Domestic debt rather than external debt will stimulate higher rate of economic growth in the countries. This is because the repayment of the principal and interest on such domestic debt is a reinvestment into the economy which would usually have a multiplier effect on domestic investment in the economy. But

with respect to external debt, more resources would be needed to repay and service the debt and this would weaken the anticipated positive effect of this debt on economic growth.

The analysis of the paper leads to the conclusions that with regard to the external debt difficulties of third world developing countries, the efforts of the debtor countries, and the special programs of the official creditor and donor community, are the first steps in the process of economic development and that the contemporary traditional structural adjustment required of the countries by the leading creditors are not compliant to quick economic development of the third world in greater sense.

RECOMMENDATIONS

As for recommendations to policy implications, the paper recommend the following:

Restructure borrowing: Governments borrowing should be properly appraised and their technical feasibility, financial viability and economic desirability most all be ascertained before the funds are committed. This would help to restore financial discipline and curtail the misapplication and inefficient management of public debts. Furthermore, third world countries should ensure that borrowings are done on terms that are consistent with entrenching debt sustainability and borrowed funds are productively invested in the value-added sectors of the economy to engender greater growth and development. This is necessary if the country is to outgrow its debt problem, restore creditworthiness and achieve sustainable

Enhance public financial management and internal resource mobilization: Effective domestic resource mobilization that goes beyond obtaining new financial resources must be put in place which includes, creating and sustaining greater value through effective and efficient management of public finance, as well as efficient allocation and delivery of those resources for the benefit of the citizens. Moreover, there should be transparent and accountable arrangements for financial reporting and financial management. The added benefit of accountability and transparency is increased access to external finance, as well as debt sustainability. Related, third world countries should accelerate investments in digitization for enhanced internal resource mobilization through digitized tax collection and administrative system, which will lead to greater public financial efficiency.

Revisit existing institutional mechanisms for debt deal, and resolution: The current global debt architecture is complex and grossly inadequate for troubled debt

restructurings. The issue is fueled by the emergence of new creditors, including China and private creditors, which has led to an increasingly diffuse credit base characterized by limited transparency. On the bright side, the third world countries increasingly diverse creditor pool reflects more diversified funding partners and attests to greater international confidence in prospects. However, the downside is also clear. The plurality and diversity of creditors makes coordination more complex and protracted in the event of debt resolution. To mitigate high debt resolution costs, there should be a new framework that is fit-for-purpose and accommodates the plurality and diversity of the creditors.

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**CORPORATE SOCIAL RESPONSIBILITY AND COMMUNITY
DEVELOPMENT OF CONSTRUCTION COMPANIES: MEDIATING
EFFECT OF COMMUNITY LEADERS IN NORTH-EASTERN, NIGERIA**

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Abstract

No doubt, corporate social responsibility has become an instrument of national development. It is within that imperatival need for community development that this Study takes a cursory look at the issue in all its ramifications. The study reviewed Corporate Social Responsibility on Community Development in North Eastern Nigeria. The results of this study may show both positive and significant relationship on Corporate Social Responsibility and Community Development by construction Companies in Nigeria. The study employed primary source of data collection through the use of questionnaire among various Construction companies, government agencies and corporate organizations within the North Eastern Nigeria. Various statistics tools to include correlation and regression analysis will be use to analyze the data. Also, it is recommended that the of Construction companies in North Eastern Nigeria may device strategies that will help to enlighten their community leaders on their efforts towards social dimension of CSR. This will help to improve their perception of community development. The measures adopted in this study focus on existing variables, within the context of corporate social

responsibility and community development. It is recommended that the management of construction companies within the North Eastern Nigeria should look at these dimensions of corporate social responsibilities critically with the view to enhancing them in order to enhance overall community development.

Key words: Corporate Social Responsibility and Community Development, Construction Companies and Community Leaders

Introduction

At an earlier point in history, societal expectations from business organizations did not go beyond efficient resource allocation and its maximization. But today, it has changed and modern business must think beyond profit *maximization toward being at least socially responsible to its society. Today, there is a heightened interest in the role and awareness of environmental and ethical issues. It means, our society has become increasingly concerned that greater influence and progress by firms has not been accompanied by equal effort and desire in addressing important social issues including problems of poverty, drug abuse, crime, improper treatment of workers, faulty production output and environmental damage or pollution by the industries as it has overtime been reported in the media.

It is therefore very essential for all to realize that public outcry for increased social responsibility will not disappear if business organizations fail to respond to the challenges these had posed for the society. In view of the perceived information gap, it is therefore, worthwhile collating and aggregating in a more organized manner, the contributions of Nigerian corporations using construction companies as a focus to the well-being of the society. This is necessary if only to show, in graphic and mathematical ways that the industries seriously identify with the aspirations of the communities and the general public.

Universally, CSR initiative has become important aspect of corporate financial reporting. Differences in CSR regulatory framework among countries has widened its scope ever since it was introduced by Bowen in 1953. This however, can be attributed to incessant evolving and expansion in the CSR literature promoted by diverse opinion of management and social theorists as well as industrial practitioners. Consequently, this has brought about multiple perspectives on the conceptualization of CSR. It has

however, been argued that organizations cannot survive without the community while on the other hand; the community cannot survive without the organization. This means that both the community and the organization depend on each other for survival. While the community provides both human resources and raw materials to the organization, the organization in turn provides some services to the host community. In the quest of growth, companies go global and then encountered new challenges that impose limits to their growth and potential profits. One of these challenges is CSR. Companies must gain public supports in both local and the global market as a way of gaining a competitive advantage through their social contributions to the host communities (Fry, Keim, Meiners 1986, 105). This suggests that the entire supply chain of the company should also be examined from the CSR perspective in relation to the community development if the organization wants to gain competitive advantage over its competitors.

Studies have found a significant relationship between CSR and the organizational performance. For instance, the study conducted by Uwuigbe and Egbide (2012) on examination of the relationship between firm size and CSR disclosure, found significant positive relationship between CSR and corporate performance. Also Chomvilailuk and Butcher (2010) investigate the efficiency of CSR on brand preference; they found significant positive relationship between CSR activity and firm performance. Arendt and Brettel (2010) they studied the impact on CSR on corporate identity, image and firm performance. The study concluded that CSR triggers the processes of building corporate image, identity and improve firm performance. Other studies that support positive relationship between CSR and firm performance include (Saleh, Zulkifli and Muhamad 2010; and Rakotomavo 2012). However, until this time, many organizations such as the banks are yet to realize that.

Most people have also criticized CSR's relationship to the fundamental purpose and nature of business and questionable motives for engaging in CSR, including concerns about insincerity and hypocrisy. For instance, Friedman (1970) accentuate that the primary objective of an organization is to create value for the firm in order to maximize the shareholders wealth and owe no obligation to the community. Besides, it has also been observed that there is lack of CSR framework for the banks that would enable to effectively implement and execute their CSR to the host communities.

Recent development has shown that communities have started questioning organization about their CSR. Education, dialogue, internet and globalization have

helped to create awareness about the organizations and what they are supposed to do for the host communities, hence, the communities are challenging the organization and their CSR policies. This demonstrates that it is not just enough for the organizations to have CSR policy but must go further by ensuring the implementation of CSR policy in order to affect the lives of the community people, and by so doing, organization can gain public supports in both local and the global market as a way of gaining a competitive advantage.

Dartey-Baah and Amponsah-Tawianh (2011) described corporate social responsibility as one such ways a company can impact its host community and its environment with a potential of creating sustainability development. Thus, the development of the community is part of the company responsibility. In line with this, most studies (Guadamillas-Go´mez and Donate-Manzanares, 2011; Joseph, 2008) have attempted to examine the company CRS activities and how they affect the community development, however, majority of these studies (Guadamillas-Go´mez and Donate-Manzanares, 2011; Joseph, 2008; Hinson, Boateng and Madichie, 2010; Branco and Rodrigues, 2006) are more from the bank perspective only few are from the oil and gas industry where majority of their activities are hazardous to the community.

Another major problem of CSR is the limited studies of CSR within the context of Africa, Nigeria inclusive. It has been observed that most studies including theories on CSR are Western based context which Dartey-Baah and Amponsah-Tawianh (2011) argued that they might not be applicable to African context due to cultural differences which may influence CSR priorities. For example, the Carrol (1991) CSR pyramid model showed that philanthropic responsibilities are the most priority among other CSR dimensions while it is argued by Visser (2005) that in developing countries Nigeria inclusive, economic responsibilities are the most priority (Dartey-Baah and Amponsah-Tawianh, 2011). Thus, more studies on CSR that would bear in mind the peculiar nature and culture of the developing countries are required in this regard. Hence, this proposed study is timely. Although, in developed countries, theory has established a strong link between CSR and community development, however, this seems not practicable in Africa context especially Nigeria due the high influence of the community leaders who interrupts the process of CSR to develop the community. For example, most community leaders want the company to pass through them in executing CSR projects for the community development. Hence, they tend to mediate the influence of CSR on the community development. Thus, this study will examine

the mediating role of the community leaders on the influence of CSR on the community development.

Furthermore, in the Western countries, it is very easy to directly implement an execute CSR for the communities without necessary going through the community leaders. That is, a direct link exist between the company that wants to execute CSR and the host community while in the developing countries, especially Nigeria, there is lack of direct link between the company and the host community. Thus, the company must go through the community leaders who then most time influence the kind and nature of the projects that are to be executed for the community under CSR. Hence, the community leaders must be put into consideration when talking about CSR in most community in Nigeria. In the light of above, this proposed study will investigate the mediating effect of community leaders on the relationship between CSR and Community development with a view to develop a framework that would suit the context of this study.

Objective

1. To determine the influence of ethical responsibility on the community development.
2. To examine the influence of legal responsibility on the community development.
3. To investigate the relationship between economic responsibilities and the community development
4. To determine the relationship between philanthropic responsibilities and community development.
5. To investigate the extent to which Community leaders mediates the relationship between Corporate Social Responsibility on Community Development among Construction Companies within the Northeastern Nigeria.

LITERATURE REVIEW

According to United Nations Industrial Development Organization – UNIDO (2019), Corporate Social Responsibility is a management concept whereby companies integrate social and environmental concerns in their business operations and interactions with their stakeholders. CSR is generally understood as being the way through which a company achieves a balance of economic, environmental and social imperatives (—Triple-Bottom-Line- Approach), while at the same time addressing

the expectations of shareholders and stakeholders. In this sense it is important to draw a distinction between CSR, which can be a strategic business management concept, and charity, sponsorships or philanthropy. Even though the latter can also make a valuable contribution to poverty reduction, directly enhance the reputation of a company and strengthen its brand, the concept of CSR clearly goes beyond that. Also, the people recognized three layers of social responsibilities of businessmen which in the order of their importance are; providing products and job, achieving a sustainable economic growth, Improving the social environment.

Chen (2019), defined Corporate social responsibility (CSR) as a self-regulating business model that helps a company be socially accountable—to itself, its stakeholders, and the public. He further noted that by practicing corporate social responsibility, also called corporate citizenship, companies can be conscious of the kind of impact they are having on all aspects of society, including economic, social, and environmental.

For better understanding of the length and breadth of social responsibilities of corporate entities, one need to recognize the fact that different sections of the society — stakeholders, employers, consumers, government, and the society as a whole are associated with private business in different ways. Some directly and some indirectly and the interest of the different sections is affected by the private business decisions and activities in different measures therefore, social responsibilities of businessmen have to be different for different sections of the society.

The concept of community development incorporates two elements —community and development. Community refers to people who reside in a particular geographic location, such as a neighborhood, village, industrial corridor, rural area, or small town, and who interact with each other and share common characteristics, such as interests, ethnicity, socioeconomic status, culture, or activities while development refers to economic development as part of a planned change effort to improve the standard of living and well-being of people. Typically, community development targets local communities beset with economic and social problems, such as concentrations of poverty, high crime rates, abandoned buildings, substandard housing, outdated infrastructure, unemployment, and a poor economy. The specific objectives of community development depend, however, not only on the needs of the local community, but also on the interests of the organization or group initiating the development activities

Corporate Social Responsibility And Community Development

Today, the world is poised with sustainable development. That is a development that is transgenerational and not the type that live and die with the generation that bred it. Sustainable development does not exclude any sector of the economy from participation rather it constantly advocates for concerted energy toward wholesome qualitative advancement of the society. In this regard, the corporate practices that foster at sustainable development is social responsibility.

Retrospectively, UNIDO (2019) painted a clear relationship when he posited that corporate social responsibility enables companies to realize a balanced economic, social and environmental state. This implies that CSR builds a healthier environment that grooms healthy interactions between man and the environment. It gives room to less pollution-oriented activities thereby increasing the quality of life.

Stakeholder theory is a idea that explains how company leadership responds to or manages stakeholder expectancies (Jensen & Meckling, 1976). Stakeholder concept emphasizes organizational responsibility far past simple monetary or financial overall performance. This idea believes that companies voluntarily disclose statistics about the surroundings, society, and highbrow overall performance beyond the necessary necessities to meet the expectations of real or diagnosed stakeholders (Bernardi & Stark, 2018).

One shape of voluntary improvement that is currently growing is the disclosure of company Social responsibility. Disclosure of CSR can be a means for a enterprise to provide more whole and complete statistics approximately its sports and their impact on social and environmental social situations (Suhardjanto *et al.*, 2007). CSR is a corporate initiative that contributes to sustainable economic development by paying attention to community and environment, and also emphasizing the balance between economic, social, and environmental aspects (Fatemi *et al.*, 2016; Suhardjanto *et al.*, 2007).

Community legitimacy is a strategic factor for a company to further develop in the future. It can be used as a means of shaping corporate strategy, especially as it seeks to position itself in an increasingly evolving society (Brooks & Oikonomou, 2018). Companies that disclose CSR indicate that the company has carried out its responsibilities in environmental, social, and economic aspects. Employee welfare that is fulfilled will make employees work better and be able to innovate for the company. The company is considered capable of using and properly managing the knowledge

possessed by employees (human capital) (Mention & Bontis, 2013). The growing industry pattern has created a paradigm that investments made by business people should be balanced between physical assets and non-physical assets. This is in accordance with the resource-based theory, intangible assets, such as human capital that is owned, utilized, and controlled by the company properly can add value to the company and can become a company advantage in business competition (Ardhiani & Nasih, 2019; Mention & Bontis, 2013; Tui *et al.*, 2017). The value of a company can be influenced by human capital because it can be an added value for the company in addition to CSR disclosure (Ponga & Amanah, 2015). If the company has a high level of CSR supported by high human capital, it can enlarge the influence of CSR on company value. Companies that disclose CSR can make the value of the company increase when the company's human capital is high (Virna *et al.*, 2018).

The growing complexity of our communities requires consistent innovation in CSR activities especially in banking sector so as to appeal to large spectrum of customers in attempt to get a stable foothold in the market share. Banks are able to create customer loyalty and as the community exponentially placed emphasis on brand preference. Brand quality has been established to be significantly influenced by CSR initiatives Chomvilailuk and Butcher (2010). Undoubtedly, resource committed to CSR activities received exponential controversy as to whether it's reduced the company's value or the residual resource to be declared as dividend. But rather, dividend tends to increase as CSR commitment increases. Large banks commit much resource to CSR in return to earned greater equity Rakotomavo (2012).

According to Othman (2011), all publicly listed companies in Malaysia are required to disclose their CSR activities in their corporate annual report whether by the company or its subsidiary starting from financial year ended 31st December, 2007. What to be disclosed still remains voluntary as such the organization has the option of what to be disclosed. This may more or less make organizations earned a proportionate commercial reward for been ethical, legal, social and environmental

Model of CSR

Several models of CSR have been advanced by many authors. Popular among are Carrol's Model, EFQM's Model and Touro (2010).

Carrol's Pyramid Model of CSR: Carroll (1991) depicts a-four dimensions aspects of CSR which it named Philanthropic, ethical, legal and economic responsibilities.

Thus, the model views CSR in four dimensions. The study by Dartey-Baah and Amponsah-Tawianh (2011) argued that Carroll's model of CSR might not be suitable in studying CSR in developing countries due to differences in culture.



Figure 1

EFQM Model

Although, similar to the Carroll's model of CSR but with a different view of CSR. The model views CSR in three different dimensions which are social, environment and economic (Dartey-Baah and Amponsah-Tawianh, 2011). This posits that CSR can be measured using a three dimensional views (Dartey-Baah and Amponsah-Tawianh, 2011).

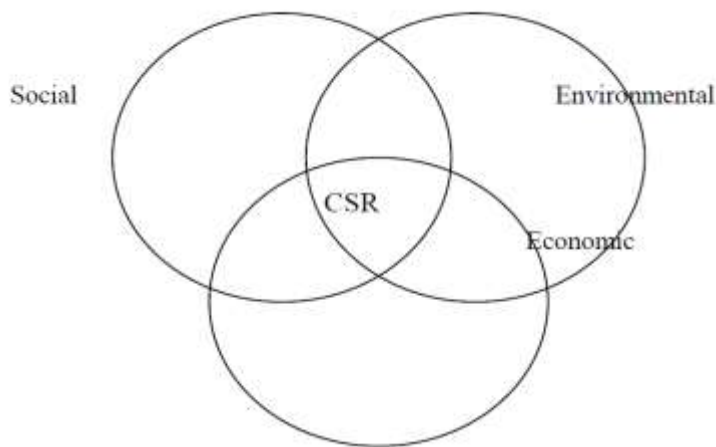


Figure 2

Model by Touro (2010): This is model emphasizes on three major issues of CSR which are purpose, impact and benefit. It posits that CSR should have a purpose, impact and the benefit. It should have a purpose for the community, impact on the community and also benefit the community. The model also emphasizes on the risk management, value creation and philanthropic. In other words, the model posits three dimensions which are value creation, risk management and philanthropic.

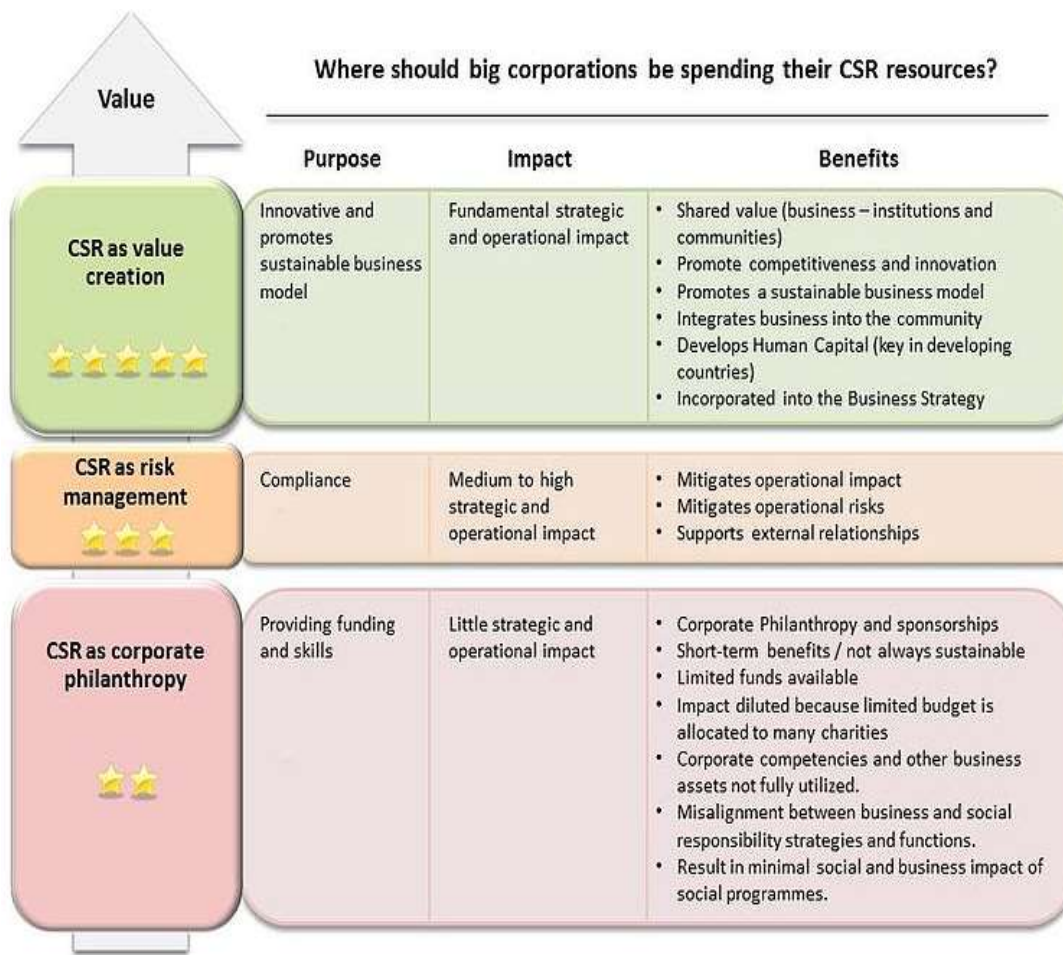


Figure 3

Community development (CD)

Generally, the term development can be described using various terms such as growth, improvement, expansion, progress, change etc. It is a broad term which is often

referred to as practices of civil of activities that required the citizens to participate build stronger and more resilient local communities. It could also means a positive change in the economic and well-being of the people in the community. The development may lead to empowering the people by providing them with the necessary skills with a view to effect changes in their own communities. In another view, the development can be in the form of provision of infrastructures social amenities that would aid the community development.

In summary, it is observed that community developers including the companies that execute CSR for the community must understand how to both work with the community people including the community leaders and how to affect communities' positions within the context of larger social institutions for the positive community development. Therefore, all hands (company, community leaders, and community itself) must be on desk in finding a suitable way to develop the community.

Community Leaders

The concept of leadership emphasizes on the two key actors: the leader and the follower. The leader leads while the follower follows the direction and instrument of the leader. Leadership is one of the important aspects, which shall be developed by each and every human being. Thus, an effective leader is expected and required to lead and guide the subordinate or the people to perform certain task effectively and efficiently. Generally, leaders influence and motivate people to do certain jobs necessary for the development of the organization or community as the case may be. Community leader(s) are group people or individual person who represents the community, lead and guide them to perform certain task effectively and efficiently. Therefore, one of the major roles of a leader is Representation. The leader is the representative of his subordinates. He represents his subordinates whenever there is a need to express their views with higher authorities within or outside the organization. In Africa context, community leaders tend to be the eye of the people as they virtually negotiate whatever development coming to the community from the company. In most cases, they detect which type of project or the nature of project that to be executed for the community. Hence, they stand at the middle between the company and the community. In other words, they stand in between CSR and community development.

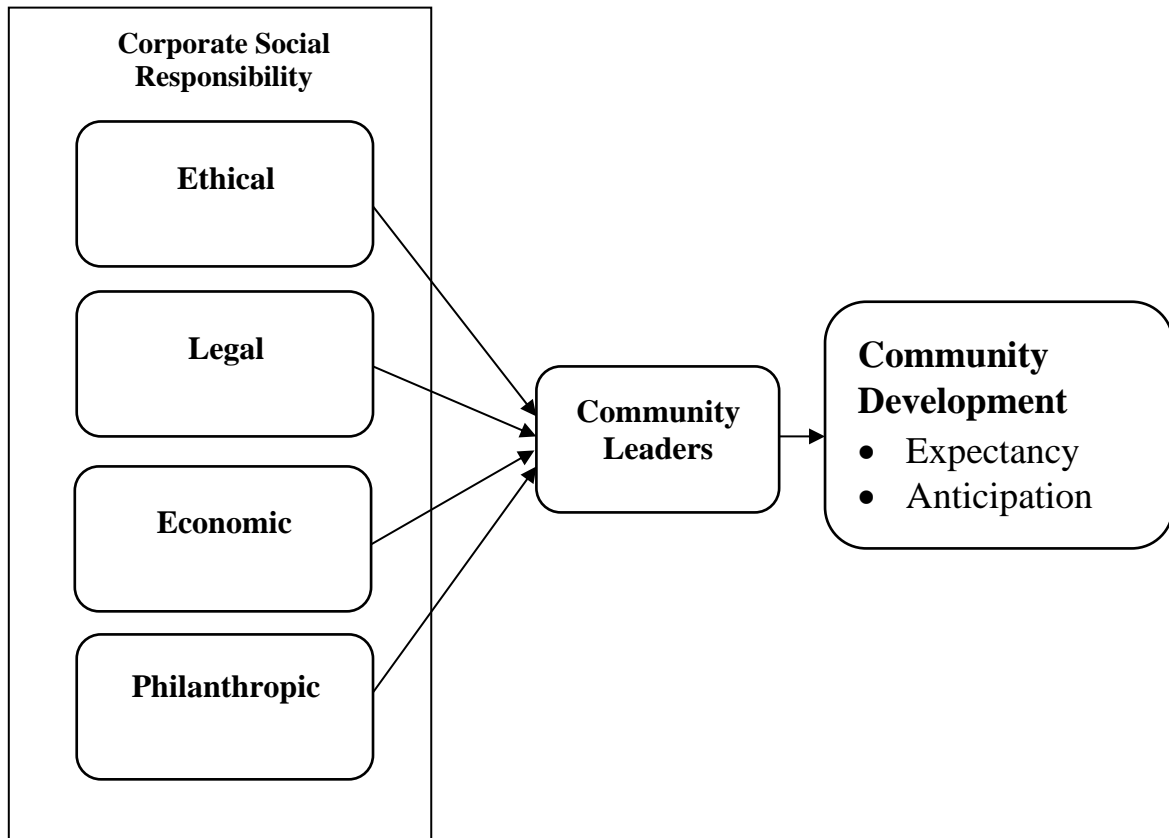


Figure 4: The proposed conceptual framework

METHODOLOGY

This section deal with the research design, research approach, sampling techniques and analysis techniques that would be suitable to achieve the various research objectives stated in this proposal.

Research Design

Research design has been simply defined as the methods and structures of an investigation which is decided by the researcher himself in meeting the standard needed to conduct data collection as well as the analysis (Neil, 2009). Bryman& Bell (2008) defined research design as a framework that offers a procedure for data

collection and data analysis while Zikmund (1991) refers to research design as a more or less an outline that gives the detail of the method and procedure for data collection of a research work. According to Springer (2010), a research design could be experimental or non-experimental design depending on what choice of research design an author wants to adopt. In view of this, this study will adopt non-experimental research design in particular a cross-sectional research design which deals with the collection of data at a particular point in time.

Research Approach

Generally speaking, two major types of research approaches are often mentioned by many researchers. They are the qualitative and quantitative approaches (Neil, 2009). In brief, the qualitative approach often deals with face-to-face interviews and direct involvement of the researcher in the research context. This kind of research uses data that is in the form of words originating from documents, observations and transcripts. According to Sekaran, Robert & Brain (2001), the method used no statistical analysis and therefore, qualitative research method involves analysis of data or information which is descriptive in nature and not in a quantitative form.

On the other hand, the quantitative approach is a common research approach in the field of social sciences and business field (Sekaran, Robert & Brain, 2001). In brief, this research approach design deals with quantitative data applies statistical analysis in analyzing the collected data. It is also a research design approach that uses questionnaires in collecting data or information and then analyzes this data through statistical analysis tools (Saidu, 2006). Authors such as Amin & Khan (2009) and Khurshid (2008) concurred that this approach is suitable in conducting a research of this kind. Similarly, Ogbonnaya & Osiki (2007) affirmed that questionnaire is the best and suitable means of data collection for a large population like that of the teachers. On this note, this proposed study will opt for the quantitative survey research design approach. The cross-sectional design is referred to as a social design and probably the suitable approach because it is more often used by the social scientists or social science and art disciplines in conducting their research work (Amin & Khan, 2009; Khurshid, 2008 and Saidu, 2006)

Sampling Technique

Although, there are several sampling technique such as simple random technique, cluster sampling technique, systematic sampling technique and stratified sampling technique, however, this study will adopt the simple random technique. In this study,

a simple random sampling technique will be used to select the sample from the population. The essence of simple random sampling is to ensure that all elements in the population were given equal chance or opportunity of being included in the study (Oladele, 2007).

Analysis Technique

For this proposed study, the following analysis techniques will be used:

Descriptive analysis: this will be used to analyze and summary the particulars of the respondents such as age, marital status, education, business location etc. Therefore, the descriptive analyses such as the frequency, percentage, standard deviation will be applied.

Correlation analysis: This is a statistical analysis that tends to measure the relationship, either positive or negative, between the independent and dependent variables. It helps the researchers to determine the degree and type of relationship between two variables. It further shows us how strongly or weakly a relationship between two variables is (Ogbonnaya & Osiki, 2007). Therefore, the use of correlation analysis in this study is aimed at determining the strength and degree of the relationship between the independent and dependent variables.

Multiple Regression analysis: This statistical analysis technique determines the relationship between the relationships between the independent and depend variables. Therefore, the researchers used this analysis technique to understand the relationship between the independent (x) and dependent variables (y) (Saidu, 2006). Researchers can always establish the relationship between the x and y through the application of the regression analysis. Hence, this analysis technique assisted this study to determine the relationship between the independent and dependent variables of this study.

Result and Discussion

Ethical, Economic, Philanthropic, legal dimension and community leaders has significant effect on Community Development: mediated by community leaders

Table 4.6.5a Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. Change	
1	.941 ^a	.885	.884	.25150	.885	746.929	4	388	.000	2.100

a. Predictors: (Constant), legal dimension, ethical dimension, economic dimension, Philanthropic dimension and community leaders

b. Dependent Variable: CD

The table above revealed that there is a strong relationship at $R = .941$ between ethical, economic, Philanthropic and legal dimension of corporate social responsibility in present of mediating effect of community leaders on community development of Construction companies in North Eastern Nigeria. An examination of the table shows that R square = .885 which implies that community leaders mediates the ethical, economic, Philanthropic and legal dimension of corporate social responsibility at 88.5 % of variations having a significant effect on the level of community development of host communities of listed Construction companies in North Eastern Nigeria.

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	188.987	4	47.247	746.929	.000 ^b
Residual	24.543	388	.063		
Total	213.530	392			

a. Dependent Variable: CD

b. Predictors: (Constant), legal dimension, ethical dimension, economic dimension, philanthropic dimension and community leaders

Table 4.6.1b shows that the F-value is the Mean Square Regression (47.247) divided by the Mean Square Residual (0.063), yielding $F=746.929$. From the results, the model in this table is statistically significant (Sig =.000). Therefore, ethical, economic, philanthropic and legal dimension are significant predictor of community development in present of mediating effect of community leaders at $F(1,392) = 746.929$.

Table 4.6.5c Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	.233	.076		3.055	.002		
Ethical dimension	.058	.028	.043	2.090	.037	.706	1.416

Economic dimension	.213	.022	.252	9.844	.000	.453	2.205
Philanthropic dimension	.462	.030	.435	15.305	.000	.366	2.732
Legal dimension	.346	.021	.404	16.890	.000	.518	1.931
Community Leader	.541	.048	.532	16.993	.000	.562	3.563

a. Dependent Variable: CD

The table above revealed the degree of the mediating effect of community leaders on the influence of ethical, economic, philanthropic and legal dimension on community development and its level of significance. The statistical results is given as; (Ethical; $\beta = -.058$; $t = -2.090$; $p < 0.05$; Economic; $\beta = .213$; $t = 9.844$; $p < 0.05$; Philanthropic; $\beta = .462$; $t = 15.305$; $p < 0.05$, legal; $\beta = .346$; $t = 16.890$; $p < 0.05$). The statistical result implies that community leaders have significant effect on ethical, economic, philanthropic and legal dimension of corporate social responsibility and it is statistically significant predictor of community development.

Linear Regression Model is given as $Y = a + \beta X_1 + \beta X_2 + \beta X_3 + \beta X_4 + \beta X_5$

Where Y = Community Development

a = constant

βx = Coefficient of X

The unstandardized coefficients are used to interpret effect of mediating variable, independent variable on the outcome. All other as variable constant, an increase in ethical, economic, philanthropic and legal dimension due to community leaders is associated with an average change in community development. Based on the results in the Anova table above, the significance level for all items are less than 0.05 therefore we accept the alternative hypothesis and reject the null hypothesis. That is, community leaders has mediating and significant impact on the relationship between ethical, economic, philanthropic and legal dimension on community development of host communities of Construction companies in North Eastern Nigeria.

Conclusion

Based on the findings of the study result, it can be deduced that most of the resident in such communities were within their youthful age were male. As the result of the study

shows that most of the respondents indicated a high level of community development, it can be deduced that communities in North Eastern Nigeria perceived the construction firm with good community development based on their perceived quality of community development they are offering to residents of the host communities. However, on the community leaders' perception of the construction company's level of corporate social responsibilities, it was low. Based on this outcome, it can be deduced that the study outcome will go a long way in enlightening the management of construction companies in the North Eastern Nigeria and other on effective ways to design sound policies that will enhance the community development, through engaging in community leaders in discharging their corporate social responsibilities. On the relationship between dimensions of corporate social responsibilities (ethical, economic, philanthropic as well as legal dimensions), and the corporate reputation, the result obtained revealed that it was significant. Based on this, it can be concluded that these dimensions have all have significant relationship with corporate reputation. This result confirm the role of ethical, economic, philanthropic and legal dimensions of corporate social responsibilities on community development, with only social dimension having weak relationship. This outcome will not be unconnected with the fact that the social dimension of corporate social responsibility executed by of Construction companies in North Eastern Nigeria either low, thus, unnoticed or not in existence at all. Therefore, it is noteworthy that of Construction companies in North Eastern Nigeria need to do more on this aspect in terms of corporate social responsibility as this ethical dimension involved carrying community leaders along.

Recommendation

The finding of this research is noteworthy in the sense that it can be used to enlighten and provide background information on work related to the corporate reputation in developing countries such as Nigeria. This research does not only explore the mediating effect of community leaders on the relationship between corporate social responsibilities and community development among of Construction companies in North Eastern Nigeria, but also that the other sectors of the economy such as Oil and gas, consumer goods firm etc could learn from these findings and see the possibilities of adopting measures that will help to enhance their community development. Also, it is recommended that the of Construction companies in North Eastern Nigeria may device strategies that will help to

enlighten their community leaders on their efforts towards social dimension of CSR. This will help to improve their perception of community development. The measures adopted in this study focus on existing variables, within the context of corporate social responsibility and community development. It is recommended that the management of construction companies within the North Eastern Nigeria should look at these dimensions of corporate social responsibilities critically with the view to enhancing them in order to enhance overall community development.

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Conflict of interest

There was no case of misunderstanding, misconception and conflict of interest among the various parties to the research work

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ENTREPRENEURSHIP EDUCATION AS A PANACEA TO NATIONAL SECURITY

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Abstract

Nigeria and most African countries had been bedeviled by insecurity in all facets and life. Insecurity comes in different shades and magnitude among which include militancy, kidnapping and human trafficking, election related crises, environmental degradation and terrorism in some parts of country. This paper looked at entrepreneurship education as education which can be used to eradicate poverty, enhance productivity and national security. The concept of entrepreneurship education was also examined as an important means and a valuable strategy to ensure productivity by boosting job creation for young people. One of the recommendations advanced in this paper was that Nigerians should be encouraged to embrace entrepreneurship education in order for them

to be self-reliant and wealth creators without depending on government for white-collar jobs.

Keywords: Entrepreneurship, Education, Panacea, National Security.

Introduction

National security is a top public issue in Nigeria today, and is a matter of national importance that should be of concern to all individuals, government and corporate bodies. Insecurity is caused by a combination of political economic and institutional factor. The Nigerian society is getting more insecure, more people are getting into crimes and are getting more ruthless, desperate and sophisticated (Festus, 2012). Since the advent of this democratic dispensation, new forms of violent crimes have become common; these includes kidnapping for ransom, pipeline vandalization, Boko Haram bombings and other terrorist activities. Armed robbery reigns in many parts of the country and big target hits like banks are not rare anymore. (Eke, 2011).

According to Orikpe (2013), Nigeria today is plagued with social disorder, insecurity, poverty, illiteracy, poor health statistics, ethnic and religious conflict, corruption, crime and political crisis. Another form of insecurity challenge in Nigeria is sectarian violence. It has been estimated that this alone has wasted over 10,000 lives since 1999. Every little event triggers off suspicion, hatred and killing between Muslims and Christians in the northern part of the country and among various ethnic groups. In some instance, villages are sacked because of minor ethnic differences. (Orikpe, 2013).

There are also insecurity in food, water and health. National security starts with the social security component as represented by health care, food, shelter and clothing. Godly and Wilfred (2012), citing the National Bureau of Statistics, stated that the volume of corruption in Nigeria triggered the poverty profile of Nigeria to 96%. The report further reveals that 112.47 million Nigerians live below \$1.00 per day and as a result could barely afford the minimal standard of food, clothing, health care and shelter. The worsening economic conditions have been generating a mix of domestic, social and political tension. Insecurity in Nigeria according to Festus (2013), is a latent function of prolonged failure of the Nigerian state to deliver purposeful good government. When the federal, state and local government steal all the money allocate for building schools, hospitals and industries, the greater percentage of the citizenry

especially the youths are denied good education, employment and good health. These youths are therefore affected socially, psychologically and economically. Frustrations, dejection and hopelessness remain a day occurrence in their lives and therefore, they can be easily brainwashed, indoctrinated and co-opted into illegal societies and organizations.

All these mean that the nation is insecure in terms of the well-being of citizens. The problems individually and collectively constitute threats to the peace, security and development of the country. Governments are often expected to provide their citizens with political stability and socio-economic security including health care and shelter. Ajufu (2013) stated that recent social unrests in various African countries and Nigeria in particular, no doubt have roots in the failure of the government policies to provide or manage the basic human physiological needs of their citizens. Lack of these basics breeds discontent and social unrest and has led to poverty, insecurity of life and property, violence, conflicts and decay of social services. All these, according to him, has made it necessary for all and sundry to be more concerned with issues of national security and to find ways to arrest the negative drift. Some of these security issues have been on ground for a long time without abating despite concerted efforts. There is therefore the need to try the option of entrepreneurial education.

The Entrepreneurial Education Option

Education remains the pivot upon which the wheels of society revolve. This is the reason most nations of the world spend huge sums of money to provide education for their citizens. Farrant (1964) defined education as the process of learning to live as a useful and acceptable member of the society. Section 1 paragraph 7b of the national policy on Education emphasized that the national educational goals is the acquisition of appropriate skills and the development of mental, physical and social abilities and competences as equipment for the individual to live and contribute to the development of the society (FRN, 2004).

This is to say that the essence of any educational program is to ensure that the products of the system are equipped with the relevant knowledge, skills and attitudes needed to contribute meaningful to the economic development of the nation. Thus education becomes a veritable platform for tackling socio-cultural, economic, political, scientific and technological challenges facing any nation.

Concept of Entrepreneurship Education

Akuodolu (2010) sees entrepreneurship education as the acquisition of knowledge, skills and attitudes to enable the learners apprehend life challenges in whatever form and take decisive steps to realize new trends and opportunities for meeting those challenges in all areas of human endeavor.

Entrepreneurship education is a major force that drives the economy of many nations; it is also an engine with which new ideas are introduced continually into businesses. Nwafor (2007) defines entrepreneurship as the willingness and ability of an individual to seek out investment opportunities in an environment and be able to establish and run it as an enterprise successfully. Entrepreneurs convert ideas into products and service and ultimately create wealth and reduce unemployment. The strength of any nation depends on its ability to create and the wealth creation process lies in the hands of individuals who are innovative. Entrepreneurship plays a vital role in national security through creation of utilities and generation of employment (Onyemah, 2012). Daily Sun (2013) reported the former Minister of Education Professor Ruqqayatu Rufai as having identified reform of the educational system as the overhaul of the curriculum at all levels of education with a view to providing its recipients a free mind from their preconceptions. Education gives one the ability to critically examine an issue and articulate a reasoned position about it. The introduction of entrepreneurship programs into the curriculum at the various levels of education in Nigeria is a welcome innovation that will go a long way to strengthen the popular liberal education. It is no longer news that liberal education alone has failed to equip recipients with requisite skills and attitudes for living a productive life. It is also no news that graduates of our institution have been populating the crime world due to their inability to secure employment. This calls for the intensification of the emphasis on entrepreneurial education to equip graduates with occupational skills to help them identify or create and exploit investment opportunities that abound in the society. Iredia (2011) and Orikpe (2013), also citing the national bureau of statistics stated

Entrepreneurship Education in Employment and Wealth Creation

The introduction of entrepreneurship education in tertiary institutions is a direct response to the changing socio-economic conditions, the alarming rate of unemployment and the rising spate of insecurity in the country.

Agi and Yellowe (2013), listed five uses of entrepreneurship education as follows:

1. Entrepreneurship education can equip students with Entrepreneurial skills that will enable them shift focus from paid employment to self-employment.
2. Entrepreneurship education can greatly help in addressing the level of poverty in the country. Poverty eradication has been a top priority of many government institutions in Nigeria.
3. Entrepreneurship can help to bring back alienated and marginalized youth into the economic stream and give them a sense of meaning and belonging.
4. Entrepreneurship education has a way of discouraging laziness and idleness among youths.
5. Entrepreneurship reduces rural-urban migration by engaging the rural population gainfully. This helps to check the overcrowding of unemployed youth in the urban areas which often leads to gangsterism and robbery among other vices.

Entrepreneurship education is useful for productivity and national security by creating career opportunities in many areas as identified by Anho (2014):

- Petty trading
- Information management technology (Business Centers)
- Agriculture and crop production
- Sewing and fashion design
- Soap and detergent production
- Poultry
- Car wash
- Barbing and beauty care
- Coal production and sale amongst others

The way forward

The Nigerian government has been making various efforts to enhance skills acquisition of youths and the unemplyed. However, according to Anho (2014), education for all (EFA) showed that sufficient attention is not given to skill training for youth. This, according to him was why the former president of Nigeria, Chief Olusegun Obasanjo mandated all university students in Nigeria regardless of which area of stud, to be exposed to entrepreneurship development study. As a result, national

universities commission (NUC) made it a national policy to encourage Nigerian Universities to provide entrepreneurship education for undergraduates to address the challenges of unemployment. This made NUC design an entrepreneurship course titled Graduate Self-Employment (GSE, 301) with the theory and practice components to be taught in universities. Anho (2014).

Conclusion

There is no doubt that security situation in the country calls for extra-ordinary measures to combat it and it will need a transformation in the way we think and look at one another. The entrepreneurship education option is the most handy option for the desired transformation. It is the best way to increase productivity and thereby reduce crimes and violence. Entrepreneurship education can be used for wealth creation, poverty reduction, sustained self and national development and consequently ensure national security.

Recommendations

The following recommendations are necessary in ensuring productivity and national security.

1. There should be adequate funding of entrepreneurial education programs in order that the objectives and goals may be fully realized.
2. People should be encouraged to embrace entrepreneurship education in order that the way be self-dependent and wealth creators.
3. Entrepreneurship education should be integrated more in the curriculum of all higher institutions and not restricted to only specific faculties or departments. It should be taught from a perspective which involves a wide spectrum of life and disciplines.
4. The Nigerian government and other interest groups should have the political will to implement the recommendations of several panels and committees setup to investigate immediate and remote causes of violence and other crises in Nigeria.
5. The federal government should work at providing direct and indirect employment opportunities for unemployed, restive and hopeless youth in the six geo-political zones in Nigeria in order to dissuade them from being recruited as militants, armed and terrorists.

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BURDEN OF PROOF IN ADULTERY CASE IN ISLAMIC LAW

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Abstract

To prove adultery in Islamic legal system is actually a complex process. Adultery must be proved by the testimony of four eyewitnesses to the actual act of penetration, or a confession repeated four times and not retracted later. If someone saw them hugging or even lying on each other, naked but not penetrating, his testimony won't be accepted (but can entail some disciplinary punishment). Also, the eyewitness must have a clean character record. Some legal school also allows an unmarried woman's pregnancy to be used as evidence, but the punishment can be averted by a number of legal "semblances" (shubuhah), such as existence of an invalid marriage contract. Digital records (image or video) can also be used as evidence. If the accusation of adultery proven wrong, the accuser will be punished with 80 lashes.

Key words: Adultery, lashes, testimony, penetrating, accusation, proof

INTRODUCTION:

Islamic Law (*the sharia*), unlike other mundane legal systems like the common law, criminalizes an act of adultery. Adultery is a capital offence in Islamic law that attracts lapidation that is, stoning to death³⁶ (*al rajm*). The sister offence is fornication which attracts one hundred lashes of canes.³⁷ Both are unlawful sexual intercourse between

³⁶ A saying attributed to Caliph Umar. He is reported to have said:

There was a verse in the Book of God about *rajm* (stoning). We read it, we understood it, the prophet stoned

adulterer to death and we also stoned after him. Were it not that people might say that Omar had added in the Book

of God what not in it, I would have written it down. **Sahih Muslim 17: 4191-429 and 17: 4916 & 17:4194**

³⁷ See (Qur'an 24:1-2)

opposite genders who are not married. The former occurs between parties who are married to other partners other than the one with whom the coitus takes place. The same is between divorcee or widow/widower. It suffices that either of the persons is or has ever married. The latter is between unmarried persons generally. In the Islamic law, the offence of fornication and adultery is collectively known as *zina*. Thus, to convict a person alleged of *zinā* (adultery and or fornication), there is a need for a serious and strict investigation, a very technical rules of evidence and procedure. Judges, prosecutors and all parties involved in a trial of adultery should know the nature and concept of the offence itself and all matters relating to the execution of adultery offence including the methods, burden and standard of proof required so that justice is served.

Under the Islamic law of evidence, the burden of proof in criminal matters lies on the prosecution. The majority of Islamic jurists agree that a high degree of proof is required in cases of *zinā* to reach certainty. The burden of proof in adultery cases is discharged by testimony of four impeccable witnesses, failure of which the accuser may face the wrath of law, in the absence of confession or strong circumstantial evidence such as pregnancy of a widow outside the logical period after the death of her husband.

The burden of proof shifts in Islamic Law though rarely. Where there is an allegation of adultery for example, pregnancy is a strong evidence though circumstantial which shifts the burden of proof on the defendant. The story of Maryam in the Quran³⁸ lays credence to this position.

ADULTERY IN ISLAMIC LAW:

Offence of Adultery Under the Islamic Law

In Islamic law, the definition of *zina* (adultery) as a crime differs from one school of thought to another. The most comprehensive definition is that given by the Hanafi School of thought. According to Al-Mirghinani, *zina* is “sexual intercourse between a man and a woman without legal right or without semblance of legal right.”³⁹ Anwarullah, in his *The Criminal Law of Islam*, states:

³⁸ Quran Chapter 19

³⁹ Al-Mirghinani (n 9) III, 344.

Zina means willful sexual intercourse between a man and a woman who are not, and do not suspect to be validly married to each other. Modern jurists define it as sexual intercourse between a man and a woman who are not, and do not suspect to be in a state of legal matrimony.⁴⁰

In spite of all the differences in defining the crime of *zina* among the schools of Islamic law, most jurists agree that the main element in the crime is willful intercourse. Hence, any sexual relationship between a man and a woman which does not involve intercourse is not punishable by the *hadd* punishment. These relations cannot be considered legal; on the contrary, they are prohibited, but their punishment is in the category of *tazir*. The *hadd* punishment for *zina* should not be applied in such cases.⁴¹

The offence of *zina* is defined in section 92 of the Zamfara penal code as follows:

Whoever, being a man or a woman fully responsible, has sexual intercourse through the genital of a person over whom he has no sexual rights and in circumstance in which no doubt exists as to the illegality of the act, is guilty of offence of zina.⁴²

According to this definition, he who resumes cohabitation with a wife irrevocably divorced, even during her period of retreat following such divorce, is guilty of the offence of *zina*. Similarly, he who has sexual intercourse with a woman whom he has divorced before consummation of the new marriage is guilty of the crime of adultery.

Punishment of Adultery in Islamic Law.

The punishment for the crime of *zina* generally in the early days of Islam was confinement to the house or corporal punishment. The Holy Qur'an says:

And those of your women, who commit illegal sexual intercourse, take the evidence of four witnesses from amongst you against them; and if they testify, confine them (i.e. women) to houses until

⁴⁰ Anwarullah, P. (2004). Principles of Evidence in Islam. 2nd Edition, Kuala Lumpur, A.S. NOORDEEN, p. 113.

⁴¹ El-Awa Punishment in Islamic Law 14.

⁴² Ruud Peters, Islamic Criminal Law in Nigeria (Spectrum, Ibadan 2003, 62.

*death comes to them or Allah ordains for them some (other) way.
And the two persons (man and woman) among you, who commit
illegal sexual intercourse, hurt them both. (Quran 4:15–16)*

Stoning the married adulterer is clearly supported by all four major schools of Islam, and while not in Qur'an, the punishment was enforced by the Prophet (PBUH)⁴³ since the early days of the establishment of sharia against Muslims and Jews, and followed ever since. There are, however, significant minority opinions that question or deny the punishment of stoning based on sources that argue the crime warrants 100 lashes only, applicable to everyone equally.⁴⁴

ARGUMENTS FOR STONING

According to Siddiqi,⁴⁵ adultery is punished severely for two reasons. First, the negative outcomes from adultery, which are seen as undermining marriage and leading to family conflict, jealousy, divorce, illegitimate births and the spread of disease; and, second because early marriage is encouraged by state support and the allowance of polygamy, which are both seen as making adultery unnecessary. Stoning is thus seen as an indication of the legal, moral and social interests of society, yet juxtaposed to these interests, the nearly impossible standards to prove the offence implies that punishment is mainly a deterrent,⁴⁶ which are further tempered by the offence of slander or requirement for four witnesses.⁴⁷

As Muslim civilisation meticulously documented judicial decisions, the Ottoman Empire is known to only once have ordered stoning to death of an adulterer in its 500-year history.⁴⁸

⁴³ As cited in Matthew Lippman, "Islamic Criminal Law and Procedure: Religious Fundamentalism v. Modern

Law," Boston College International and Comparative Law Review 12, no. 29 (1989),

⁴⁴ Mohammad Hashim Kamali, "Punishment in Islamic Law: A Critique of the Hudud Bill of Kelantan, Malaysia,"

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⁴⁵ Siddiqi, as cited in Lippman, "Islamic Criminal Law and Procedure."

<http://lawdigitalcommons.bc.edu/cgi/viewcontent.cgi?article=1374&context=iclr>.

⁴⁶ Postawko, "Towards an Islamic Critique of Capital Punishment."

⁴⁷ Lippman, "Islamic Criminal Law and Procedure."

⁴⁸ Heyd, as cited in Sadakat Kadri, Forced to Kill: The Mandatory Death Penalty and its Incompatibility with Fair

Some argue no one in Islamic history has been punished for adultery as a result of the oral testimony of four witnesses and rare punishments occurred by confession.⁴⁹ In fact, unlawful sexual intercourse was almost never punished in Islamic history at *hudud* level “due to [the] impossibly high evidentiary bar,” but was punished under *taazir* by fines and lashings.⁵⁰

Despite how traditional Muslim societies may have practically treated adultery, the *jumhur* (majority of jurists) believe married adulterers receive stoning. There are a number of arguments for this stance, including Qur’anic and hadith evidence. The reports based on Qur’anic evidence are that a verse was revealed stating, “*the old married man and woman who commit adultery, stone them to death as a deterrence from Allah, and Allah is Most Powerful, Most Wise*”⁵¹ There is no number for this verse because it was apparently revealed and later abrogated, according to many scholars including al-Tabari, but interestingly its ruling remained.⁵²

Trial Standards (London, UK: International Bar Association, 2016),
<https://www.genevaacademy.ch/joomlatoolsfiles/docmanfiles/Publications/Other%20publications/Forced%20to%20Kill%20The%20Mandatory%20Death%20Penalty%20and%20its%20Incompatibility%20with%20Fair%20Trial%20Standards.pdf>; Fariba Zarinebaf, *Crime and Punishment in Istanbul 1700-1800* (Berkeley: University of California Press, 2010).

⁴⁹ Badawy, “Towards a Contemporary View of Islamic Criminal Procedures”; Bassiouni, *The Islamic Criminal Justice System*.

⁵⁰ Daniel W. Brown, *Rethinking Tradition in Modern Islamic Thought*, Cambridge University Press, Cambridge, 1996, p. 66.

⁵¹ Al-Tabari, as cited in Azman bin Mohd Noor, “Stoning for Adultery in Christianity and Islam and its Implementation in Contemporary Muslim Societies,” *Intellectual Discourse* 18, no. 1 (2010),

<http://ezproxy.csu.edu.au/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=a9h&AN=51886194&site=ehost-live>; Ismail Ibn Kathir, *Tafsir Ibn Kathir*, trans. Safiur-Rahman Al-Mubarakpuri (Riyadh: Darussalam, 2000).

⁵² Al-Asqalani, as cited in Bassam Zawadi, *The Quranic Verse on Stoning*, n.d., https://www.calltonotheism.com/the_quranic_verse_on_stoning.; Al-Bukhari, as cited in Noor, “Stoning for Adultery in Christianity and Islam”; El-Awa, *Punishment in Islamic Law*; *Sahih Muslim*, vol. IIIA, Ch. 4, no. 1691.

Further and more significantly to evidence the veracity of the punishment, the penalty of stoning continued during the rule of the Rightly Guided Caliphs after the death of the Prophet.⁵³ Caliph Ali sentenced an adulterer to both punishments: flogging in accordance with Qur'anic provisions and stoning in accordance with Prophetic tradition.⁵⁴

Further, Caliph Umar in a sermon stated,

*I am afraid that after a long time has passed, people may say, 'We don't find the verses of the rajm...in the Holy Book,' and...they may go astray...I confirm that the penalty of rajm be inflicted on him who commits illegal sexual intercourse if he is already married...Allah's Apostle (pbuh) carried out the penalty of rajm, and so did we after him.*⁵⁵

Umar's acknowledgement of the stoning punishment not being in the *Qur'an* is interesting and presents an issue. It begs the question as to how and why a verse would be used if abrogated. Perhaps he felt, even in abrogation, the offence of adultery was serious and needed to be dealt with definitively, particularly as the Empire had expanded rapidly under his rule and heinous crimes that threatened the moral fibre of the still new Muslim world were necessary to address with swift, harsh punishment. Under such circumstances, it may be viewed he was implementing a *taazir* punishment that reflected the punishment of the day. Alternatively, he may have felt, even though abrogated, it would be more appropriate to use the punishment God initially prescribed rather than creating one from human reason that may cause dispute and friction among Muslims. However, the rationale for abrogation meant the rule was no longer fit for application, so applying such a verse is inherently problematic. In fact, Brown argues Umar's fear of people abandoning the punishment of stoning does not actually state there was a verse with that ruling.⁵⁶ This is a matter for jurists to consider and rule upon to guide modern Muslim communities who may be unnecessarily holding onto a discretionary punishment. There are also many sayings of the prophet evidencing

⁵³ Mohammad Hashim Kamali, *Principles of Islamic Jurisprudence*, Islamic Texts Society, Cambridge, 1989, p. 18.

⁵⁴ Abd-Elrahim, *The Concept of Punishment in Islamic Law*.

⁵⁵ Bukhari, vol. 8, book 82, no. 816.

⁵⁶ Brown, *Stoning and Hand Cuttings*.

stoning. A hadith in Muslim on the authority of Abu Huraira states a man whose son committed adultery with his employer's wife was prescribed by the Prophet 100 lashes and one year exile for the son, and if the woman confessed she was to be stoned.⁵⁷ In another hadith, on the authority of Ubadah Ibn As-Samit, the Prophet said, Take from me. *"Verily Allah has ordained away from them...in the case of married (persons) there is (a punishment) for one hundred lashes and then stoning (to death). And in case of unmarried persons (the punishment) is one hundred lashes and exile for one year."*⁵⁸

There are other reports in Sahih Muslim and other authors of the *Sunnan*, such as Abu Dawud, Ibn Majah, al-Nasai, al-Tirmidhi, and Bayhaqi and Ahmad in his Musnad,⁵⁹ that the Prophet received Qur'anic revelation then told his companions a new piece of legislation had been revealed to him: *a married person shall be given 100 lashes and then stoned; an unmarried person shall be given 100 lashes and banishment for one year.* Based on this hadith, jurists agree on stoning for a married offender,⁶⁰ while they disagree regarding flogging a married offender and banishment of an unmarried offender.⁶¹ In fact, hadith scholars have stated stoning did not take place before the revelation of the Qur'anic verse that ordained flogging, rather stoning was practised after its revelation,⁶² hence superseding the Qur'anic punishment. This is also the *ijma* (consensus) of the ummah.⁶³

Further evidence is based on four cases of stoning reported during the Prophet's time. Two were Jews and the Prophet ordered stoning by following Old Testament as he normally did when applying laws to Jews. However, in three cases (including the famous cases of Maez and Ghamidiyyah, and the wife of Makhdoum Al-Aseef), they confessed to adultery and were sentenced to stoning,⁶⁴ when there was no reason to apply Jewish law since all were Muslim.⁶⁵ The final argument for proponents of stoning is that this penalty was part of the Old Testament, retained in the New

⁵⁷ Book 17, no. 4209.

⁵⁸ Sahih Muslim, vol. IIIA, ch 3, no. 1690; Noor, "Stoning for Adultery in Christianity and Islam."

⁵⁹ As cited in Noor, "Stoning for Adultery in Christianity and Islam."

⁶⁰ Noor, "Stoning for Adultery in Christianity and Islam."

⁶¹ Muhalla, Shu'rani, as cited in El-Awa, Punishment in Islamic Law. 45 Abd-Elrahim, The Concept of Punishment in Islamic Law

⁶² Abd-Elrahim, The Concept of Punishment in Islamic Law.

⁶³ Ibn 'Ashur, as cited in Noor, "Stoning for Adultery in Christianity and Islam."

⁶⁴ Abd-Elrahim, The Concept of Punishment in Islamic Law

⁶⁵ Noor, "Stoning for Adultery in Christianity and Islam."

Testament and reaffirmed by Islam.⁶⁶ The similarity to Jewish law only supports the strength of the claim it is correct as both laws are divinely revealed.⁶⁷

ARGUMENTS AGAINST STONING

The issue is, while there are seemingly clear hadith advocating stoning for married adulterers, Quran 24:2 does not distinguish between married and unmarried persons. Traditionally, only *Kharijites* adhered to the literal text of the Qur'an and did not stone offenders, yet El-Awa notes recent jurists of other schools have argued against stoning for adultery based on the same Qur'anic verse.⁶⁸ Most jurists, however, state in this case Sunnah supersedes or explains more fully the Qur'anic law,⁶⁹ as mentioned above.

These conflicts indicate a literal reading does not necessarily establish a *hadd* offence. This is problematic as normally to reach the level of being haram (sinful), there must be clear textual evidence, or to evidence such a severe punishment it should be proven by decisive evidence via the Qur'an or *hadith mutawatir*.⁷⁰

Accordingly, a small number of scholars argue against the *jumhur*, mostly *Kahirjites* and *Mu'tazilites* who believe the penalty for adultery, irrespective of marital status, is 100 lashes.⁷¹ This is based on a number of arguments. The Qur'anic evidence in 24:2 prescribes 100 lashes for adultery and makes no distinction between married and unmarried offenders.⁷² If meant for implementation, then punishment of such severity would have been mentioned specifically in the *Quran*.⁷³

Further, the assertion by those who support stoning based on the abrogated verse in the Quran is believed by some scholars to be uncertain, not proven beyond doubt, and it is further argued this verse does not fit the literary style of the Quran.⁷⁴ Further, the narration by Said ibn al-Musayyib, who states he heard Umar in a sermon say the

⁶⁶ Abd-Elrahim, *The Concept of Punishment in Islamic Law*.

⁶⁷ El-Awa, *Punishment in Islamic Law*.

⁶⁸ See Quran 24:2

⁶⁹ As cited in Postawko, "Towards an Islamic Critique of Capital Punishment."

⁷⁰ A mutawatir hadith is one that is reported by such a large number of people that they cannot be expected to

collectively agree upon a lie. Abu Zahrah, as cited in Kamali, "Punishment in Islamic Law."

⁷¹ Noor, "Stoning for Adultery in Christianity and Islam."

⁷² The Quran 24:2

⁷³ Abd-Elrahim, *The Concept of Punishment in Islamic Law*.

⁷⁴ Al-Alusi, as cited in Abd-Elrahim, *The Concept of Punishment in Islamic Law*.

stoning verse was in the *Quran* but later abrogated, has been rejected by some scholars, who state Al-Musayyib was only two years old when Umar was killed and Umar's statement implies the *Qur'an* was altered, which would be classified as an act of disbelief.⁷⁵ While this counter-argument to abrogation appears quite solid, the reality is pre-modern scholars accept there was a verse in the *Quran* about stoning adulterers that was removed as ordered by God, yet its ruling maintained.⁷⁶ The Shafi'i/Ashari hadith scholar Al-Bayhaqi (d.1066) stated he knew of no disagreement on the possibility of a verse of the Qur'an being removed in entirety while its ruling remained.⁷⁷

Al-Ghumari (d.1993), a leading traditionalist scholar of the modern age, disagreed, saying this was irrational and adding all reports describing it as having occurred are narrated by too few transmissions (*ahad*⁷⁸) to match the certainty of Qur'anic verses.⁷⁹ Another Qur'anic argument states, since the *Quran* (4:25) has the offence of adultery by a slave-wife (50 lashes) as half that of the free woman (100 lashes), it is argued only flogging can be halved and not stoning, so flogging is the Qur'anic punishment in all cases of adultery.⁸⁰ The majority respond by saying this is an incorrect interpretation of the Quran and cannot be used to regulate the penalty for a convicted fornicator, married or unmarried.⁸¹

Further, the assumption is the hadith of stoning took place before the revelation of *Quran* 24:2, which prescribes flogging.⁸² The eminent scholars Sarkhasi (d.1096) and Zailai state stoning was practised before the revelation of 24:2 because the hadith has the Prophet state, "*Take from me!*" and if it had been after the divine revelation he

⁷⁵ Ahmed Mansour, Mawjiz Linafi Hukum al-Rajam [A Summary of Negating the Rule of Stoning], Ahlalquran.com, November 15,2007, accessed December 6, 2017, http://www.ahlalquran.com/arabic/show_fatwa.php?main_id=376.

⁷⁶ Brown, Stoning and Hand Cutting.

⁷⁷ *Ibid.*

⁷⁸ Ahad refers to a hadith narrated by only one narrator. In hadith terminology, it refers to a hadith not fulfilling all

the conditions necessary to be deemed mutawatir.

⁷⁹ Brown, Stoning and Hand Cutting.

⁸⁰ Al-Zayla'i, Abu Zahrah, Mansur, Kamali, as cited in Noor, "Stoning for Adultery in Christianity and Islam."

⁸¹ Noor, "Stoning for Adultery in Christianity and Islam."

⁸² Abd-Elrahim, The Concept of Punishment in Islamic Law; Kamali, "Punishment in Islamic Law"; Noor,

"Stoning for Adultery in Christianity and Islam."

would have said “Take from Allah!”⁸³ Thus, 24:2 nullified stoning as the punishment for adultery per the previously revealed religions.⁸⁴ There is a further claim that no punishments were carried out after the revelation of 24:2, meaning flogging abrogated stoning.⁸⁵ Many scholars respond to this claim stating this argument has no basis as it is unlikely the punishment would have been abrogated without the knowledge of the companions (such as Umar and Ali who continued enforcing the punishment), otherwise every law in Islam could be claimed as abrogated.⁸⁶ In fact, the famous hadith of Maez and Ghamidiyyah,⁸⁷ who confessed to adultery and were stoned, is rejected by some scholars, stating the small number of reporters of this hadith do not suffice to supersede a Qur’anic injunction.⁸⁸ In fact, Abu Hanifa refused to accept this report on the basis it was *ahad*, and even the hadith’s successive reporting by multiple numbers do not invalidate Quranic decree according to Imam Shafi’i and some Zahiri school scholars.⁸⁹ However, other scholars argue the stoning of Maez and Ghamidiyya was witnessed by a large number of companions to reach the level of *mutawatir*, and is related in all authentic *hadith* books with details of the chain from different companions who were present, and these chains support each other leaving no room for fraud and doubt.⁹⁰

The stoning of Maez and Ghamidiyyah has some further apparent inconsistencies. There is doubt by a companion whether their stoning was before or after the revelation of the specific verses in *Surah Nur* (Quran 24:2) which means the punishment collapses on the rule that doubt invalidates the *hudud*.⁹¹ The conflict over this report means current jurists and scholars need to reassess and determine its validity and strength as the consequences are serious particularly in the modern age where more people have been killed for adultery in the last century than in many, if not all, preceding periods of Islamic history.

⁸³ As cited in Abd-Elrahim, *The Concept of Punishment in Islamic Law*.

⁸⁴ Abd-Elrahim, *The Concept of Punishment in Islamic Law*.

⁸⁵ Noor, “Stoning for Adultery in Christianity and Islam.”

⁸⁶ El-Awa, *Punishment in Islamic Law*.

⁸⁷ Bukhari, vol. 8, book 82, no. 814; Muslim, vol. IIIA, no. 1695.

⁸⁸ Al-Ghazali, Al-Amedi, Showkani, as cited in Abd-Elrahim, *The Concept of Punishment in Islamic Law*.

⁸⁹ Abd-Elrahim, *The Concept of Punishment in Islamic Law*

⁹⁰ Noor, “Stoning for Adultery in Christianity and Islam.”

⁹¹ Abu Zahrah, as cited in Kamali, “Punishment in Islamic Law.

Another *hadith* is reported by Bukhari and al-Shaibani, a second-generation scholar, who asked companion Abdullah bin Abi Awf whether stoning was before the revelation of 24:2 or after, and he responded he did not know.⁹² Hence, this hadith is not persuasive as Ibn Abi Awf was unsure of the circumstances, and it is further diminished in value as *hadith* scholars say the *ahadith* of stoning came after revelation of Sura Nur and hence abrogated it, as mentioned above, which is also why Umar and other companions acted on the hadith ruling of stoning.⁹³ Outside of the Qur'an and hadith, some argue the Prophet took the stoning punishment from the Jews, as there is no revelation in the Quran confirming it, and applied the same punishment towards guilty Muslims,⁹⁴ implying there is no textual basis for the punishment. Some modern jurists have considered the issue of stoning and developed their own thoughts based on the sources. Twentieth century jurists Mahmoud Shaltut (d.1963) and Mustafa AlZarqa (d.1999) do not favour the penalty of stoning, and Shaltut, a scholar and former president of Azhar University, says stoning can be considered a *taazir* punishment at a judge's discretion, rather than a *hadd* punishment prescribed by scripture.⁹⁵

Al-Zarqa agreed, stating stoning was enforced as a *taazir* punishment applied by the Prophet to "curb the rampant immorality and corruption of the time of ignorance".⁹⁶ Abu Zahrah (d.1974), another leading 20th century scholar, doubted reports the Prophet punished by stoning as it was too cruel a punishment.⁹⁷ Abu Zahrah concluded evidence for stoning was doubtful and therefore preferable not to apply.⁹⁸

⁹² Al-Asqalani, as cited in Abd-Elrahim, *The Concept of Punishment in Islamic Law*; I. Al-Otaibi, "Abu Zahra: b Stoning is Jewish!," *Forum Ahl al-Hadeeth*, July 20, 2018, <http://www.ahlalhadeth.com/vb/showthreadphp?t=64354>; El-Awa, *Punishment in Islamic Law*; *Sahih Bukhari*, vol. 8, book, 82, no. 804; *Sahih Muslim*, vol. IIIA, ch. 6, no. 1702.

⁹³ Abu Zahrah, as cited in Kamali, "Punishment in Islamic Law"; Mughni, as cited in El-Awa, *Punishment in Islamic Law*.

⁹⁴ El-Awa, *Punishment in Islamic Law*

⁹⁵ Mansour, as cited in Abd-Elrahim, *The Concept of Punishment in Islamic Law*; Mansour, as cited in Kamali,

"Punishment in Islamic Law."

⁹⁶ As cited in Kamali, "Punishment in Islamic Law," 228.

⁹⁷ Brown, *Stoning and Hand Cutting*.

⁹⁸ Mansour, as cited in Kamali, "Punishment in Islamic Law."

Mohamed S. El-Awa,⁹⁹ a modern commentator and interpreter of Islamic and modern law, in looking at both sides of the argument, believes stoning is prescribed by *sunnah* not the Qur'an, yet agrees *hudud* punishments should only apply in a just society, one that does not necessarily exist today. In fact, many Muslim countries have *hudud* laws, but evidence suggests they are not serious about implementing it, and Muslim governments have often yielded to pressures and found means to avoid implementation of *hudud*, often on technical juristic grounds.¹⁰⁰

The arguments for and against stoning are very persuasive. There is clearly scholarly debate among traditional and current scholars. The question over an abrogated Qur'anic verse, *ahadith* that have strong arguments both ways, the fact of a severe punishment having no clear textual evidence, and the hadith of Umar apparently related by a two-year-old, collectively serve to create sufficiently strong doubt. However, the strongest argument in favour of stoning is Umar and Ali, who would have unlikely imposed their punishments without precedence and surety. The possibility of their using the punishment as a form of *taazir* likewise serves to place doubt and beg for revisions by scholars of Islam.

Another aspect to assess in seeking ways to limit capital punishment under sharia is the concept of repentance. This has been closely assessed by the scholar Kamali based on the interpretation of *hudud* and its use in the Quran. The word '*hudud*' in the *Qur'an* represents limits, not punishment.¹⁰¹

Kamali further states, where the Qur'an specifies a punishment for an offence, there are provisions for repentance, forgiveness and reformation, and this should be facilitated at least on a selective basis by positive incentives.¹⁰² Hence, Kamali argues the *Quran* leaves room for reformation and repentance in all *hudud* offences and denial of this overrules the clear text. This is an interesting argument that scholars should consider when formulating penal codes.

Scholars give three views on repentance. First, it suspends punishment if done prior to completion of the *hudud* offence. For example, because *hiraba*¹⁰³ (highway robbery), the most serious of crimes, allows repentance, this should be available for lesser

⁹⁹ As cited in Badawy, "Towards a Contemporary View of Islamic Criminal Procedures."

¹⁰⁰ Noor, "Stoning for Adultery in Christianity and Islam."

¹⁰¹ Kamali, "Punishment in Islamic Law."

¹⁰² Ibid.

¹⁰³ Qur'an 5:34.

crimes, including adultery.¹⁰⁴ When the Prophet was told Maez ran away while being stoned, he said, “Did you not leave him alone to repent so that Allah would have granted him a pardon?”¹⁰⁵

A second repentance view is that it has no bearing on *hudud* except for *hiraba* due to the clear text, as references to theft and adultery concern repentance after imposition of punishment.

The third view holds that punishment purifies from criminality and so does repentance, so if a person repents they will not be punished provided they do not demand punishment.¹⁰⁶ The Prophet often tried to persuade individuals confessing to a *hadd* offence, particularly adultery, to retract their confession. Consequently, Kamali argues Qur’anic injunctions regarding reformation and repentance should be combined with fixed penalties.¹⁰⁷ These arguments give a basis for repentance to be formally instituted into the elements of penal laws and for modern judiciary and legislators to give it greater emphasis.

Burden of Proof in Adultery in Islamic Law

Like in all offences (irrespective of classification; *hudud, taazir or Qisaas*,) the onus to prove the allegation is generally on the accuser. By the very nature of adultery, the accuser may be the spouse (usually husband) or any other person. The burden of proof is discharged by the accuser by calling four witnesses as mandated under the Sharia.¹⁰⁸ Failure of which to either retract the allegation or face the wrath of law; receive eighty lashes of canes.¹⁰⁹ Where the accuser is the husband (spouse of the accused), and there is a denial by the accused, then *Lian* (mutual imprecation) shall be administered by the Court to settle the matter. The end result is always dissolution of the marriage.

The burden of proof of allegation of adultery is discharged by calling four independent witnesses as legislated under the Islamic Law¹¹⁰. This is known as testimony as a means of proof which has been extensively discussed in chapter two of this work. Failure to discharge this burden where the accuser is not the husband of the accused,

¹⁰⁴ Kadri, *Forced to Kill*; Kamali, “Punishment in Islamic Law.”

¹⁰⁵ Ibn Qudamah; Abu Zahrah, as cited in Kamali, “Punishment in Islamic Law.”

¹⁰⁶ Al-Jawziyyah; Al-Muniriyyah, as cited in Kamali, “Punishment in Islamic Law.”

¹⁰⁷ Kamali, “Punishment in Islamic Law.”

¹⁰⁸ See Quran 4:15

¹⁰⁹ See Quran 24:4

¹¹⁰ The Quran Chapter 4 verse 15.

the provisions of Quran 24:4 shall apply. The provision is to the effect of eighty lashes of cane on the accuser.

In the instant of a husband denying the paternity of a child or pregnancy conceived during the subsistence of a marriage, *lian* then becomes expedient. Islam does not treat accusation of adultery and by extension all forms, with kid's gloves. This is because it touches two of the cardinal objectives of the Sharia: protection of blood (lineage) and protection of honour and human dignity.

When the hypocrites of Madinah accused Aisha (the Prophet's wife of Adultery, Allah did not take it easy with them. He revealed a whole chapter of the Quran¹¹¹ to exonerate her. In that surah, not only did Allah curse the hypocrites, He also warned the believers to desist from entertaining such wicked and baseless thought about their spouses. The Surah also prescribes *Lian* (mutual imprecation) for couples who accuse their spouse of adultery.

It is expedient to look into the doctrine of Lian under the Islamic Law as a method of discharging the burden of Proof on the husband who accuses his wife of adultery but unable to call four witnesses as commanded in both the Quran and the Sunnah.

LI'AN (mutual imprecation).

Li'an or otherwise known in English as "imprecation" is an oath taking process resulting in the separation of a husband from his wife due to his inability to prove a charge of adultery against his wife. By invoking *li'an* the husband is excluded from the punishment of false accusation of *zina*.

Most *Ulama* consider *li'an* as part of the family law. There are others however who thought that it is also part of the law of evidence as it is a type of oath while in another view *li'an* was thought of as a type of testimony. I agree that it is better called a type of testimony for the purpose it sets out to perform.

In the literal sense *li'an* means to tum away or to exclude oneself from Allah's Mercy, as a person who invokes *li'an* will also invoke the wrath of Allah if he is lying.

From the Sharia sense, *li'an* consists specific and understood words used as argument for those who invokes it for the purpose of accusing their wife of *zina* or to deny their paternity over a child.¹¹²

¹¹¹ Quran Chapter 24 (An Nur)

¹¹² Wahbah Al Zuhaili, *Al Fiqhi Al Islami Wa Adilatuh*, Dar Al Fikr, Beirut, undated, vol. 7, p. 556"

If a man were to find his wife committing adultery or if a husband were to accuse his wife of in chastity but he could not prove it, he may be liable for the *hadd* of *qazaf*. Another example would be where 'a husband refuses to acknowledge a child as his and he could not prove that such a child was not his; he may be liable for punishment of *qasaf*. To escape the punishment, the husband is allowed to resort to the process of *lian*.

The authority (*dalil*) for the admissibility of *li'an* in Islamic law of evidence stems from the Qur'anic verse:

And for those who launch a charge against their spouses, and have (in support) no evidence but their own, their solitary evidence (can be received) if they bear witness four times (with an oath) by Allah that they are solemnly telling the truth. And the fifth(oath) (should be) that they solemnly invoke the curse of Allah on themselves if they tell a lie. But it would avert the punishment from the wife, if she bears witness four times (with an oath) by Allah, that (her husband) is telling a lie; And the fifth (oath) should be that she solemnly invokes the wrath of Allah on herself if (her accuser) is telling the truth. (Surah Al-Nur 24:6-9)

The above verse was revealed when Hilal bin Umayyah had accused his wife of *zina* with Sharik bin Sahma before the Prophet {s.a.w}. After hearing the charge, the Prophet (s.a.w) had said to the effect, "*Bring evidence or the hadd will be upon your back*". Hilal said, "*O Prophet of Allah, if a man had seen his wife having sex with another man would he be required to bring Proof?*" The Prophet (s.a.w.) again repeated several times the need to bring evidence and thereafter Hilal said, "*By the One Who had thee righteously as a Messenger, verily I am speaking the truth and I pray that Allah will free my back from the hadd.*" Thereafter, the verse was revealed to the Prophet {s.a.w.} as an answer to *Hilal's* prayer.

The majority of the '*ulama* of Islam have said that the above incident was the first instance of *lian* in Islam while there are other opinions stating the first incident was with regards to Umar Al Ajlani.¹¹³

¹¹³ Al Shaukani Muhammad bin Ali bin Muhammad, Nail Al Autar, undated, vol. 6, p. 268

CONCLUSION

Islamic law is such a robust legal system with five cardinal objectives to wit protection of sanctity of human life, protection of human honour and dignity, preservation of property of the people. Others are protection of sanity or reasoning of man and protection faith or religion of the people. Thus, anything that will affect the attainment of any goals will not be spared. Given the nature of human beings who may want to tarnish the image of another through bogus allegations, Islamic law has put in place mechanisms and doctrines to checkmate this evil. One important of these mechanisms, is the burden of proof of allegation on the accusers which generally rests on them except in instances where there is a shift.

Burden of proof under the Islamic law is akin in nature to as it is obtainable under the common Law. It generally rests on the plaintiff / Prosecutor / accuser but only shifts in certain given circumstances. With respect to burden of proof under the Islamic Law in cases of adultery, the two methods of discharging the onus are through testimony of four witnesses or through mutual imprecation. It's submitted that accusation of adultery should not be joked with by anybody especially by a spouse against another save for strong proofs. This is because of the emotional torture that the accused is thrown into as a result of the malign on his/her honour that the false accusation may cause.

FOOD POISON: CAUSES, EFFECTS AND CONTROL MEASURES

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ABSTRACT

Food poison is an illness caused by eating contaminated food. It's not usually serious and most people get better within few days without treatment. By far the most of such attacks are mild and quickly overcome, and it is only when the attack is serious and affecting many persons at the same time that it attracts particular notice, and perhaps becomes the subject of public record.

Contamination of food can happen at any point during its production: growing, harvesting, processing, storing, shipping or preparing. Cross contamination is often the cause leading to food poisoning. Many bacterial, viral or parasitic agents cause food poisoning, example *Campylobacter jejuni*, *Escherichia coli*, *Giadialambli*etc. causing symptoms like diarrhea, nausea, vomiting, abdominal cramp, dehydration, sunken eye, low amount of morning urine etc. Most of these symptoms set in between 24-72 hours of consuming contaminated food, that is, food that contains the microorganism or their toxins. Food poisoning organisms can be transmitted via animal-animal, animal-human or food material to human. The organisms can be found in foods such as milk, meat, egg, poultry. Prevention measure can be through proper cleanliness of; the food handler, cooking environment, nails, aprons and proper food hygiene. Foodborne diseases can be mild with recovery in days, or severe resulting in hospitalization and death in certain patients.

Key words: Food Poison, Contamination, Hygiene, Prevention,

INTRODUCTION

Food poisoning might be described as a food borne disease or food borne illness that result from ingestion of contaminated food. Foods that contain toxic chemicals or infectious agent (like bacterium, virus, parasite or prion) and causes symptoms on the body are considered types of food poisoning by most investigation. Those symptoms may be related only to the gastrointestinal tract causing vomiting or diarrhea or may involve other organs such as the kidney, brain or muscle (Charles, 2011). True food poisoning or food intoxication is caused by eating food that contains a toxin or poison due to bacterial growth in food. Therefore, Food poisoning is acute gastro enteritis caused by ingestion of food or drink contaminated with either living bacteria or their toxins or inorganic chemical substances and poison derived from plants and animals (Al-Jabir, 2013). The bacteria which produced and excreted the toxic waste products into the food may be killed, but the toxin they produced causes the illness or digestive upset to occur. *Staphylococcus aureus* and *Clostridium botulinum* are two species of bacteria that cause food poisoning.

Food infection is the second type of foodborne illness. It is caused by eating food that contains certain types of live bacteria which are present in the food. Once the food is

consumed, the bacterial cells themselves continue to grow and illness can result. Salmonellosis is a good example of foodborne infection. *Vibrio parahaemolyticus* is another infection organism and is found primarily in shellfish from polluted waters. *Clostridium perfringens* grows in warm food like beef stews or gravies and produces toxins. It also causes a food infection by continuing to grow and producing toxins in the intestinal track (Reynolds, Schuler, Thrust and Tylor, 1993).

According to Reynolds (1993), for an outbreak of foodborne illness to occur, whether it is food poisoning or food infection, the following conditions must exist;

1. The microorganisms or its toxin must be present in the food.
2. The food must be suitable for the organism's growth.
3. The temperature must be suitable for the organism's growth
4. Sufficient time must be given for the organism's growth.
5. There must be enough of the microorganism or their toxins present to cause illness.
6. You must eat the food.

Food poisoning may occur as either bacterial or non-bacterial. Bacterial food poison is caused by the ingestion of food contaminated by living bacteria or their toxins e.g. Salmonella, Staphylococcus etc. (Al-Jabr, 2013). Whereas, Non-bacterial food poison are caused by; Chemicals (e.g. arsenic; mercury; lead; copper), Certain plants (e.g. mushroom), Sea foods (e.g. comorbid fish).

CAUSES OF FOOD POISONING AND EFFECT

Contamination of food can happen at any point during its production, growing, harvesting, processing, storing, shipping or preparing. Cross contamination by the transfer of harmful organisms from one surface to another is often the cause. This is especially troublesome for raw, ready-to-eat foods, such as salads or other produce. Because these foods aren't cooked, harmful organisms aren't destroyed before eating and can cause food poisoning (Mayo, 2015). Food poisoning is caused by a wide range of noxious substances (poisonous chemicals or pathogenic microorganisms, such as; bacteria, protozoa, viruses and toxin produced by bacteria, algae and fungi) that may be present in food. These agents are not only responsible for gastroenteritis, but can also cause disease outside the intestinal tract, as well as resulting in long term disability and, rarely, death (Gillespie, 2007).

According to Hobbs and Roberts (1993), bacterial food poisoning acute gastroenteritis, is a disturbance of the gastrointestinal tract with abdominal pain and diarrhea with or without vomiting and with or without fever. The time of onset of symptoms may range from less than 1 to more than 48 hours after eating contaminated food. Usually, large numbers of organisms actively growing in food are required to initiate symptoms of infection, (invasion and multiplication in or on body tissues) or intoxication, (poisoning by toxin produced in the food or in the body). There are many other food-borne diseases which are distinguishable from acute bacterial food poisoning. Water, milk and foods are vehicles of transmission of the microbial agents responsible, usually in relatively small numbers.

Contaminants, Symptoms/Effect and Incubation Period

Salmonella

Salmonella is a genus of Gram-negative bacteria which was first isolated in 1888 from meat that had caused food poisoning, and named after the American Pathologist D.E Salmon. Organisms of *salmonella* group are divided into those that cause enteric fever, *Salmonella typhi* and *Salmonella paratyphi* A, B and C, and those that are agents of food poisoning. The Salmonellae that cause food poisoning are classified into more than 2000 serotypes able to invade and infect the body of both man and animals (Hobbs and Roberts, 1993; Gillespie, 2007).

Salmonella gets into food directly or indirectly from animal excreta during slaughter, from human excreta, or water polluted by sewage. Also in the kitchen, they may be transferred from raw to cooked foods by hands, surfaces, utensils and other equipment. Illness is more likely to occur when large numbers of organisms are ingested, after multiplication in food is allowed to stand at atmospheric temperature for some hours. The immune system of the body may be able to control small number of ingested organisms. The onset of illness occurs 6-36 hours or even longer after eating contaminated food. The symptoms are characterized by fever, headache and general aching of the limbs, as well as by diarrhea predominantly, and vomiting. The duration of illness is from 1-7 days, or longer. Salmonellosis has occurred from the consumption of contaminated food such as cheese, milk, eggs, meat, poultry, pastries, cakes and candies. Salmonellosis is the most widespread of all food-borne illness(Hobbs and Roberts, 1993).

Staphylococcus aureus

Staphylococcus aureus are aerobic, Gram-positive, coagulase-positive cocci. Their name is derived from their clustered appearance on microscopy and the yellow pigmentation of colonies when grown on microbiological media. *Staph. aureus* produces a heat stable toxin when allowed to grow for several hours in foods such as chicken pot pie or cream filling. This bacterial growth may not cause any of; colour, odour, or textural or flavor change, but the toxin will be secreted into the food. *Staph. aureus* toxin is not markedly affected by heating or freezing as it is heat stable. Even if the food is heated before eating, the poison in the food will cause illness although the heat has killed the bacterial cell. It is destroyed gradually during boiling for at least 30 minutes. It may remain active after cooking (Reynolds *et al.*, 1993).

Since the toxin is formed by the organism growing in food before it is eaten and not after it has entered the body, the incubation period may be as short as 2 hours, but in general, it is 4-6 hours. There is a rapid onset of symptoms characterized predominantly by severe vomiting, with diarrhea, abdominal pain and cramp, headache and washed out feeling, sometimes followed by collapse. Recovery usually occurs within 6-24 hours (Hobbs and Robert, 1993).

Clostridium Perfringens

Clostridium perfringens is a Gram- positive spore-forming obligate anaerobe and is widely distributed in the environment, in foods, as well as occurring in the gut flora in healthy humans and animals because of the production of robust endospores, *C. perfringens* can remain dormant for prolonged periods and survives dehydration as well as many normal cooking processes. Some strains are able to survive boiling for more than 3 hours (Gillespie, 2007). Symptoms occur from 8-22 hours after consuming the contaminated food: they include abdominal pain, profuse diarrhea and nausea, but rarely vomiting: they may continue for 12-48 hours. (Hobbs and Roberts, 1993).

Clostridium Botulinum

Clostridium botulinum is a group of obligate anaerobic Gram-positive endospore-forming rods, and their toxin cause botulism. The toxin is sensitive to heat and in pure form is destroyed by boiling. Nevertheless, it may be protected when mixed with protein and other material in food. The toxin is lethal in minute doses and gives rise to symptoms different from those of the organisms just described. The incubation period

varies from 24 hours or less to 96 hours but is usually 18-36 hours. The first signs of illness are lassitude fatigue, headache and dizziness. Diarrhea may be present at first, later the patient is obstinately constipated (Hobbs and Roberts, 1993).

As a result of the paralysis, there is a disturbance of vision, speech becomes difficult. The intoxication reaches its maximum within hours to 8 days and death often occurs by paralysis of the respiratory centres. If, after 8 days, the patient survives, convalescence is slow. The prognosis is improved if antitoxin is given as soon as possible, within hours of eating food containing the toxin improperly preserved foods are usually responsible for outbreaks and cases (Hobbs and Roberts, 1993).

Vibrio cholera

Vibrio cholerae is a Gram-negative comma-shaped bacterium responsible for the disease cholera. The disease commences 24-72 hours after the ingestion of water or food contaminated with thousands to millions of cells. Bacteria which survive transit through the acid environment of the stomach attach to the mucosal cells in the upper intestine and reproduce an enterotoxin which results in the secretion of water and electrolytes into the intestinal lumen. Diarrhea commences when the colon cannot reabsorb fluid at the rate equal to production. The disease progresses rapidly and large volumes of diarrhea feces with a classic 'rice-water' consistency can be produced in a matter of hours. Additional symptoms include vomiting, cramps accompanying excess fluid loss about >5% of body weight, and death can occur if fluid loss exceeds 10%. *Vibrios* are aquatic organisms and survive well in riverine brackish and estuarine water as their natural environment (Gillespie, 2007).

Reservoir and Vehicles of Infection and Ways of Spread

Bacteria occur widely in the environment. They can be isolated from water, food, soil, air and so on and within animals and man. Mostly, bacteria are harmless, but a small proportion can infect man, animals and plant life. Under certain conditions they are able to grow and multiply in the tissues of the body. During illness, germs can be transferred from one person to another, from animal to animal, and from animal to man or man to animal, either directly or by means of a medium such as food. The fresh host may become ill, or may resist the invasion and show no symptoms, although the organisms may be harbored in the body for a variable period of time. In this way bacteria and viruses which depend for life on the conditions provided by the human or

animal body maintain their existence. They may survive in the nose, throat or bowel of healthy persons or other living creatures (Hobbs and Roberts, 1993).

Some food poisoning is caused by the toxic products of bacteria growing actively in food and not by invasion of the body, for example, Staphylococcal and Bacillus cereus food poisoning and botulism. It was in the twentieth century that bacteria were first recognized as agents of food poisoning and of other food-borne disease. Animals were reported as the main reservoirs of the salmonella group of intestinal pathogens responsible for the majority of food poisoning incidents. Foodstuffs of animal origin may be regarded as primary sources of many food poisoning bacteria. Organisms carried by the live animal may be found in the raw meat after slaughter and may be passed to other foods (Hobbs and Roberts, 1993).

Animal Reservoir

McLaughlin (2007) opined that animals (including domestic food animals, pets and wild animals) are important reservoirs for food-borne disease. Many of these diseases are transmitted via consumption of contaminated food (or water), grazing on contaminated pasture land, during transport or are also transmitted via direct contact with animals. It has been observed, for example, that the proportion of animals excreting Salmonellae amongst pigs and sheep rises steeply under conditions of stress, excitement, fear or privation of food and drink. Food-borne infectious agent most frequently associated with animals are excreted in their feces, and hence animal fecal wastes (e.g. livestock slurry) represents a potential source of contamination for foods such as crops, as well as being the most likely route of transmission for human gastrointestinal diseases transmitted by direct contact with animals. In addition, the content of the animal gastrointestinal tract is likely to contaminate the surface of animal carcasses during slaughter, and hence meat will probably be contaminated with potential pathogens.

Human Reservoir

In any outbreak of infectious disease there will be the possibility of one of four types of reaction: acute illness; ambulant cases with mild symptoms which may be ignored or attributed to other indispositions; convalescent carriers which will continue to excrete the organisms in their feces for some time after recovery from illness; and temporary carriers which may harbor the infecting organism for a short time without

exhibiting symptoms. The excretion of *salmonella typhi* in stools may persist for many years (as exemplified by Typhoid Mary). Other pathogens are generally excreted for a few or more. Treatment of persistent excretors with antibiotics tend to prolong the period of excretion and encourages resistance of the organisms. The proportion of patients in the four categories listed above varies greatly depending on the pathogens, as does their ability to act as reservoirs of infection.

However, it is important to note that most pathogens occur in the feces (as well as vomitus), which can also act as a vehicle of infection by:

- Direct person-to-person contact
- Contaminating foods either directly or indirectly
- Contaminating sites in the environment, which indirectly contaminates food via sewage or water.

Inanimate Objects of Food Poison

Inanimate objects also serve as a means by which food poisoning is spread. Objects such as towels, pencils, door handle, cookery, cutlery and utensils serve as intermediate objects of transfer of infection, particularly when inadequately cleaned. Hot air dryers, and single use towels and other cleaning equipment help to reduce the spread of infection. However, it is important to note here that home kitchens can represent a greater hazard as a reservoir of pathogenic organisms. McLaughlin 2007 as in Mattick and Colleagues (2003) noted the following in a comparison between practices of domestic and commercial kitchens:

- Domestic kitchens had poorer designs and there was greater difficulty cleaning and containing spills.
- The temperature of water used for washing-up in domestic kitchens was lower than in commercial kitchens, and dishcloths, scourers, and towels were used in multiple occasions.
- In domestic kitchens there was greater possibility of cross-contamination with campylobacter and salmonella from raw chicken.
- Domestic cooks had a lower level of knowledge of food hygiene and training.

CONTROL MEASURES IN PREVENTING FOOD POISONING

Having looked into food poisoning, its effect and causes, it is also very important to know the control measures needed to be carried out so as to reduce the risk of food

poisoning, and if possible absolute prevention. In the preventive measures, great care is given to the cleanliness of the hands, and other point of personal hygiene in areas of storage, preparation and cooking methods. This also extends to food hygiene in food manufacturing industries which make use of chemical (Elson, 2007).

Personal Hygiene of the Food Handler

Food handlers can be a source of food contamination and facilitators of cross-contamination. Personal hygiene of food handlers is extremely important in the prevention of food poisoning, which is principally associated with cleanliness of the hands. Identification of ways in which food handlers may contaminate food can help develop appropriate interventions to reduce or eliminate the risk of contamination. All living organisms have commensal organisms living on or in them. Humans are no exception and microorganisms can be found on the hands, hair and skin, in the nose and throat and in the gastrointestinal tract. Humans may occasionally harbor pathogenic organisms, either as carriers or subclinical infection. Food handlers can also contaminate food with unwanted objects such as hair, skin, nails and jewelry, which in turn can be contaminated with microorganisms (Elson, 2007).

Hand Washing

Effective hand washing is one of the cornerstones of personal hygiene and preventing food poisoning. According to Hobbs and Roberts (1993), investigations of the bacterial flora of the hands before and after washing with soap and water, alone or with temporary antiseptic treatment, showed that the plain soap and water was effective for the removal, or at least the reduction in numbers of coliform and other Gram-negative intestinal organisms picked up from foods. Alcoholic hand disinfectants may also be used and act as a convenient disinfectant after hand washing. Dry hands, without immediate washing, have fewer organisms than wet hands. After touching raw materials, such as meat and poultry and also after handling wet cleaning cloths, sponges and rags, enormous numbers of organisms can be isolated from hands. After washing, use a disposable paper towels and electrically operated hot air dryers to dry hands (Elson, 2007).

Gloves and Other Barriers

Elson (2007) is of the opinion that gloves act as a physical barrier between hands and food, yet may become contaminated if they are not washed as often as hands or changed regularly. In addition, latex gloves may contaminate food to which some

consumers are allergic. Gloves should be worn for the handling and assembly of salads, sandwiches and other foods that will not be subject to further cooking. The aim is to restrict the passages of staphylococci from hands to foods. Where gloves are worn, these should be disposable and 'single use'. Other barriers to contamination include utensils, film wraps, food grade paper and reversed food bags. Gloves or other barrier hand hygiene. However, combining the use of clean suitable gloves with other barriers techniques ensures lower contamination risk.

Nasal and Throat Carriage

The usual sites for harboring staphylococci are the nasal mucosa, hands and other skin surfaces, cuts burn, abrasions and lesions such as boils, carbuncles, whitlows and sties. More rarely, staphylococci are found in the throat. Streptococci may be found in the nose and throat and in some skin infections. The habits of fingering the nose and spots will increase the hazard of passing staphylococci from hands to foods. Clean cloth and paper handkerchiefs are almost free from bacteria and should be used but when they are dirty, they may harbor many millions of organism including staphylococci. Paper is more hygienic than cloth; paper handkerchiefs may be flushed individually down the water closet, burned in a sanitary incinerator or collected in a pedal-operated bin. Cloth handkerchiefs should be washed and boiled frequently (Hobbs and Robert, 1993).

Intestinal Secretion

Intestinal bacteria are more likely to spread from the fluid stools excretion by those suffering with diarrhea than from a well-formed stool. Aerosol sprays are formed when the WC is flushed the general toilet cleanliness is more difficult with fluid excreta. People with diarrhea should not work in the kitchen, whatever job they are doing. The food Hygiene (General) Regulations, 1970 require that food handlers suffering from food poisoning or certain other diseases, or carrying the causative organisms, should not be allowed to work with food until permission has been given by the proper officer of the local authority (Hobbs and Robert, 1993).

Cloths

Hobbs and Roberts (1993) has it that, protective clothing should be light coloured and light in weight; it should be changed frequently. Dip-dry fabrics ease the work of daily

laundrying. All large establishments should be provided with adequate changing rooms, and means to store clothes and other personal belongings, equipment for drying clothes such as hot air racks or tumble driers should be available. The provision of shower baths in changing rooms is also recommended. In addition to changing rooms, area for rest and relaxation are essential together with canteen facilities.

Training

The ability to maintain high standards of hygiene is a critical element in preventing contamination of food by food handlers. Food handlers should not be only adequately supervised but also have ongoing training and instruction in the importance of personal hygiene and hand washing. Use of appropriate language or translated material, where necessary is a fundamental element of training. The knowledge and practice of food handlers should be regularly accessed (Elson, 2007).

Cleaning and Disinfection

Disinfection

According to Hoffman (2007), disinfection is the killing or removal of microbes down to safe levels. Disinfection is achieved by using heat or chemicals to kill the microbes, or possibly through the removal of microbes during cleaning. Effective disinfection can interrupt routes of transmission of infection, but it can be accurately targeted. Random or sporadic disinfection is unlikely to achieve food hygiene. The purpose of disinfection, cleaning and sterilization in food hygiene is to prevent both food poisoning and spoilage. Each of these methods has an art to play in controlling the presence and spread of microbes.

Methods of Disinfection

There are three methods of disinfection according to Hoffman (2007) and Modric (2015)

- Cleaning
- Heating
- Use of Chemicals

Cleaning Method of Disinfection

Cleaning eliminates microorganisms by physical removal. Cleaning must be considered along with other, perhaps more obvious methods of disinfection when

making decisions about food hygiene. Cleaning can be done on its own, or in combination with heat and/or chemicals.

Heating Method of Disinfection

Heat disinfection occupies a fundamental position in food hygiene. Cooking is used to make foods palatable, and at the same time, safe. Many raw foods, primarily meats and meat products, have an unacceptable probability of containing pathogenic microorganisms. When food is thoroughly cooked, all pathogens except for bacterial spores are killed. Heat, as a more calculated method of disinfection, is one of the oldest processes in microbiology, and is also known as pasteurization. This is still used to eliminate pathogenic microbes from milk for example, $72^{\circ}C$ for at least 15 seconds, kills the bacteria responsible for tuberculosis and other milk-associated pathogens. The method of heat can also be used for utensils, crockery, cutlery, chopping board etc.(Modric, 2015).

Chemical Method of Disinfection

Chemical disinfection has a limited role in food hygiene. It is far less reliable than heat and usually requires thoughtfully chosen disinfectants; careful controlled application allowing sufficient exposure time; an assessment of the need for pre-cleaning and rinsing after disinfection. All disinfectant does not kill all microorganisms. It is necessary to know what microbes may be present and whether a particular disinfectant is capable of killing them. Most disinfectants will be inactivated to varying extents by organic matter such as dirt and food residues(Hoffman, 2007). One can choose a disinfectant that will withstand inactivation or a higher concentration can be used to compensate for inactivation, or can consider pre-cleaning to remove excess organic matter or a combination of these methods.

Cleaning

In the context of food hygiene, cleaning is that process which removes those microbes from contact with foodstuffs that can cause poisoning and spoilage, or the dirt that protects those microbes from removal and supports their proliferation. Cleanliness is often regarded as the fundamental process of food hygiene. Cleaning has a definite role to play, nevertheless one cannot carry out the function of hygiene solely by 'elbow grease', knowledge, rational thought and practice all have to be coordinated to this

end. The physical removal of potentially pathogenic microbes from any item can be related in importance to hygiene by the proximity of the cleaned item to the consumed product- the closer to the ready-to-consumed food, the more vital the cleanliness (Reynolds, *et al.*, 1993).

Cleaning Utensils, Cloths, Mops and Brushes

Items used for kitchen cleaning are potentially mobile and they are in contact with many different surfaces, utensils and equipment over a comparatively short period of time. This process can itself act as a transfer mechanism for the microbes it is trying to curb. Thus segregation and decontamination of cleaning articles is essential. In many ways it is both easier and safer to use single-use wipes that are thrown away after a single task, so ensuring that they do not transfer contamination (Hoffman, 2007).

Food Storage Containers

As these can be used for prolonged contact with foods that will support growth of bacteria responsible for food poisoning and spoilage, their initial cleanliness is important. When manual washing is used, it must be thoroughly followed by efficient drying prior to storage or reuse. Where mechanical dishwashing is feasible for containers, it is preferable (Hoffman, 1993).

Sterilization

This is a process leading to complete elimination of all microbes. The most common way to achieve sterilization is by steam under pressure. This process is only relevant to the control of food poisoning and spoilage in the process of canning. After the can has been sealed, it is heated by steam in a large pressure vessel to sterilize the contents. This is necessary to kill the extremely heat-resistant spores of the bacterium, *Clostridium* and *botulinum* which, if left in a high protein, low-acid food such as meat or fish, can produce a toxin lethal if ingested (botulism). In normal practice, sterilizers can be relied on as best, to give disinfection (Hoffman, 2007).

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

Food poisoning is all about microbes present in food causing illness which can sometimes be adverse, leading to death. It is therefore obvious that humans cannot do

without contact with microorganisms, especially in food. The hands, kitchen utensils, intestinal tract contains numerous microorganisms posing a threat of food illness. This review suggests proper food hygiene so as to prevent food poisoning even though microbes can never be completely eliminated. Proper hygiene of the food handlers, use of sterilizers and disinfectants can go a long way to reducing the number of microbes that can attack and produce toxins in the food leading to a great decrease in the level of food poisoning and infection and possibly, a safer ready-to-eat food.

Recommendations

In order to ensure proper food hygiene as a measure to prevent food poisoning and infection. The following recommendations are preferred;

1. Improved water closet should be developed.
2. Good hand washing basins with sterilizers and disinfectants should be made available.
3. A clean food canteen, cooking utensils, cutlery, crockery and any other equipment/materials that are directly or indirectly involved with food should be encouraged.
4. Continuous awareness campaign on the need to take proper personal hygiene in areas of food handling should be done.
5. All the stakeholders along the food chain must work closely with national government to help set and implement food safety strategies and policies that will in turn supply safe food for the world populations.

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**WORKPLACE SPIRITUALITY AND AUDIT QUALITY: MEDIATING
EFFECT OF AUDITOR'S DYSFUNCTIONAL BEHAVIOR AMONG
OFFICES OF AUDITOR GENERALS IN NORTH EASTERN, NIGERIA**

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Abstract.

This study aims to analyze the mediating effect of auditor dysfunctional behavior on the relationship between workplace spirituality and audit quality at The Office of Auditor General within the north Eastern Nigeria. The research approach used is quantitative and casual design. The number of research samples was 292 auditors taken through proportionate sampling. The data analysis used descriptive and inferential statistical analysis by employing regression analysis. The results show that there is a significant negative effect of workplace spirituality on dysfunctional auditor behavior, there is a significant positive effect of workplace spirituality on audit quality, and there is a significant negative mediating effect of dysfunctional auditor behavior on the relationship between workplace spirituality and audit quality. The conclusions of the study state that there is a significant effect of workplace spirituality on dysfunctional auditor behavior. Implication to audit quality is that the audit quality can be improved through workplace spirituality and dysfunctional auditor behavior enhancing regular check on records and book of accounts of government agencies and Ministries.

Keywords: Workplace spirituality; Auditor; Dysfunctional behavior; Audit quality

INTRODUCTION

Fraud is the International distortion of financial statements or other records by a person (internal or external) to the organizational which is carried out to conceal the misappropriation of assets or otherwise for gain “(Adeniji 2004). However, auditors have a significant role to play in the detection and prevention of fraud because they are not only agents of shareholders but their access to internal and external information makes them efficient monitor (Dyck, Morse & Zingales, 2008). The existence and in fact, the high incidence of fraud in corporate organization brings to mind the question of competence, skills, due care, honesty, and integrity of auditors in an organization or business enterprise, qualities are expected to be displayed by an auditor in every time in every circumstances (Olofin, 2005 & Agbaje, 2007). When fraud occurs in work place, the question asked is “where were accountants and auditors? That an auditor has the responsibility for the prevention, detection, and reporting of fraud, and illegal acts and errors is one of the most controversial issues in auditing, and has been one of the most frequently debated areas amongst auditors, politicians, media, regulators and the public (Gay & Roger, 2002).

Organizational code of ethics and code of conduct are also critical elements of fraud prevention, particularly in light of anti-corruption legislation such as the ICPC and EFCC and to mention but few. Not only does a code of conduct instruct employees, but it also helps protect the organization and management. Fraud can take many forms, including embezzlement, forgery, computer crime and theft of inventory and other assets, and can continue unchecked for years and its impact can be devastating.

Fraud in general, refers to a wrongful or criminal deception practiced which is intended to result in financial or personal gain to oneself and a financial or personal loss to the other. ‘Fraud’ is commonly understood as dishonesty calculated for advantage. A person who is dishonest may be called a fraudster. In almost all the legal systems, fraud is a specific offence with certain unique features. This called for auditing within an organization to certain the level of distortion.

Audit, in general, refers to the examination or inspection of various books of accounts by an auditor followed by physical checking of inventory to make sure that all departments are following documented system of recording transactions. It is done to ascertain the accuracy of financial statements provided by the organization. The

process has to be carryout by a professional person called the auditor. The auditor is a professional that provides services to the public, especially users of financial statements, among others: investors, creditors, candidates, and creditor government or institutions (Boynton & Kell, 2006).

In most organizations, reporting mechanisms are within the organizations. In those situations, an overwhelming number of employees are reluctant to report a fellow employee they suspect of fraud. They're even more reluctant to report managers. Among their greatest fears are termination and retaliation. Employees are also concerned about suffering retribution or being ostracized by co-workers. Few employees trust internal reporting mechanisms. Studies show that people rarely perceive internal reporting mechanisms as being truly anonymous. Yet employees must have anonymity to feel safe enough to report fraud even when not reporting could lead to great company loss.

Most people will talk the talk, but few will walk the walk; it is encourage for people to be amongst those few. Walk that walk and go forward all the time is prime to an individual within an organization. Don't just talk that talk, walk it by moving towards achieving it. It is evidence that most of people talk one way and live another. There are a few people who truly talk the talk and truly walk the talk due to one's beliefs in spirituality to creator (Yusuf, et ta, 2020).

Spirituality is the development of our inner well being for achieving happiness, peace and fulfillment. Spirituality in management is an upcoming academic field started in this century. Interest in workplace spirituality has increased steadily over the last decade and into the new millennium Increasing interest in spirituality in the workplace is due to an overall evolution in consciousness, which we are experiencing as human beings." In the modern business world, there are several enterprises and organizations refer their success to their spiritual attitude and practices. This new paradigm which is emerging in organizations has also been called as "the spirituality movement.

Statement of the Problem

To solve fraud issues, positive economic approach is still applied. The use of normative economic approach such as ethics and religious values are still few. There are many studies, one of which is a study by Mitroff, Elizabeth and Denton (1999) that has found that spirituality is one of the most significant factors in organizational performance. Nearly 60% of respondents believe in the positive benefits of spirituality

at the workplace. Further studies of Barrett (1998) found that employees with low, medium or high complexity are more highly motivated. Their productivity is at 52%, 85%, and 127% higher than employees who have average motivation. Therefore, it is not surprising that today many companies put their concern in spirituality as an effort to resolve the issue of productivity, performance and job satisfaction. Spirituality in the workplace has been widely adopted by major companies in Indonesia such as PT Telkom that harmonizes the spirit and strategy, Garuda Food Company is not only based on business interests but also touches humanity aspects such as peace, harmony, love, and non-violate religious prohibitions. Mondial Lux Indonesia also has performed morning prayer ritual before starting their activity (Baskoro, 2014). This study gives an overview that spirituality in the workplace can reduce the tendency of auditors to commit fraud in the workplace. An auditor's understanding about the significance of their job for him or her and, their deep involvement in their workplace will inspire them to love their job and stop them from actions that will harm themselves and the companies they work for. (Baskoro, 2014).

Government at all levels in Nigeria is arguably the biggest employer of labour. However, this huge workforce is riddled with a lot of challenges amongst which are the problem of ghost workers. According to Oguzierem, Sofiri and Okodudu (2006), ghost workers and payroll fraud refers to all processes of employee impersonations that have salary cost implication on the concerned government. It includes all illegal, unauthorized, unqualified, fictitious and non-existing staff that makes salary claims from the government coffers. This implies that underage, overage, backdated employments, inherited employments, unqualified staff and unauthorized staffs even though they report for work daily; are categorized as part of ghost workers and payroll fraud in the public service. In most instances, these fraudulent public officeholders forge the necessary documents and authorizations to add an employee on the payroll. McCallum and Tyler (2010), in Oguzierem, Sofiri and Okodudu (2006) asserted that Apart from traditional ghost workers which are fictitious and non-existing employees added to the payroll by payroll managers, there are also the non-apparent ghost workers. These categories of ghost workers' fraud are real staff in the public sector who receives fictitious pay through payroll irregularities. They include staff who receive unearned salaries through false means; for instance, staff who have multiple jobs in the civil service, receives dual or many salaries using pseudo names, employees who earn levels of pay or allowances greater than their rank,

employees on temporary absence or leave of absence but who continued to earn full salary, and employees on transfer or retirement but whose names are in the payroll. The ghost workers syndrome is not limited to the salary payroll but also to pension payroll as many of the ghost workers enumerated above naturally graduate to the pension scheme while others are added by managers of the pension payroll. The problem was so severe that the pension schemes of many of the parastatals of the government spend huge resources in trying to fish out the culprits and in some cases collapsed under the weight.

The problem has become quite pronounced and noticeable considering the present economic realities in the country. With falling prices in crude oil the major source of income of the country, the government has been known to borrow to pay salaries of workers many of whom are ghosts. Whatever the causes of the problem, the point remains that it cannot be allowed to continue. In order to find a lasting solution to the problem, the federal and state governments have over the years instituted several policies many of which have failed to yield the desired result. For example, the governments at all levels over the years have embarked on employee verification processes including bio-data capturing, head counts at work desks bank/worker ID verifications all of which have yielded varying degrees of success but has failed to bring about a lasting solution.

In search of that elusive solution, the government in 2006 introduced the Integrated Payroll and Personnel Information System (IPPIS) to provide a reliable and comprehensive database for the public service to facilitate manpower planning, eliminate record and payroll fraud, facilitate easy storage, update and retrieve personnel records for administrative and pension processes, and facilitate convenient staff remuneration payment with minimal waste and leakage. The project which began a phased and gradual implementation in 2007 has recorded a lot of success and is seemingly promising to achieve more in the nearest future. For example, since its inception the magnitude of ghost workers discovered in the federal government payroll have never been recorded in the history of Nigeria.

Audit failure occurs when the auditor provides an audit opinion, not in line with the fact that it does not meet the auditing standards specified (Arens et al., 2012). Previous studies have generally shown a threat to degradation of audit quality due to dysfunctional behavior that auditors sometimes perform in auditing tasks (Pierce & Sweeney, 2004; Sweeney & Pierce, 2010). Emerson and McKinney (2010) express

the importance of returning to religious beliefs in behavior after in practical ethics is not capable of being a moral keeper in the business world. Religious values will make the work more useful and meaningful. In this perspective, working not only to meet the needs of material merely but as a form of sacrifice for the benefit of society. A faithful public accountant and putting forward spiritual values that are partially reflected in professional, ethical codes and inspection standards will be able to give opinions more meaningful so that they can be trusted in important decision-making processes.

The above description shows the urgency of spiritual Auditing in order to suppress the dysfunctional auditor behavior and to detect and prevent fraud among MDA's in Nigeria. It is very crucial, considering that there are still so many corruption cases involving government officials. An example of the phenomenon that occurred in most recent time like the case of EFCC Boss, Acting MD NDDC, NNPC forensic audit scandal etc was proven there the house committee for inquiring, in 2020. Also, the Panel of Corruption Court judges to investigate the EFCC boss by Justice Salami in 2020 in the bribery cases.

Based on this urgency, researchers are interested in examining examine the role of Spiritual Auditing in combating Fraud in Ministries, Department and Agencies (MDA) among North eastern states in Nigeria

Objectives of the Study

- (i) To ascertain the contribution of Spiritual auditing in fraud prevention in Ministries, Department and Agencies (MDA).
- (ii) To evaluate the contribution of Spiritual auditing in fraud detection in Ministries, Department and Agencies (MDA).
- (iii) To evaluate the contribution of Spiritual auditing Combating fraud among Ministries, Department and Agencies (MDA).

LITERATURE REVIEW

According to Sudarmo et al, (2008), Webster's New World Dictionary defines fraud as a common terminology, which includes various meanings such as cunning, guile human trickery used by a person in order to take an advantage over others in a negative way. There is not a standard and certain rule that can be used to explain the meaning of fraud, except tricky, unnatural, and clever ways to deceive others. The only

restriction meaning of fraud is that fraud is committed by dishonest or cunning person. Thus, in general, fraud contains three essential elements, namely: (1) dishonest act, (2) intention or deliberate and (3) fraud that is a detriment others. Fraud includes all sorts of things that a human can think and do to take benefits from others in the wrong way, hide the truth, full of cunning plans and every unnatural way that deceive others or cause the victims to suffer from loss.

How to make internal audit effective has been an area of common interest to many. This has been responsible for the divergent views of authors on this concept. To that effect, the Institute of Internal Audit (2010) sees internal audit effectiveness 'as the degree (including quality) to which established objectives are achieved.' Vijayakumar and Nagaraja (2012) appear to be concerned more with the outcome of effective internal audit system which they argue helps in achieving performance, profitability and prevents loss of revenues particularly in public sectors. While Shoommuangpak and Ussahawanitchakit (2009) view audit effectiveness as achieving audit's objective by gathering of sufficient and appropriate audit evidence in order to express reasonable opinion regarding the financial statements compliance with generally acceptable accounting principles, Mizrahi and Ness-Weisman (2007) express audit effectiveness as the number and scope of deficiencies corrected following the audited process.

Alberta (2005) as cited in Mu'azu and Siti (2013) states that effective internal auditor professionals should possess the following characteristics: Ability to align the structure of internal audit with the dynamics of the organizational operation; There should be strong relationship between management skills for maintaining appropriate visibility and audit committee needs and expectations; There should be strong service delivery capabilities (consistency in approach, standards, and delivery, including the abilities to maintain audit focus and alignment of resources to the plan; There should be also be strong management skills which will ensure that internal audit teams have appropriate skills and motivation. Besides the above, the level of training, education, experiences as well as professional qualifications of the internal auditors influenced the effectiveness of internal audit. The above characteristics are essential and we see them as building blocks to effective internal audit system.

Belay (2007) and De Smet and Mention (2011) are of the opinion that attributes of effective internal control include "organizational independence, a formal mandate (existence of approved audit charter, unrestricted access, sufficient staff, existence of audit committee, stakeholder support, professional audit standards and unlimited

scope. In a related development, the Chartered Institute of Public Finance and Accountancy (2006) as cited in Mu'azu and Siti (2013) believes that effective internal audit service should aspire to understand the whole organization, its needs and objectives, understand its position with respect to the organization's other sources of assurance and plan its work accordingly; be seen as a catalyst for change at the heart of the organization; and value and assist the organization in achieving its objectives; help to shape the ethics and standards of the organization, ensure the right resources are available and seek opportunities for joint working with other organizations". A cursory look at the above reveals the holistic nature of the expectations of effective internal audit system from a professional stand point. It is more or less like setting the universal standard against which effectiveness of internal control would be assessed. Some empirical studies have been done on this subject matter in some countries of the world. Mihret and Yismaw (2007) did a study entitled Internal Audit Effectiveness: An Ethiopian Public Sector Case Study. The study which used structured questionnaire, interview and observations as instruments of data collection discovered that certain factors such as internal audit quality, support from management, etc. strongly affect effectiveness of internal audit while organizational structure and internal auditor's attributes have less impact on the same variable. In a study carried out by Ahmad, Othman & Jusoff (2009) on effectiveness of internal audit in Malaysian public sector in which simple percentage was used as the tool for data analysis, they found that lack of audit staff was a major impediment to effective internal auditing. One of the major limitations of the study was a narrow scope. Arena and Azzone (2009) in their study entitled 'identifying organizational drivers of internal audit effectiveness in Italy' with the use of 153 Italian companies and survey method, found that characteristics of the internal audit team, the audit processes and activities as well as organizational links influenced effectiveness of internal audit.

Furthermore, Cohen and Sayag (2010) studied 'effectiveness of internal auditing: An Empirical Examination of its Determinants in Israeli organization'. With the use of questionnaire and mail survey of 292 organizations, the study identified management support, especially in relation to provision of proficient internal audit staff, career development and independence of internal auditors as vital to the effectiveness of internal audit. In another study conducted by Theofanis, Drogalas and Giovanis (2011) on the 'relationship between elements of internal control system and internal audit effectiveness' with the use of 52 Hotels in Greece through mail survey, the results

reveal positive relationship between the variables. However, they suggested that with larger samples the outcome of the study might differ significantly from their own. Since many of these studies were done in countries other than Nigeria, with obvious cultural and environmental differences as well as contrasting findings, it becomes necessary for a similar study to be carried out in Nigeria. Furthermore, with reference to the poor rating of Nigeria by the Transparency International in terms of corruption indices, a study on effectiveness of internal audit becomes not just necessary but imperative. As we know, sound internal audit practice is the bedrock for corporate transparency.

Theoretical framework

White-Collar Crime: Foundations of Fraud Theory Dorminey et al. (2012) revealed that White-Collar Crime was instigated by Edwin H. Sutherland in 1940. White-collar crime was called a crime committed by professionals in a subtle and vague manner whose main driving force was no longer due to poverty. White-collar crime is committed by the recipient of a delegation of authority and trust. Fraud as an example of a white-collar crime which is an act of fraud or crime is intended to produce personal financial gain or things intended to deceive others (Abayomi, 2017). A more detailed definition of fraud according to Matthew et al. (2013) is an act or deception, a deliberate concealment, neglect or deviation from the truth with a purpose. In Merriam

Webster Dictionary of Law (1996), as quoted in Manurung dan Hadian (2013), deception can be defined as any expression of action, neglect or concealment to deceive. Fraud is a general term among accountants, auditors, investors and the public engaged in the field of accounting economics. The term fraud is defined as fraud in the financial sector. In general, fraud will always occur if there is no prevention and detection. Weaknesses in internal control have been identified to cause fraud (Hamdani dan Albar, 2017). In general, fraud is interpreted as a fraud committed intentionally by the culprit and is done in violation of applicable regulations to take advantage for his own interests. This is what distinguishes between cheating and error. Fraud that occurs in Indonesia mostly arises from the desire to manipulate, mark up, and embezzle budget in an organization (Hamdani dan Albar, 2017).

Fraud Triangle Theory

Kassem and Higson (2012) explained that research on fraud was first conducted by a criminologist named Donald Cressey in 1950, who examined the motivations that drive people to violate the trust given to them. In 5 months, he interviewed 250 criminals whose behavior met two criteria: the first person had accepted a position of trust with good intentions, and the second person had broken the trust. Based on this research, finally Cressey in 1953 gave birth to the theory of The Fraud Triangle. Fraud Triangle is usually used to identify and assess the risk of fraud. In 1950, Cressey concluded that individuals commit fraud when there are three factors:

- (1) Financial need that cannot be shared (pressure).
- (2) Opportunity that can be used to take illicit profits or gain improper access to funds (opportunity),
- (3) Personal justification for acting for themselves (rationalization).

Fraud Diamond Theory

In 2004, Wolfe and Hermanson added another variable in the Fraud Triangle Theory, namely capability, so that it changed its name to Fraud Diamond Theory. Diamond Diamond is a new perspective on the phenomenon of fraud. According to Wolfe and Hermanson (2004), a lot of fraud will not occur without the right person with the right ability to carry out fraud in detail. In other words, fraudsters must have the skills and ability to commit fraud. However, ability allows people to recognize open doors as opportunities and take advantage of them by trying to repeatedly attempt fraud. The Fraud Diamond concept as shown in the picture below, where they present four sides that develop a triangle of fraud, namely the ability (capability) of the perpetrators of fraud. Wolfe dan Hermanson believe that a lot of cheating won't happen without the right person with the right ability to carry out the details of the fraud.

1 Pressure

Pressure according to Wolf and Hermanson (2004) is when someone wants or has to commit fraud. Pressure is a condition where there is motivation to commit fraud that will be done. Problems that should be revealed are closed because there are threats or pressures aimed at the perpetrators. Pressure becomes an indicator in measuring a person's tendency to commit fraud (Gbegi dan Adebisi, 2013).

2 Opportunity

According to Albrecht et al. (2011), opportunity is a situation where a person feels that he has a combination of situations and conditions that make it possible to commit fraud and will not be detected. Opportunities in this study are opportunities that intentionally

or unintentionally arise in situations that force a person to commit fraud in the form of misuse of assets for personal gain.

In this case, a good and strong internal control is needed. Weak control can provide opportunities for cheating. The lack of good control causes the offender to believe that his actions are not supervised so that doing things that trigger fraud (Hamdani dan Albar, 2017).

3 Rationalization

Rationalization, according to Chaplin (2011), is a process of justifying one's own behavior by presenting a plausible or socially acceptable reason to replace the real reason. Rationalization is an attitude to maintain thinking and justify cheating committed. Fraudsters always look for rational justifications to maintain trust and maintain dignity (Chaplin, 2011).

4 Capability

According to Wolfe and Hermanson (2004), ability is a necessary situation or skill and the ability for people to commit fraud. This condition occurs when the fraudster acknowledges the existence of certain fraud opportunities and the ability to turn them into reality. Position, intelligence, ego, coercion, deception, and stress are supporting elements of ability (Wolfe and Hermanson, 2004). Ability is one of the properties possessed to tend to commit fraud by looking at one's abilities. So that the smarter the fraud strategy, the more difficult it is to detect fraud.

Empirical Review

Based on the discussion from Yurmaini's research (2017) that religion can be a solution to minimize fraud, this research uses religiosity as a moderating variable between the effects of five things that cause fraud. Understanding one's religiosity is expected to reduce the tendency for fraud when the person has pressure, opportunity, rationalization, ability and personal ethics that cause fraud to occur.

In religious studies, the term religion is distinguished from the term religiosity. *Religion* is belief but religiosity is more about the appreciation of the quality and life attitude of an individual; based on religious values that become their beliefs. Mokhlis (2006) defines religiosity as the level of individual's commitment to his or her religion. Asraf (2014) explained that religiosity is an individual's attitude in general, not only aspects of religion but also an individual's intent to practice their religion. Specifically, Ahyadi (1995) explained that religiosity is how an individual understands, internalizes and integrates religious norms into themselves and becomes their personality.

Therefore, religiosity covers a condition which encourages them in thinking, behaving and acting in accordance with their belief.

Glock and Stark (1965) analysed religiosity in five dimensions, namely: ideological /belief dimension, ritualistic /practical dimension, experiential dimension, intellectual /knowledge dimension and consequences dimension.

1. **Ideological** dimension is a dimension that deals with the level of an individual's confidence about their religion values, especially fundamental or dogmatic teachings/values.

2. **Ritualistic** dimension is a dimension which deals with the level of an individual's compliance in doing ritual activities as ordered or recommended by their religion.

3. **Experiential dimension** is related to the level of individual's religious feelings and experiences.

4. **Intellectual/knowledge** dimension is related to the level of individual's knowledge and understanding about their religion values, especially about the basic teaching or value that can be found in the scriptures.

5. **Practice / consequences** dimension is related to the level of individual behaviour that is motivated by their religion. Behaviour in this case is the worldly behaviour, which is how the individual relates to their world.

Spirituality in the workplace

Dehler and Welsh (2003) have defined spirituality in the workplace as a process of searching the meaning of life, and deepening of knowledge to achieve a higher level. Ashmos and Duchon (2002) addressed spirituality in the workplace associated to two aspects: individual experience and organizational environment. They define spirituality in the workplace emerges because individuals can express themselves personally by performing the meaning of work in their community. Spirituality in the workplace is about feeling connected with and having compassion toward others, experiencing a meaningful inner consciousness in pursuit of meaningful work and that enables transcendence. In this case, Ashmos and Duchon (2002) developed the dimension of spirituality in the workplace into three dimensions, namely: the meaning of work, the feeling of being part of a community and value alignment. These dimensions can explain five work behaviours namely; effective organizational commitment, intention to leave, intrinsic work satisfaction, job involvement and organizational-based self-esteem.

1. Dimension of Work Meaning indicates the degree of deep feeling felt by an individual concerning the meaning and purpose of work
2. Dimension of the feeling of being part of a community is a deep feeling felt by an individual that they have become part of someone else and part of a workplace community.
3. Value alignment is a strong feeling that is felt by an individual about how personal values become one with the mission and goals of the organization.

Relationship between Religiosity and Spirituality in the workplace and Its Implications on Fraud prevention

King (2007) stated that religiosity is different from spirituality. However, many studies that have proved that both religiosity and spirituality have a positive influence on the attitudes and behavior of an individual. Weaver and Angle (2002), Amaliah & Westi Riani (2011) and Amaliah (2014) found that the internalization of religious values can influence ethical behaviour or values of an individual and personal attitudes and behaviour (Mitroff and Denton (1999) and reflected in personal and social life (Ntalianis and Darr, 2005).

Meanwhile, Liu (2010) has found a correlation between religiosity and emotional intelligence, prayer and motivation (Adams, 2008), productivity and turnover (Mc Carty, 2007). Spirituality gives influence on employee and organizational performance (Neck & Milliman, 1994), professional commitment (Khanifaret.al. 2010), ethical behaviour in the workplace (Mc Ghee & Grant, 2008), big meaning of work (Harrington et al, 2001), the need for achievement, need for power and the need for affiliation (Sulistiyo, 2011).

Octaria et al. (2010) has applied spirituality in the workplace variable as a mediator between the religiosity on the quality of work life of schoolteachers of Malang Raya Islamic School. Moreover, Ajala (2013) found three dimensions of spirituality in the workplace (meaning of work, work purposes and the feeling of being part of a community) have a significant relationship with employee wellbeing. Osman, et.al (2010) found that religiosity, spirituality, values and personal commitment give contributions to employee's performance. Triana (2010) found spiritual intelligence is not a moderating variable for client's pressure, but a moderating variable for role pressure.

The influence of religiosity on fraud prevention

A good understanding of Religiosity of an individual will be implemented in their attitudes and behavior in performing various activities including in their working life. Attitudes and behaviour will be stained by religious values that they understood. The belief that God exists and attitude that always brings God in their life will put the brakes on behaviours that are inconsistent with human's rules and God's rules. Therefore, a high understanding about religiosity will be correlated with attitudes and behavior and work outcomes.

The influence of religiosity and spirituality in the workplace on fraud prevention

Religiosity and spirituality are two different things but both have relevance. An individual who has a good understanding about religiosity will have a high spirituality in performing their job. The understanding that working is the call of religion and also a kind of worship, the individuals will seek the meaning of it. To obtain the meaning, they will try to understand the vision, mission and goals of organization where they work. They will try to be part of work community and be empathetic to other employees' problems.

Workplace Spirituality and Auditor Dysfunctional Behavior

Sulistyo's research (2014) entitled found that there is a relationship between spiritual influence on dysfunctional auditor behavior. Auditor dysfunctional behavior arises due to the low ethical orientation of the auditor, requiring an unsteady ethical value that can prevent dysfunctional auditor behavior. This unsteady ethical value can be found in a religion that comes from God. Religion proved to play a role in reducing acts that are far from the truth; this happens because someone with high religiosity has self monitoring, self-control, and self-regulation thanks to the knowledge of the Supreme Power that always pays attention (God).

The results of Purnamasari and Amaliah research (2015) under the title "Fraud prevention: relevance to religiosity and spirituality in the workplace" with a sample of BPKP auditors of West Java Province also show that workplace spirituality has a significant effect on fraud prevention. The results of the research by McGhee & Grant (2008) with the title "Spirituality and Ethical Behavior in the Workplace: Wishful Thinking or Authentic Reality," also show that workplace spirituality leads to

increased ethical behavior (personal & organizational), thus avoiding the dysfunctional behavior.

Spirituality and the Audit Quality

Earnest research, Farhana and Saat (2015) "Assessing the Relationship Between Human Capital and Spiritual Capital on Firm's Performance Audit," the results show that both human capital and spiritual capital provides a significant positive correlation to the performance of the audit in the company. Research Mappanyuki (2016) entitled "Effects of Spiritual Influence of Auditors, Complexity Task, Ethics Auditor and Auditor Expertise on The Performance Auditor with Accounting Information Systems with moderating variables, the results also showed a significant association between the influence of the auditor's spiritual on the auditor's performance. Then, the Ahmadi study et al. (2014) entitled "The Relationship Between Spirituality in The Workplace and Organizational Citizenship Behavior" also shows that workplace spirituality affects organizational citizenship behavior, including auditor's auditing behavior.

Dysfunctional Behavior and Audit Quality

Research Kustinah (2013) entitled "The Influence of Dysfunctional Behavior and Individual Culture on Audit Quality." The study used a survey method conducted by distributing questionnaires to respondents who were determined purposively. Data analysis used correlation and regression. The results show that dysfunctional behavior affects audit quality. Separately, dysfunctional behavior has a negative and significant effect on audit quality. Utary's study (2014) entitled "Effect of Time Budget Pressure on Dysfunctional Audit and Audit Quality, Information Technology as Moderate," also shows that dysfunctional behavior affects the audit quality

Personal Ethics

According to research conducted by Abayomi (2017) fraud is caused by five elements, namely pressure, opportunity, rationalization, ability, and personal ethics. Besides those stated by Abayomi (2017), there is a theory of development from Fraud Diamond Theory (FDT) which belongs to Wolfe and Hermanson (2004), a theory that was coined by Gbegi and Adebisi (2013)

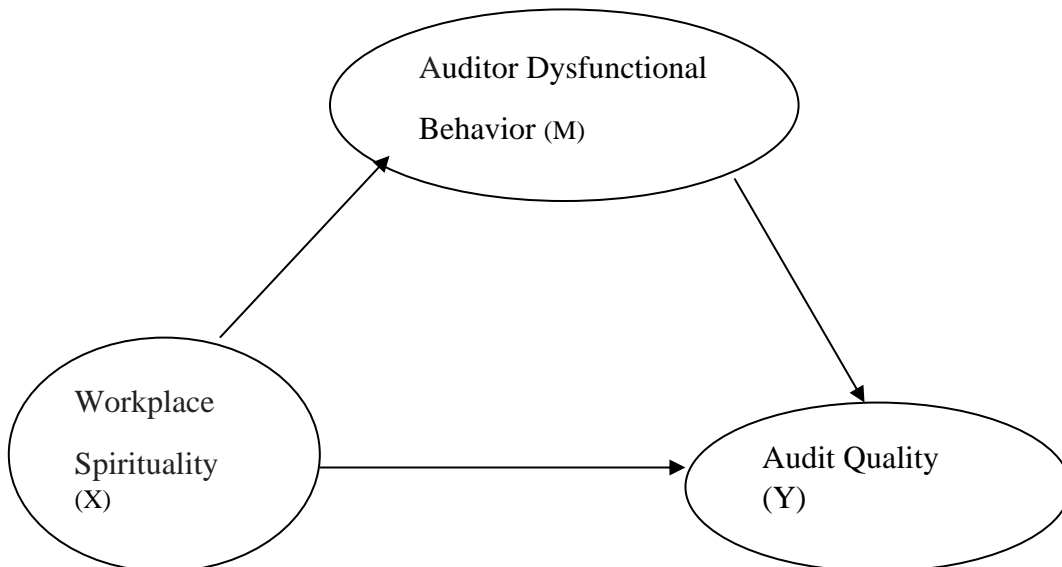
known as the New Fraud Diamond. But in the New Fraud Diamond there are corporate governance factors, which of course are less appropriate when applied in fraudulent

misuse of assets. So it is more appropriate when using fraud as stated by Abayomi (2017).

A person's personality also has a relationship of an act of fraud (Suryana and Sadeli, 2015). Honest people, wherever placed, will act honestly; otherwise, people who have a cheating character also have a tendency to cheat in their daily lives. Generally, a good personality is based on a strong faith. The definition of individual behavior, according to Gibson Cs. (1996) in Suryana and Sadeli (2015), is everything that someone does, such as: talking, walking, thinking or acting on an attitude. Taken from Greek, ethos/ethics refers to the assembly of norms that govern the moral behavior of individuals in society, norms that must be observed through the strength of habits that exist in society (Abayomi, 2017).

Personal ethics, as a special form of ethics, refers to moral principles and rules governing individual actions. It can also be said to be an ethical system or doctrine that has been chosen as a moral guide in a person's particular life (Abayomi, 2017). Cheater is someone who is selfish, intelligent, experienced and knowledgeable about control but has low personal ethics. To get what he wants, someone who has a selfish character does everything, is selfish, confident, and narcissistic to achieve his goals (Duffield, Grabosky, dan Graycar, 1979).

The Research Framework



Source: Developed by the researcher, 2023

METHODOLOGY

Research Design

The study adopted casual design research design. This method was useful when a phenomenon is to be studied over a period of time. In order to have adequate knowledge on the mediating effect of auditor's dysfunctional behavior on the relationship between workplace spirituality and audit quality at the Office of Auditor General of the Federation in Nigeria. It is imperative for this study to cover a number of year, hence the need for adoption of Casual research design (Gujarati, 2003; Ramachandran, 2011).

Population of the Study Sample Size

This study was on the mediating effect of auditor's dysfunctional behavior on the relationship between workplace spirituality and audit quality at the Office of Auditor General within the North Eastern Nigeria. Study population was the entire Staff of Office of Auditor General of the Federation. The office was chosen as targeted population because of their peculiarity in checkmating the activities of government. The study only focused on 292 Auditors from the Office of Auditor General within North Eastern Nigeria Nigeria during the period 2023 on the mediating effect of auditor's dysfunctional behavior on the relationship between workplace spirituality and audit quality. The sample size was limited to 292 Staffs based on the computed sample as well as their peculiarity in audit examination.

According to Yamani, $n = N / [1 + (Ne^2)]$,

Where: n is the sample size,

N is the population,

e is the error limit (0.05 on the basis of 95% confidence level)

Therefore, $n = 120 / [1 + 120 (0.05^2)]$

$$n = 92$$

Method of Data collection and analysis

The primary data for the study were collected from the staff within the office of auditor general inn North Eastern States of Nigeria. The method of data analysis that was used in this study includes inferential and the non inferential statistical tools. The non inferential in form of descriptive statistics such as mean, median and standard

deviation was used to summarize the data collected on various variables of this study. The descriptive statistics enable the researcher to know the pattern of distribution of the data. The inferential techniques are used to determine the relationship (correlation) as well as the effect (regression) between the dependent and the independent of the study. The software programme that was used in analyzing this study was SPSS.

DISCUSSION OF RESULT

Test of reliability

Reliability test among variable should be conducted in order to test the dependent of variables used in a data. Based on reliability test performed, all variable ranked above 0.7 the threshold (Pallant, 2007). The Cronbach's alpha for workplace spirituality (26 items) is 0.949, dysfunctional auditor behavior is 0.926 (10 items), and audit quality (22 items) is 0.957. Value of 0.9 above shown they have very good internal consistency reliability for the scale with this sample. As mentioned by Pallant (2007), values above 0.7 are considered acceptable; however, values above 0.9 are preferable.

Descriptive Analysis

Table 1 shows descriptive results on workplace spirituality. The highest percentage achieved is 75.22 on the statement of 'Enjoyment at work.' It is followed by 'Team's sense of community' with a percentage of 74.86. Overall, the percentage of all the items indicate that the workplace spirituality respondents only reached 72.71% of the 100%, so it still needs to be improved.

Table 1. Findings Workplace Spirituality

No	Item	Score	Percentage
1	Team's sense of community	2.066	74,86
2	Alignment with organizational values	1.688	73,39
3	Sense of contribution to society	1.594	69,30
4	Enjoyment at work	1.038	75,22
5	Opportunities for inner life	1.641	71,35
	Average		72,71

While Table 2 shows the results of dysfunctional auditor behavior. The highest percentage achieved is 74.35 on the statement of 'Under-Reporting of Time (URT)'.

Overall, the percentage of all the items indicate that the dysfunctional auditor behavior of the respondents reached 74.18% of the 100%, so it still needs to be reduced.

Table 2. Findings Auditor Dysfunctional Behavior

No	Dysfunctional	Score	Percentage
1	Audit Quality Reduction	2.387	74.13
2	Under Reporting of Time (URT)	684	74.35
	Average		74.18

Table 3 shows descriptive results on audit quality. The highest percentage achieved is 74.42 on the statement of “Reliability of methods used.” This is followed by “The effectiveness of the tools used” with a percentage of 73.04. Overall, the percentage of all the items indicate that the audit quality only reached 68.20% of 100%, so it still needs to be improved.

Table 3. Findings Audit Quality

No	Item	Score	Percentage
1	Knowledge	1.573	68.39
2	Experience	624	67.83
3	Ethical Values	1.511	65.70
4	Mindset	899	65.14
5	Reliability of methods used	1.027	74.42
6	The effectiveness of the tools used	672	73.04
7	Availability of technical support	282	61.30
	Average		68.20

Path Diagram

The correlation between workplace spirituality, dysfunctional auditor behavior, and audit quality were significant at the $\alpha = 0.05$ level (1-tailed). Importantly, it has shown that there exists a positive and a negative relationship between the tested variables. Specifically, workplace spirituality ($\rho = -0.59^{**}$) shows the most substantial negative relationship between dysfunctional auditor behavior, followed by dysfunctional auditor behavior on audit quality ($\rho = -0.51^{**}$). Additionally, between workplace spirituality to audit quality, there is a significant positive relationship ($\rho = 0.27^{**}$).

Table 4: Correlation Analysis

	Workplace Spirituality	Auditor Dysfunctional Behavior	Audit Quality
Workplace Spirituality	1.000		
Auditor Dysfunctional Behavior	-0.59	1.000	
Audit Quality	0.27	-0.51	1.000

Source: Extracted from SPSS (version 20.0) Output, 2023

Discussion

This study aimed to examine whether there exists a relationship between workplace spirituality and dysfunctional auditor behavior on audit quality. Besides that, to examine whether there exists a relationship between workplace spirituality on dysfunctional auditor behavior. Statistical analysis performed revealed that both workplace spirituality audit quality has a coefficient of 2.92 and auditor dysfunctional behavior of -6.88. Workplace spirituality has significant positive relationship with dysfunctional auditor behavior and a significant negative relationship with audit quality. Then, that dysfunctional auditor behavior has negative relationship with audit quality at a coefficient of -5.57. Furthermore, the mediation effect of dysfunctional auditor behavior on the relationship between workplace spirituality and audit quality is also negative at a p-value of -6.71. The percentage of mediation can be accounted for at 71.31%.

Result of Regression Analysis

Model 1	X on Y	M on Y	Model 2	Mediated from X to Y (d)=	% Mediated
X on M	(a)	(b)	X on Y Allowing M (c)	(d)/(d+c) x100%	
-6.88	2.99	-5.57	-6.71	16.65	71.31

Source: Extracted from SPSS (version 20) Output, 2023

The results of this study indicate that workplace spirituality has a negative effect on dysfunctional auditor behavior. Workplace spirituality is the recognition that employees have a core of life that motivates them and is motivated by meaningful work in society (Asmos & Duchon, 2000). When the auditor owns the condition of such spirituality, it can reduce the dysfunctional auditor behavior. These findings are aligned with and under previous relevant research results by Sulistyono (2014), Purnamasari and Amaliah (2015), and McGhee and Grant (2008) that workplace spirituality can degrade potential auditor dysfunctional behavior. Thus, the results of this study support and confirm previous research on the effect of workplace spirituality on dysfunctional auditor behavior. This study also shows that workplace spirituality has a positive effect on audit quality. Workplace spirituality is an acknowledgment that employees have a core of life that motivates them and is motivated by meaningful work in society (Asmos & Duchon, 2000). When such a condition of spirituality is possessed the auditor may encourage the improvement of the audit quality as the ability of the auditor to detect and report material misstatement in the audit of the quotation test during the inspection process (Vanstraelen, 2000).

These findings are consistent with and in accordance with previous research conducted by Earnest, Farhana & Saat (2015), Mappanyuki (2016), Notoprasetyo (2012), Setiawan and Latrini (2016) and Ahmadi, et al (2014), supporting and confirming previous research on the influence of workplace spirituality on the audit quality. Also, the results of this study prove that dysfunctional auditor behavior has negative effect on audit quality. Auditor dysfunctional behavior is any action performed by the auditor during the conduct of inspection procedures that may reduce the audit quality, either directly or indirectly (Kelley & Margheim, 1990; Otley & Pierce, 1996a). When the dysfunctional auditor behavior does not occur or at least under minimal conditions, the audit quality is maintained better, since the audit quality is usually related to the ability of the auditor to detect and report material misstatement in the audit of the quotation test during the inspection process (Vanstraelen 2000). Strictly speaking, is the absence of dysfunctional behavior will ensure better audit quality.

This finding is consistent with previous relevant research results conducted by Kustinah (2013) and Utary (2014) that dysfunctional behavior affects the audit quality. Thus, the results of this study support and confirm previous research on the effect of dysfunctional behavior affect audit quality. Finally, the level of mediation is

negatively high, this could be that there are other exogenous factors that mediate the relationship between dysfunctional auditor behavior and audit quality.

Conclusions

From the results of the analysis and discussion that have been described previously, then the conclusions of the findings of this study are as follows:

- 1) Workplace spirituality negatively affects the dysfunctional auditor behavior. These findings suggest that improvements in the form of increased workplace spirituality can distract dysfunctional auditor behavior.
- 2) Workplace spirituality positively affects audit quality. These findings suggest that improvements in the form of increased workplace spirituality can improve audit quality.
- 3) Auditor dysfunctional behavior has a negative effect on audit quality. These findings suggest that dysfunctional auditor behavior may degrade the audit quality.

RECOMMENDATIONS

Having conducted this research and analyzed the field data, the researcher recommends the following points, which if adhered to will positively bridge the gender gap.

1. Since services of a qualified internal auditor has statistical association on Audit quality in Public sectors, Government should always adopt the embrace the introduction of spirituality in work place among MDA's so as to ensure no financial leakages and accountability in the sectors.
2. Also, having discovered that work place spirituality has negative impact on auditors dysfunctional behavior the management should put in their best resources to ensure that experts in the field of auditing are employed to avoid biased result.
3. More so, the finding in the last hypothesis tested, shows that auditors dysfunctional behavior has no statistical association on Audit quality, government and relevant financial auditor should be diplomatic when dealing with fraud remediation, knowing fully well that the services of internal auditors has no statistical association on fraud remediation.
4. Curriculum should be developed by tertiary institutions in Nigeria offering accountancy and accounting education to ensure that Spiritual Auditing and

investigation are offered from the undergraduate level in their institutions not just the post graduate level to ensure that adequate attention is paid to this special area of accounting.

5. Training and retraining programme on the area of spiritual auditing should be organized for the accountants in public parastatals. This is to equip them with the basic knowledge of handling Spirituality and religiosity in work place. Finally a professional standards code of conducts and guidelines for the practice of Spiritual auditing and investigation should be established to check the incessant cases of corruption in the public sector.

Suggestions for further Studies

In the process of this research, some certain areas that could be investigated have surfaced. For instance, the impact of Spiritual auditing on financial reporting quality in other sectors of the Nigerian economy requires research effort, especially as they are not covered in this study. There is the need for similar studies that will assess the mediating effect of auditor dysfunctional behavior on the relationship between workplace spirituality and audit quality in private sector of the economy using different tool of analysis like survey of stakeholders opinion about workplace spirituality, so as to see how audit report can be used to achieve quality of financial report and maximize shareholders wealth in other sectors of the Nigerian economy. There is also the need to conduct similar research using a different source of data, employing different financial reporting quality and using different scales of measurement of variables and techniques for data analysis. Further research in these areas would not only complement this study, but would also help in bringing about improvement in financial reporting practices the Nigerian corporate landscape.

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Conflict of interest

There was no case of misunderstanding, misconception and conflict of interest among the various parties to the research work

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**PREVALANCE OF GASTROINTESTINAL PARASITES IN RED-BILLED
QUELEA (*Quelea quelea*) DURING RAINY SEASON IN GYAWANA
ECOSYSTEM, ADAMAWA sSTATE, NIGERIA**

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Abstract

A study on the prevalence of gastrointestinal parasites of red-billed quelea (*Quelea quelea*) was carried out in Gyawana ecosystem. The prevalence of the identified gastrointestinal parasite was also determined based on the gender of the *Quelea quelea*. The study was conducted for a period of three (3) months (June to August, 2022). A total of sixty (60) adult male and female red-billed (*Q. quelea*), thirty (30) for each sex were trapped using black nylon mist nets. Direct smear method for faecal examination was performed and stool specimens were processed following a formal-ether standing operation procedure. The gastrointestinal parasites were identified on the basis of morphological characteristics. The data obtained in this study was statistically analysed using analysis of variance (ANOVA) and chi-square to test for the differences by gender at $P < 0.05$. The result reveals five (5) different species of gastrointestinal parasites. *Ascaris* species has the highest prevalence having 19 frequencies, followed by *Giardia* species with 9 frequencies and the least is *Entamoeba* species with 4 frequencies. The prevalence of the parasites from highest to the lowest are in this order; *Ascaris* species > *Giardia* species > *Coccidia* > *Strongyloides* species > *Entamoeba* species. There is a significant difference between the species of gastrointestinal parasite based on their prevalence at ($P < 0.05$). The prevalence of gastrointestinal parasites of *Quelea quelea* by gender is 15(50.0%) and 19(63.3%), male and female respectively. However, there is a significant difference between gender and gastrointestinal infection ($P < 0.05$). Based on the findings of this study, it is recommended that, consumption of red-billed quelea (*Quelea quelea*) as bush meat should be minimized and well screened for the presence of parasites to avoid further transmission of these parasites to human beings.

Keywords: Prevalence, Gastrointestinal, Parasites, Red-billed Quelea, *Gyawana-Ecosystem*

INTRODUCTION

Red-billed quelea (*Quelea quelea*) is a small afrotropical weaver bird or black-faced dioch (GTZ 1987; Buba *et al.* 2013). Red-billed quelea (*Quelea quelea*) can descend on the crops in great flocks similar to locust swarms. It is believed to have invaded areas outside its former territories. Red-billed quelea inhabit tropical and subtropical regions and seasonally dry savannahs, grasslands, woodlands and croplands, at altitudes below 2000m. During the breeding season, they prefer thorny or spiny vegetation such as Acacia savannah areas (Dogget, 1988), generally at altitudes less than 1000 m (Sinclair *et al.*, 2005).

The bill of the female red-billed quelea (*Q. quelea*) is yellowish and slightly smaller than that of the male *Q. quelea*. The male *Q. quelea* cheeks and chin are black, while the female *Q. Quelea* cheeks and chin are ash-grey. The female super ciliary stripe above the eye is bright and faintly red in colour and the eye-rim is a faded dark line, as in the line between the lower part of the bill and the ear (GTZ, 1987). Male wear a facial mask which varies in colour from black to white, and a breast and crown plumage which could also be yellow or bright red and the iris is a reddish brown (BirdLife International, 2004). The age determination of the *Q. quelea* is their eye (iris) colour (GTZ, 1987). The adult *Q. quelea* have rust-brown, while the younger birds have grey-brown colour and the juveniles have grey-black up to six-month of age.

Q. quelea being a wild bird, may host a wide variety of internal and external parasites. Haemoparasites, those that inhabit the blood are some of the most significant known to cause septicaemia, neonatal bacterial diarrhoea, and marginal anaemia in birds (Vazquez *et al.*, 2010). Vectors commonly known to transmit haemoparasites to birds include mosquitoes (Culicoides), blackflies (Simulidae), biting midges (Ceratopognidae) and Hippoboscid flies (Hippoboscidae) which are widely distributed geographically (Klein *et al.* 2008). Parasitic diseases such as those caused by helminths, arthropods, blood and gastrointestinal protozoans especially Coccidian species of *Eimeria columbae*, *E. columbarium*, *E. labbeanae*, *E. tropicalis* have been reported to infect pigeons worldwide (Sari *et al.* 2008; Vazquez *et al.* 2010). These are

very pathogenic and are best treated using sulphamonomethoxime anticoccidials or controlled by improved hygienic standard (Msoffe *et al.*, 2010).

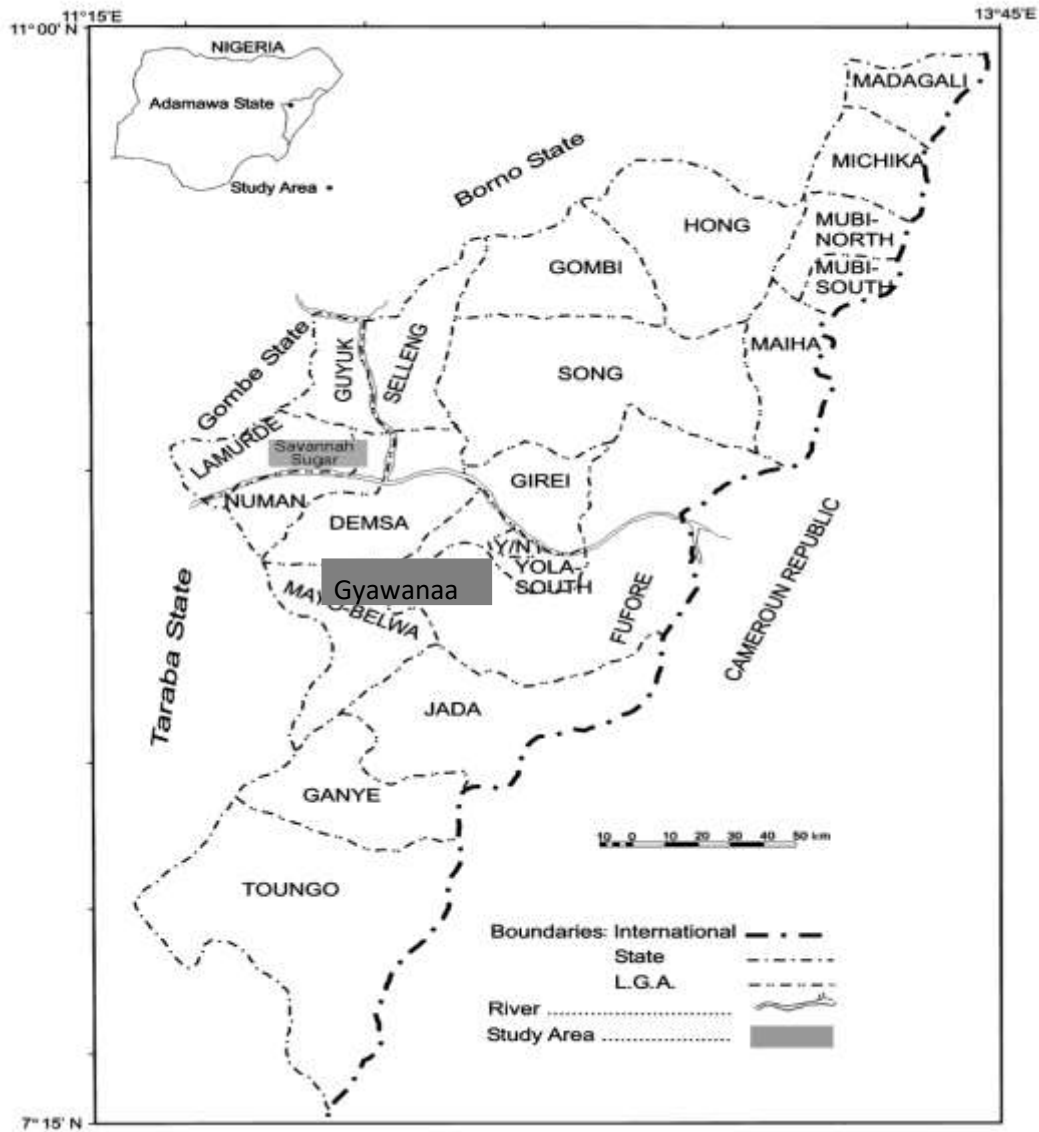
Most of the *Q. quelea* consumed in Gyawana ecosystem Lamurde Local Government Area of Adamawa State, Nigeria, as bush meat come from different ecological environment within and around the ecosystem. Hence, red-billed quelea (*Q. quelea*) may get infected from their feeding habits which lead them to prey on grains from the plants and those that falls on ground as their source of food. These grains are readily found on the stalk of the plants and on wet ground during the rainy season (Dawet *et al.*, 2012). Therefore, there is need for a scientific approach to identify the gastrointestinal parasites of red-billed quelea (*Q. quelea*) and to enhance their health condition. The study is aimed at determining the prevalence of gastrointestinal parasites of red-billed quelea (*Q. quelea*) and to assess the prevalence of the gastrointestinal parasites based on the gender of the birds.

MATERIALS AND METHODS

Study area

The study was carried out in Gyawana Ecosystem of Lamurde Local Government Area in Adamawa State of Nigeria. Gyawana is located at latitude 9.35° N and longitude 11.55° E and is 35metres above sea level. Lamurde Local Government Area lies between longitude 9.36° 03.92° N and latitude 11.47° 36.25° E at an elevation of 137 metres above sea level and has a population of 77,522 people (Adebayo *et al.*, 2012). Adamawa State is located in the North Eastern part of Nigeria, and lies between latitudes 7° and 11° N and between longitudes 11° and 14° E. It is on an altitude of 185 metres above sea level and covers a land area of about 39,741 km². The State shares boundaries with Taraba State in the south and west, Gombe State in the northwest, Borno State in the north and an international boundary with the Republic of Cameroon along its eastern border. The Benue River, which transects the State, rises from the highland of Cameroon and flows southwards to join the River Niger at Lokoja in Nigeria. Two seasons are obtainable in the State, the wet (rainy) and dry seasons. The month of May to October constitute the wet season, during which no place receives less than 600mm of rainfall. The month of November to April constitute the dry

season, during which the dry wind (harmattan) period is experienced between the month of November and February. The month of March and April are the hottest with an average temperature of 42° C, while November, December and January are the coolest months with an average temperature of 11° C (Adebayo *et al.*, 2020).



Map of Adamawa State, Nigeria, showing the location of the study area Savannah Sugar Company – Gyawana Lamurde LGA

Sampling techniques

The study was conducted for a period of three (3) months (June to August, 2022). Quelea bird (*Quelea quelea*), were collected fortnightly from sugar cane farms in Gyawana ecosystem, Lamurde Local Government Area of Adamawa State, Nigeria. A total of sixty (60) adult male and female quelea bird (*Q. quelea*), thirty (30) for each sex were trapped using black nylon mist nets. The quelea birds were captured at their water drinking points. The black nylon mist net was set between 7:00a.m and 9: 00a.m to catch the birds that went to drink water after morning feeding and 5: 00p.m to 6: 00p.m to catch those that went to drink water before going to their night roost as in Lester and Van (2014) and Buba *et al.* (2018).

Laboratory analysis

The trapped quelea birds (*Quelea quelea*) were taken to the Laboratory of the Department of Zoology, Adamawa State University, Mubi and they were sacrificed, dissected and the intestines were collected for analysis based on their sex. Using an applicator stick, the faecal specimens were collected from the intestine and transferred into a clean sample bottle for microscopic examination as described by Cheesbrough (1987) and Jajere *et al.* (2018). Also, formal-ether concentration technique was used as in Arcari *et al.* (2000).

Direct microscopy technique

Direct smear method for faecal examination was performed; using glass rod, placing 2gms of the faecal sample on a clean grease free slide, a drop of normal saline was added to the sample, emulsified and debris removed. Cautiously and gently the smear was covered with cover slip avoiding air bubble and over flow of the samples. The smear was mounted onto a phase contrast microscope and examined under 10x and 40x objective lens. The intestinal parasites were identified on the basis of morphological characteristics as in Arcari *et al.* (2000) and Taylor *et al.* (2001).

Formal-ether concentration method

Stool specimen was processed following a formal-ether standing operation procedure. 1g of faecal sample was transferred into a clean centrifuge tube containing 7ml of 10 percent formalin solution and mix thoroughly using vortex mixer. The suspension was filtered through one millimetre (1mm) sieve into a 15ml centrifuge tube. Then 4ml of

diethyl ether was added to the formalin solution. The content was centrifuged at 3000rpm for 1 minute. The supernatant was discarded and smear was prepared using a slide from the sediment. Finally, the slide was examined under a microscope with magnification power of 10x and 40x objective lens for the presence of intestinal parasite. The gastrointestinal parasites were identified on the basis of morphological characteristics as described by Arcari *et al.* (2000).

Statistical Analysis

The data obtained in this study was statistically analysed using analysis of variance (ANOVA) and student T. test was also used to compare the prevalence of the gastrointestinal parasite of *Q. quelea* by gender, using Statistical Package Software (SPSS for windows). The results were presented as prevalence of the infection with $P < 0.05$ used as the level of the significance test.

RESULTS

From the sixty (60) red-billed quelea (*Quelea quelea*) sampled in Gyawana ecosystem, the result reveals five (5) different species of gastrointestinal parasites (*Giardia* species, *Ascaris* species, *Strongyloides* species, *Entamoeba* species and Coccidia), were recovered in the intestines of red-billed quelea (*Q. quelea*) and were presented in Tables 1 and 2

Table 1: Species of gastrointestinal parasites found in red-billed quelea (*Q. quelea*) in Gyawana ecosystem

S/No.	Species of parasite	of Male frequency (percentage)	Female frequency (percentage)	Total frequency
1	<i>Giardia</i> species	3 (33.3%)	6 (66.7%)	9
2	<i>Ascaris</i> species	6 (31.6%)	13 (68.4%)	19
3	<i>Strongyloides</i> species	0	5 (100.0%)	5
4	<i>Coccidia</i> species	2 (25.0%)	6 (75.0%)	8
5	<i>Entamoeba</i> species	1 (25.0%)	3 (75.0%)	4

($P < 0.05$)

Table 2: Prevalence of intestinal parasites in red-billed quelea (*Q. quelea*) in Gyawana Ecosystem by gender

Sex	No. examined	No. Infected	No. uninfected	% infected
Male	30	15	15	50.0%
Female	30	19	11	63.3%
Total	60	34	26	56.7%

P<0.05.

Discussion

The findings of this study reveals five (5) different species of gastrointestinal parasite were recovered from the sixty (60) red-billed quelea (*Q. quelea*) in this period of study in Gyawana ecosystem, Lamurde Local Government Area of Adamawa State, Nigeria. *Ascaris* species has the highest prevalence of gastrointestinal parasites with nineteen (19) frequency, followed by *Giardia* species with nine (9) frequency and the least gastrointestinal parasite observed in this study is *Entamoeba* species with four (4) frequency. The trend of the gastrointestinal parasite of red-billed quelea (*Q. quelea*) in Gyawana ecosystem are in this order: *Ascaris* species> *Giardia* species>*Coccidia* species> *Strongyloides* species>*Entamoeba* species. There was a significant difference between the species of gastrointestinal parasite at (P<0.05). The result of this study is in line with the result of Otegbade and Morenikeji (2014) who reported several gastrointestinal parasites which include; *Strongyloides* species, *Ascaris* species and *coccidia* species in Mallard duck (*Anas platyrhynchos*), Whistling duck (*Dendrocygna viduata*), Ross's goose (*Anser rossi*), Africa grey parrot (*Psittacus erithacus*), Senegal parrot (*Poicephalus senegalus*), Parakeet (*Psittacula krameri*), Lizard buzzard (*Kaupifalco*), Pigeon (*Columba guinea*), Peacock (*Pavo cristatus*), Purple swamphen (*Porphyrio porphyrio*), Crown crane bird (*Balearica pavonina*), White stork (*Ciconia episcopus*), Ostrich (*Struthio camelus*), Water birds (*Anser albifrons*), Parrot (*Poicephalus senegalus*), Peafowl (*Pavo cristatus*), Black crown crane (*Balearica pavonina*) birds from March to May 2012 in five zoological gardens in South-West Nigeria; University of Ibadan (U.I), Obafemi Awolowo University (OAU), University of Ilorin (Unilorin), University of Lagos (Unilag) and Federal University of Agriculture Abeokuta (FUNAAB) Zoological Gardens.

The prevalence of gastrointestinal parasite of red-billed quelea (*Q. quelea*) in Gyawana ecosystem, Lamurde Local Government Area of Adamawa State, Nigeria, revealed that females have higher prevalence of 63.3% while males have 50.0%. There was a significant difference of gastrointestinal parasite at $P < 0.05$ by gender. The findings of this study concurred with the result of Philip *et al.* (2019), who reported that the prevalence of gastrointestinal parasites of female exotic breeds of chicken, 48.0% is higher than males 38.0%, the parasites showed some degree of preference for female birds as higher infection rate was observed in females than males in both breeds in Pankrono–Kumasi, Ghana. The findings of this study does not agree with the result of Buba *et al.* (2018), who reported that male pigeon birds (*Columba livia*) has higher gastrointestinal parasite of 36.6% prevalence while female has 23.33% prevalence in Mubi North Local Government Area of Adamawa State.

The overall prevalence of gastrointestinal parasites in *Q. quelea* recorded in this study was 56.7%. This is in relation to the 59.64% reported in free range (**Backyard**) **chicken** by Yehualashet (2011) in Ethiopia and slightly below to the 63.6% reported in poultry farm by Ogbaje *et al.* (2012) in Makurdi. The recorded prevalence was however, lower than the 92% recorded in chickens in Sokoto Metropolis, Nigeria by Mikail and Adamu (2008), and 81.5% reported in **domestic fowl** by Junaidu *et al.* (2014) in Giwa, Kaduna State of Nigeria. This could be related to the differences in the management system, control practice in farms, species of bird, and seasonal differences in the study area (Jegade *et al.* 2007). The finding is in line with the results of Buba *et al.* (2018), who carried out study on prevalence of gastrointestinal parasites of domestic pigeon (*Columba livia*) in Mubi North Local Government Area of Adamawa State, Nigeria. And reported that, out of the 30 pigeons examined, 18 (60%) of them were infected with one or more parasite. This is in accordance with the works of Luka and Ndams (2007); Junaidu *et al.* (2014) in domestic chicken *Gallus-gallus domesticus* in Samaru, Zaria, Nigeria in which cestodes and nematodes were implicated as the major cause of helminth infection in domestic chickens. *Giardia* generally undergo an indirect mode of transmission where they make use of intermediate host such as ants, grasshoppers, and beetles to perpetuate their transmission. These organisms serve as food for scavenging birds and hence transmit the infective stage of the parasites to the bird upon ingestion. The study further revealed that *Ascaris* species, *Coccidia* and *Giardia* species are the most common

intestinal parasites of red-billed quelea. The difference in the number of parasites infecting the birds may be as a result of the areas which red-billed quelea visited, that is, those visiting infected areas are more likely to be infected by more parasites than those that do not.

Conclusion

Among the gastrointestinal parasites found in red-billed quelea (*Q. quelea*) in this study area, *Ascaris* species have the highest frequency (prevalence rate), followed by *Giardia* species and the least is *Entamoeba* species. Multiple infections are common in the gastrointestinal tract of red-billed quelea (*Q. quelea*) in the study area. The female red-billed quelea (*Q. quelea*), has higher prevalence rate of infection than their male counterpart.

Recommendations

Based on the findings of this study, the researchers therefore recommend that, further study should be carried out on gastrointestinal parasites of *Q. quelea* during dry season in the study area to ascertain the impact by zoonotic transmission of these parasites in the area. Also, the red-billed quelea (*Q. quelea*) should be handled with care, well screened for possible parasites and cooked thoroughly before consumption.

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**ASSESSMENT OF MOSQUITO NET USAGE AMONG PREGNANT
WOMEN (A CASE STUDY OF CHILD BEARING WOMEN IN BIDA
METROPOLIS, NIGER STATE, NIGERIA)**

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ABSTRACT

Malaria remains a major public health and developmental challenge. The malaria burden was not only felt in the health sector but in every aspect of our social and economic life. The aim of this study is to assess mosquito net usage

among pregnant women in Bida metropolis, Niger State, Nigeria. Cross-Sectional study design was employed to assess the ITN usage and Ownership among pregnant women visiting the selected hospitals through a quantitative approach of data collection. The results of this study showed a significant association between having attended school and owning an ITN at home. Pregnant women who have attended school had a 6 times probability of owning an ITN. All other demographic characteristics were not significantly associated with sleeping under an ITN. Pregnant women in this study were knowledgeable in malaria and its causes as well as its new treatment plans. Pregnant women in the study could identify some symptoms and causes of malaria as well as why there is the need to using the new treatment plan. Most pregnant women in the study were having the insecticide treated net and were using it. Only a few of them were not having. The primary source of insecticide treated net was the antenatal clinic. It was recommended that government should continue the free distribution of the ITN and the Ministry of Health to send field workers to monitor ITN usage occasionally.

Keywords: Mosquito Net Usage, Malaria and Pregnant Women

Introduction

Malaria is caused by protozoan parasites of the genus *Plasmodium*. In humans, malaria is caused by *P. falciparum*, *P. malariae*, *P. ovale*, and *P. vivax*. *P. falciparum* is the most common cause of malaria infection, responsible for about 80 % of all the malaria cases. *P. falciparum* is also the most important cause of disease, and responsible for about 90% of deaths from malaria. The parasite's primary (definitive) hosts and transmission vectors are female mosquitoes of the Anopheles genus (Mendis *et al.*, 2011).

Malaria transmission differs in intensity and frequency depending on local factors such as rainfall patterns, proximity of mosquito breeding sites and mosquito species. Some regions have a fairly constant number of cases throughout the year – these are *malaria endemic areas* – whereas in other areas there are “malaria” seasons, usually coinciding with the rainy season (WHO, 2017).

Malaria has been indicated to threaten the lives of 3.2 billion people globally and exerts a great toll on vulnerable pregnant women and children (WHO, 2011). The World Health Organization (WHO) World Malaria Report (2011) demonstrates the enormity

of the burden of malaria, with 216 million cases and 655,000 deaths attributable to this mosquito-transmitted parasite in the year 2010 alone. The burden was largely borne by Africa where 91% of deaths occurred, with pregnant women and children under five years of age most at risk of infection and adverse outcomes (World Malaria Report, 2011). Malaria causes about 400–900 million cases of fever and approximately one to three million deaths annually (Breman, 2011). This represents, at least, one death every 30 seconds. The vast majority of cases occur in children under the age of 5 years (Greenwood *et al.*, 2015) and pregnant women.

Research has shown that children who sleep under these insecticide-treated nets (ITNs) are much less likely to contract malaria than other children living in the same area. The correct use of ITNs is now being heavily promoted in many national and international programs. If used during pregnancy in areas of unstable malaria transmission, ITNs reduce the overall risk of morbidity and mortality among pregnant women and their infants. A study in Gambia found that, during the rainy season in villages, where ITNs were used, the prevalence of malaria infection among pregnant women was lower and fewer babies were classified as premature (D'Alessandro *et al.*, 2016). Further evidence comes from a recent study in a highly malarious area of Kenya (Rarieda Division in Siaya district), which reported that during the first four pregnancies, women who were protected by ITNs at night gave birth to 25% fewer premature or small-for-gestational age babies than women who did not sleep under ITNs (Ter Kuile *et al.*, 2013).

The overall goal of the current strategic plan of the National Malaria Control Program (NMCP) was to reduce malaria specific morbidity and mortality by 75% by 2015. This was to be achieved through multi-interventional strategies including: The prevention through intermittent preventive treatment for pregnant women, the use of insecticide treated nets (ITNs) and indoor residual spraying and case management at health facilities and at community levels. This study sought to assess mosquito net usage among pregnant women in Bida metropolis, Niger State, Nigeria.

Materials and Methods

Cross-Sectional study design was employed to assess the ITN usage and ownership among pregnant women visiting the Umaru Sanda General hospital and Federal Medical Centre Bida through a quantitative approach of data collection. The study population was made up of pregnant women aged 18 years and above and visiting Umaru Sanda General hospital and Federal Medical Centre Bida for ANC during the

period of the study. The instruments for the collection of primary data were structured questionnaire and direct interview.

Data processing and analysis was done using STATA version 12 (STATA corporation college station, TX, USA) and Microsoft Office Excel. Responses to questions were coded before data entry. Data entry was done in Microsoft Office Excel before it was imported into STATA. The data were cleaned to prevent double entry. Frequencies and percentages were run. Continuous measurements were presented as means, standard deviations, or medians. Categorical variables were presented as percentages with 95% confidence intervals (CI).

Results and Discussion

A total of 53 women were enrolled and interviewed in the study. The mean age of the participants was 23.7 years. All the study participants were within the standard child bearing age of 15-49 years of age. However, majority of women in the study were in the age group 16-30 years and only less than 2% were below 16 years and about 15% were older than 30 years (Figure 1).

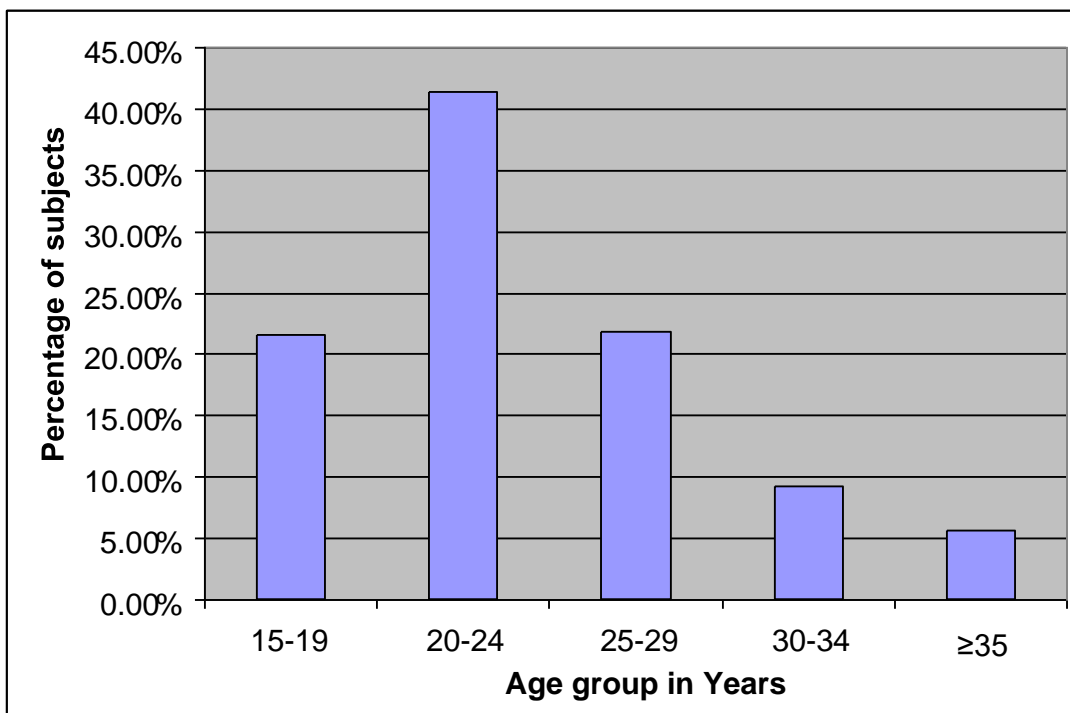


Figure 1: Age groups of study respondents

On subjecting this variable to univariate analysis it was found that being older than 18 years was statistically significantly associated with the use of insecticide treated nets (OR=3.6, 95% CI,1.92-6.61,P value, 0.00003). It also remained statistically significant after unconditional logistic regression (OR=2.72, 95% CI, 1.42-5.20, P value, 0.0024). In reference to educational levels of the study group, most of them (82.7%) had attained primary school level of education with about 3% having gone through college/university level of education. Few women (2.4%) had not received any formal education (Figure 2).

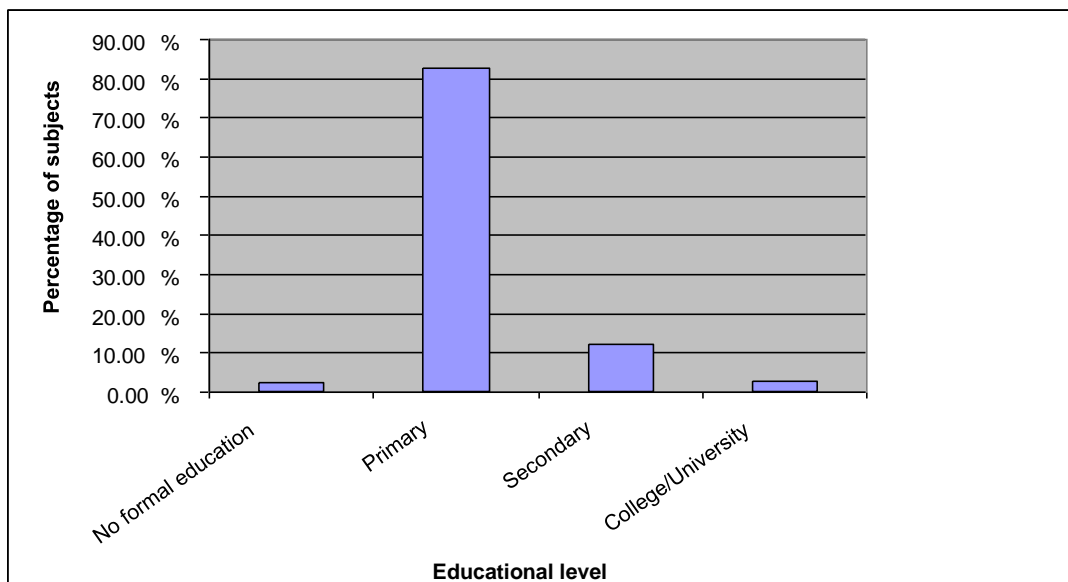


Figure 2: Distribution of study participants by educational level

Figure 3 shows the proportion of women who slept under insecticide treated nets. Overall, 74% of the women reported sleeping under insecticide treated nets while 26% reported non-use of the nets.



Figure 3: Proportion of pregnant women who slept under insecticide treated nets in the study area

Majority of those using nets reported frequent attendance to health centers for their antenatal care services. Over sixty percent (60.9%) attended ANC clinic at health centres, whereas 12.1% and 27% were attending hospitals and dispensaries, respectively (Table 1). The respondents indicated that the choice of type of health facility was based on location and proximity to their households.

Table 1: Frequency distribution of ITN users by facility type

Type of Facility	Number of study respondents (%)
Primary healthcare	27.0%
Federal Medical Centre Bida	12.1%
Umaru Sanda General Hospital	60.9%
Total	100.0%

Of those sleeping under nets a significant proportion (69%) acquired them free of charge from the Ministry of Health facilities, whereas 29% bought them, and only 1.2% had nets as a result of donation by NGOs/other donors (Figure 4). On the other hand, 85.9% of the non-users said that they were unable to afford the nets. However, a small proportion of the non-users gave other reasons such as; chemicals used are dangerous to the fetus (1.2%), did not see need for a net (7.1%) and some claimed that they had other ways of repelling mosquitoes (5.9%).

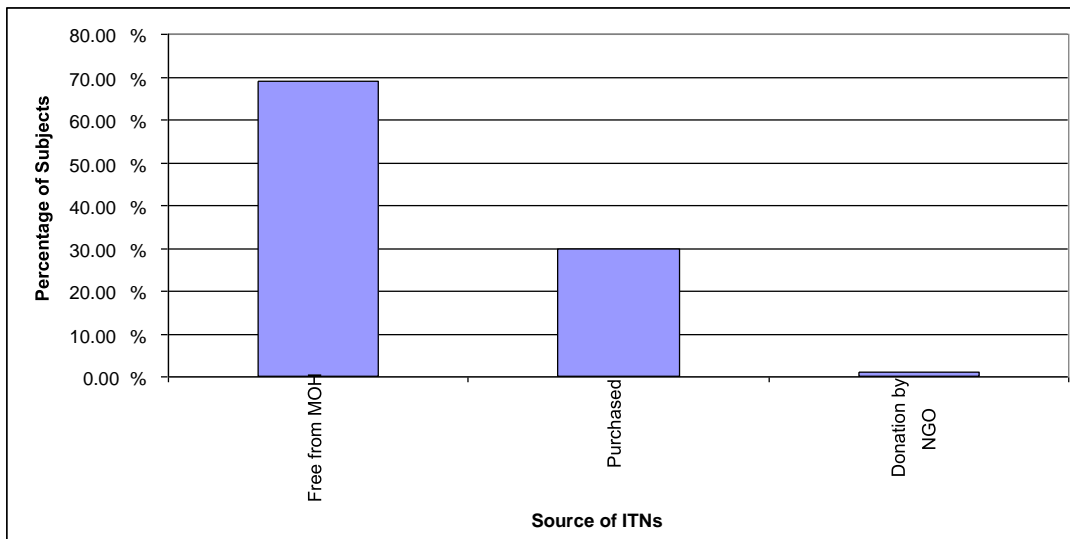


Figure 4: Source of ITNs among the users

The commonest strategy of preventing mosquito bites by those not sleeping under nets was clearance of bushes and tall grass around the compound (62.3%). Other measures mentioned were: burning of mosquito coils (26.4%), drainage of stagnant water (5.7%) and spilling oil on stagnant water (1.9%).

Majority of the study participants reported that they frequently impregnated their nets with insecticides. Over 75% of the women re-treated their nets within 12 months with majority (53.6%) of the women re-impregnating their nets within 6 months (Figure 5). However, about 20% stayed for more than 12 months before re-treating their nets with insecticides.

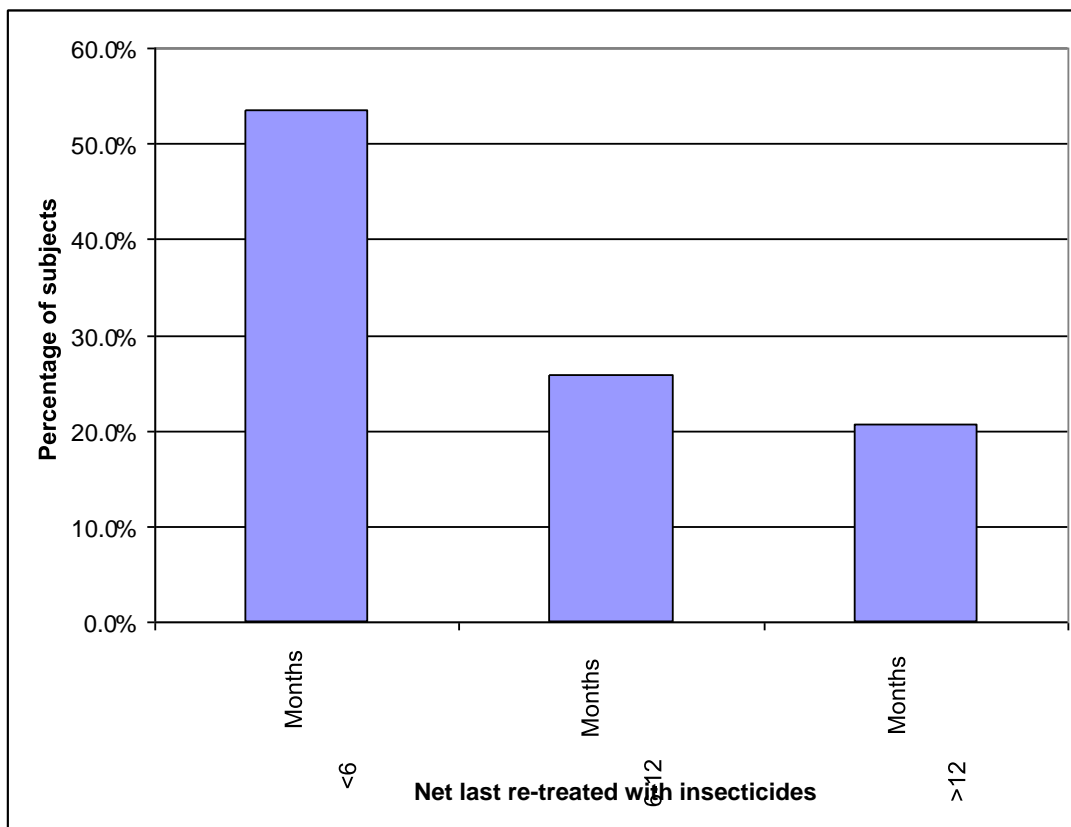


Figure 5: Re-impregnation of nets with insecticides

Conclusion

The findings of this study suggest that majority of pregnant women who attended the 2 health facilities in the study area have nets and sleep under them. The proportion of

those who had ITNs is higher than the target set by the Abuja Declaration of 2000 by African heads of State.

The findings also suggest that most women were using nets as a result of free distribution by the Ministry of Health. Non-users cited affordability as the main impediment. Inability to afford nets was as a result of most participants having low monthly household income and the majority were not in any form of employment. Re-treatment of nets was within the normal recommended interval of six months for most of the women, but the study demonstrated that a number of them took excessively too long to re-treat their nets. Knowledge on the cause of malaria was quite high among the study subjects. The study, however, revealed that some women believed that malaria had other causes (contaminated water, unhygienic food and sugary food). Lower parity level was statistically significantly associated with the non-use of insecticide treated nets. On the other hand, the older age group (>18 years) and those having positive attitude to malaria prevention practices during pregnancy were associated with bed net use among the subjects.

Having demonstrated that most women were unable to afford insecticide treated nets and, in view of the need to increase net use among this very vulnerable group, the government, through the Niger State Ministry of Health, should intensify free distribution of nets by conducting frequent mass distribution campaigns in Bida metropolis. The other possibility which the government could explore in the bid to increase net coverage is to use the existing ANC network throughout the study area. In this manner, more women are likely to be reached, since there are already mechanisms of ensuring compliance to maternal health care.

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MARKET REDEVELOPMENT PLAN FOR KAURU LOCAL GOVERNMENT KADUNA STATE

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ABSTRACT

Market been a substantial element in the existence of any city, town or nation, for it boosts the economy of any given area. Therefore, the need to plan for a functional market is paramount. The aim is to prepare a market redevelopment plan for Kauru in order to enhance its functionality, efficiency, convenience and aesthetics. .Kauru market is known for its continued pressure to contain the activities and have led to encroachment on adjoining land uses, which is as a result of congestion within the market. Furthermore, the market comprises of some problems among which are: - lack of defined plan to guide its development, lack of drainage system, developments are not up to standards, mixed and incompatible of land uses, lack of providing space and motor parks, inadequate access roads, problem of fire outbreak, lack of loading and offloading parking space. The infraction between the aforementioned problems, do not allow the market to function optimally. In the course of this research, the random sampling technique was adopted for purpose of administering questionnaires and the collections of information (data). The primary method that was used in collecting data includes oral interview, physical observation and administering questionnaires that was in relation to market development while the secondary were review on literature of market development plan, journals and textbooks on development plans. Maps also on

location of the study area, topography, infrastructure and site analysis were used. socio-economic characteristics of the market The development and planning of market are as important as the function which it serves or performs Redevelopment total clearance and the replacement of the area cleared in order to improve the environment, usually applied to place which have unhealthy conditions. It has the advantage of completely removing blight and total replacement of degenerated structures Declaring Kauru market as an area for redevelopment and appraisal for the scheme by Kaduna state urban planning and development authority (KASUPDA

Key words; Market, Redevelopment, plan, Kauru, Area

INTRODUCTION

Markets are an important component of the marketing chain from farm level to consumer. Efforts made in improving production and reducing post-harvest losses as well as investments in agricultural infrastructure, such as storage, have only a limited chance of providing benefits if the last stage in the marketing chain, retailing, is not able to pass on to the consumer the economies achieved in the previous stages.

The Longman's dictionary 2018 of contemporary English defines market as a place where people sell and buy goods in open areas or buildings.

Market can generally be referred as those authorized sites or location where transactions of goods and services take place in an organized manner at a particular site recognized by the governing authority. In Nigeria, markets as the link to economic development and they contribute to the tax base of town and cities. They offer a wide range of goods and services to its Host community as well as being a meeting place for both social and political activities.

A more acceptable definition by Onokerhoraye (1985) describes market as avenues for the exchange of goods, ideals, fashion as well as performing significant social and political function in the communities in which they are located.

Obateru (2002), explains the efficient operation of retail markets is influenced by two factors. The first is the physical environment, i.e., the market premises, access, stalls, storage and equipment. Irrespective of whether it is a street market, a shop, a covered market or a mobile facility, all aspects of the development and maintenance of the physical environment have cost implications. To maximise financial returns the

facility should be close to the customer designed according to the expected level of sales and adapted to the best preservation of the product being sold.

The development of Kauru market will help in further boosting the economy, social as well as political relationship between it and the surrounding communities or area of influence, thereby creating a very light level of satisfaction to the customer, improving the income level of traders and also the tax base of the boost community.

STATEMENT OF PROBLEMS

Market in Nigeria, mostly sprang up on incidental open space in densely settle areas, probably for the need to have a service facility to provide daily need to the inhabitants of the area. Muhammad Sani (2021), in the study “Redevolpment plan for Saminaka market Lere Local Government has highlighted the physical characteristics of market in Nigeria and their physical planning problems on a general basis. Identification of the market peculiar problem formed the basis for the identification of standards and principles applied to formulate physical planning proposal.

Kauru market is known for its continued pressure to contain the activities and have led to encroachment on adjoining land uses, which is as a result of congestion within the market.

Furthermore, the market comprises of some problems among which are: - lack of defined plan to guide its development, lack of drainage system, developments are not up to standards, mixed and incompatible of land uses, lack of providing space and motor parks, inadequate access roads, problem of fire outbreak, lack of loading and offloading parking space. The infraction between the aforementioned problems, do not allow the market to function optimally.

AIM

The aim of this study is to prepare a market redevelopment plan for Kauru in order to enhance its functionality, efficiency, convenience and aesthetics.

METHODOLOGY

The study utilized both primary and secondary data. The data collection instrument for the primary data was a self-administered survey questionnaire. Through questionnaires, the respondents freely expressed themselves, items in the questionnaire were arranged in a logical sequence according to the themes being

studied and items that elicited similar responses were grouped together. Sample frame for the study is the number of stalls used to determine the sample frame. Therefore, the sample frame for this study is twenty-seven (27) stalls. Random sampling technique was used for administering questionnaires and the collection of information (data).

HIERARCHY OF MARKETS

Hierarchy means order, rank or level. The use of these terms evolves from the work of Christaller (1933) and same by Berry and Garrison (1958). Market hierarchy therefore means the existence of orders of markets or levels or market or an arrangement of a given system of market in order of ranks. Basically, there are three types of market hierarchies recognized which are accessed based on; size, area coverage, types of commodities sold, nature of growth, location. They are classified as:

- 1. Regional markets:** these are large markets and are aimed at serving a whole urban area, state or region. They provide all sorts of major goods and services
- 2. District markets:** this type of market serves the entire district in which it is located and also immediate surrounding settlements and commodities found there include foodstuff, building materials, textiles, provision
- 3. Neighbourhood markets:** the neighbourhood markets are more of convenient shops and it mostly located at edges and centre of neighbourhoods.

Christaller (1933) deduced the hierarchy of market into 2 limits to the market Sizes (Threshold).

1. An upper limit beyond which consumers would not travel for goods and services.
2. A lower limit which therefore would have insufficient consumers to support the function.

The Christaller's model was basically aimed at overcoming unforeseen and unexpected events of special reality.

TYPES OF MARKETS

The basis for classification of markets takes place at two levels, Local and regional. At the local level, commodities from the rural areas to urban areas and vice versa. At the regional level, periodic markets are held at specific interval to replenish stocks of local markets in urban areas.

Markets are classified into 4 categories namely: -

(a) Morning markets: this type of market transactions is held between 6 in the morning and 12 noon. This type of markets is historical, old and local, are at urban-rural fringe near the defence wall around the town.

(b) Day markets: these types of market are the most common types in Nigerian towns. They are more organized, planned and distributed than the other types. They serve as entities of distribution of all sorts of commodities such as agricultural provisions, household goods/wares, textiles and herbs etc.

(c) Night markets: This type of market can only be understood in the context of cultural puffers and social tradition of the country. They are practically popular in the northern part of Yoruba land.

(d) Day and night markets: this type of market function both during the day and the night usually between 8:00am and 9:00pm.

FUNCTIONS OF MARKET

Markets provide low-cost retailing facilities based on small-scale operations and are typically found in the low and middle-income, higher density areas of cities and small towns and in the centres of villages in rural areas. The main functions of markets are:

- i. To provide opportunities for the exchange of goods and for sales by producers in rural areas.
- ii. To provide at assembly markets, opportunities for the bulking-up and export of goods and produce to outside areas.
- iii. To provide easy access to a wide range of produce for consumers.
- iv. To provide an important means of generating a diversity of retail outlets in towns and cities by supplying low-cost space for street vendors who use stalls or carts and do not therefore require buildings and
- v. To provide an opportunity to achieve improvements in food hygiene standards and reductions in post-harvest food losses.

PRINCIPLES OF MARKET PLANNING AND DESIGN.

Principles are guiding rules of a certain phenomenon. They constitute the basic truth of a situation. Principles are used to facilitate effective and efficient use of resources; some of these principles are:

1. Principles of Segregation

Vagale (1974) during his studies of markets in western Nigeria identified some specialized markets in western Nigeria like the Dasalu market for planks, Sango

market in Ibadan for cattle Oyungbo market in Ijebu-ode. This means that special markets deal on one dominant commodity. This principle could be applied to the distinguished hierarchy of market in an urban area.

2. Location Principles

This principle implies the location of commodity or commercial areas close to consumers in order to facilitate effective patronage. There are theories that exist as regard to market location which are called location theories, these theories are based on assumption which real life situation do not offer in all. These theories are;

- Central place theory
- The gravity model

The Central Place Theory

This theory was developed by Walter Christaller in 1933, he stated that a threshold population is needed to support any commercial development, he also stressed that there are different orders of goods and services and that higher order good will attract patronage from people farther away from the central place for their goods and services, he further explained that although higher order goods, attract patronage from long distances, the effort to travel to get such good diminishes as distance increases thereby necessitating the emergence of an intervening opportunity or another central place where other settlements of varying order are arranged in a regular hexagonal fashion

The Gravity Model

This is based upon the range of commodities different centers offer, Robert (1974) affirms that two cities attract retail trade from intermediate city or town in direct proportion to the square of the distance from these two cities to the intermediate town and also that the sales will relate directly to its size and the range of commodities they offer, it is expected to attract customers from a broader area and this depends on proximity of retail centres and the propensity of consumers to travel to make a purchase.

PRINCIPLE OF THRESHOLD POPULATION

This was first applied by Christaller (1933) and Berry and Garrison (1958) in their studies and they found out that population levels of various unit of an urban area are

critical determined in sitting of basic facilities there. Threshold population is therefore used in determination of hierarchies of markets and this principle was initiated from Christaller's central place phenomenon as stated above in the central place theory.

Principle of Accessibility

Good accessibility facilitates effective links between producers and consumers, buyers and sellers as the case may be. It is expected that a market is to be properly linked with good roads to enable traders and buyers reach it with minimum efforts. Christaller (1933), also states transportation principle where he assumed that all areas around a central place are to be comfortably linked with good transportation routes e.g. good roads.

Principle of Rationalized Land Use Structure and Pleasant Landscape

These has to do with provision of adequate commercial units or buildings organized open spaces public facilities, sewage facilities and effective circulation networks. A pleasant landscape element also arranged systematically on the commercial area e.g. flowers and trees to enhance qualitative aesthetic environment.

SCHEDULES OF REQUIREMENT

Kauru market is a neighbourhood market which tends to serve its immediate population from within and around its surroundings, as such certain supporting facilities are required.

Schedules for other Facilities and Services

S/N	ITEM	STANDARDS REQUIRED	EXISTING SITUATION	EXISTING SPACE AREA	ADEQUATE	INADEQUATE	SHORTAGE IN NO.	SPACE REQUIRED	PROPOSAL
1	Electricity	-	-	-	-		-	-	To be connected
2	Water	-	unconnected	-	-		-	-	To be connected
3	Toilet	1/125 stalls	-	-	-			48 m ²	24
4	Refuse collection	-	-	-	-		-	54 m ²	6 each @ 9m ²

5	Fire hydrants	70m apart	-	-	-	-	-	24
6	Police post	-	-	-	-	1	12 m2	1
7	Water reservoir	-	-	-	-	1	16 m2	1
8	Dispensary	-	-	-	-	1	15 m2	1
9	Admin block	-	1	-	-	-	28 m2	1
10	Bus stop	-	-	-	-	9	-	3
11	Restaurant	-	-	-	-	3	270 m2	3 each @ 90 m2
12	Security post	-	-	-	-	12	75 m2	12
13	Ware house	-	-	-	-	3	900 m2	3 each @ 300 m2
14	Drainage	-	-	-	-	-	-	To be proposed
15	Parking space	50 - 65/ hectare	-	-	-	210 lots	2625 m2	Proposed each @ 12.5 m2
16	Loading and offloading	-	-	-	-	3	3588 m2	3 each @ 1196 m2
17	Life stock bay	-	-	-	-	1	50 m2	1
18	Stand pipe	70 m apart	-	-	-	21	-	7
19	Hawking/open trading	-	-	-	-	-	3600 m2	Strategic location
20	Flood light	-	-	-	-	66	-	66

THE PROPOSAL

During the course of design for Kauru market, different land uses were proposed and allocated with different space area. The following are the different land uses proposed;

- i. Commercial
- ii. Circulation
- iii. Facilities, utilities and services
- iv. Open/Hawking space

The table below shows the land allocation for each proposed land uses.

Proposed land uses

S/N	LAND USES	HECTARES	M2	PERCENTAGE %
1	Commercial	3.72	37200	40

2	Circulation	1.85	18500	20
3	Facilities	1.85	18500	20
4	Open space	1.85	18500	20
	TOTAL	2.97	927000	100

Source: Field survey, 2022



Source: Google Earth, 2022

proposed Redevelopment Plan of Kauru Market

Commercial Land Use

Commercial land uses consist of the proposed stalls consisting of the small, medium and large stalls. The small stalls measures 2x3m, medium 3x3m and the large 3x4m.

Circulation

The proposal made accommodation for additional circulation system within the market so as to enhance its functionality. Three categories of roads were proposed within the market i.e., Fire engine road and the walkways.

Fire Engine Road: These roads are proposed for the purpose of taking traffic from surrounding areas into the market. The road has a width of 15m.

Walkways: These are walkways located within aisles of the stalls. They have a width of 5m. This is to enable ease delivery to individual stalls.

Proposed Road Types

S/N	TYPES	RIGHT OF WAY (m)
1	Major road	15
2	Walkways	5

Source: Field survey, 2022

Facilities, Utilities and Service

Public uses were proposed to achieve an effective market system. Such uses include; parking spaces, security post, public toilets, fire service, mosque, green market, restaurant.

a. Parking: A total of 45 parking lots were proposed within the market to enhance sanity and functionality.

b. Security Post: Security posts have been located at points of entry into the market to regulate movement and maintain vigilance within and around the market vicinity.

c. Public Toilets: A total number of 15 toilets were proposed in the market.

d. Fire Service: A fire service station is proposed to manage emergency situation of fire and other related hazards within the market.

e. Mosque: A mosques was proposed to enable traders and customers perform their daily prayers during their stay in market.

f. Restaurant: A restaurant has been proposed within the market for the customers, traders and staff of the market.

g. Green Market: An area for green market/open market is also proposed, this is to provide traders and customers seeking for perishable goods and other open market goods.

CONCLUSION

A market is usually located at a critical point in the overall marketing, transport and passenger movement system. In the case of rural areas, and in many urban areas, markets also form the main link between agricultural producers and consumers.

In formulating a market development programme, whether for a new or upgraded market, there is a great temptation to attempt to solve all the problems experienced at a market by adopting a radical physical solution. Responses to problems might include complete rebuilding, relocation to a new site or the separation of one function of the

market from the other uses. It is often found that such radical approaches may be both impractical and unnecessary. The best option may be to develop and rationalise operations on the existing site including, particularly, improving the market's management system.

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