

**SUSTAINABLE POLICY FOR, AND ENVIRONMENTAL IMPLICATIONS OF,  
MOTORCYCLE OPERATION IN A HISTORICAL CITY, KANO, NIGERIA.**

By

**Abimbola Odumosu<sup>1</sup> Aminu Yusuf<sup>2</sup> Bayero Farah<sup>3</sup> Patrick Obi<sup>4</sup>**

**Abstract**

Over the years, there has been an increase and significant growth in the volume of motorcycle use in many Nigerian cities including Kano. Kano city is an ancient city and commercial nerve of Northern Nigeria. Motorcycles are used both as a personal and “for hire” transport mode. The increase in the growth of motorcycle uses is partly in response to a vacuum created by declining public transport facilities.

However its operations in Kano city are synonymous with serious and fatal accidents and other environmental hazards.

Consequently, the objective of this paper is to highlight the comparison between the need and environmental degradation of motorcycle use in Nigerian cities, using Kano as case study.

Cordon Count and emission study were carried out. In addition, Focus Group Discussion (FGD), questionnaire administration and scheduled interview were also used.

Findings from the study revealed that from a total of 1,977,925 motorcycles that were counted within selected areas within Kano metropolis, the average Carbon monoxide emissions rate of 3.2% hydrocarbon emission rate of 4643 ppm and carbon dioxide at 4.37% with air coefficient of 1.12 were recorded. The health implications were notable.

Finally, Policy decisions are expected to be made on the establishment of emissions checking centres across the metropolitan Kano. Also Pollution Under Control (PUC) Certificate, should be introduced.

<sup>1 2 3 4</sup>**Nigerian Institute of Transport Technology [NITT] Zaria**

## **1. Introduction**

Motorcycle became a mode of public transportation in Kano state two decades ago. Before the advent of motorcycle for commercial use, various attempt were made at solving urban mobility problem. This did not yield desired result. Thus the emergency of the motorcycle into mainstream public transportation was seen by the public as a welcome development and a way to ameliorate urban mobility crisis.

However, in year 2002 the State Government bought two thousand five hundred motorcycles for the public to operate on commercial basis. Thus marked the beginning of the spread of its use to other town and cities in Nigeria notably Lagos, Kaduna, Sokoto and Katsina.

In Kano metropolis motorcycle use has assisted in providing employment opportunities to jobless youth in the city. Many of the youths are engaged in the operation of these modes of transport.

Its operation in Kano metropolis is chaotic, uncoordinated, and inefficient as a public transport. Their ability to travel on rough and bad roads contributed to the growth of their use for commercial purpose.

Kano city is an ancient city and commercial nerve of Northern Nigeria. Its transportation system cut across all modes of transport except by sea. These include; cars, trucks, buses, motorcycles, three wheelers and bicycle. The airport is used for domestic and international flights. The rail lines linked Kano to south and other parts of Nigeria.

The growth of motorcycle in Kano metropolis became noticeable in 1984. It was then seen as a major response of the government towards solving mobility problem in the city. Before then various attempt at solving urban mobility problem had not yielded the desired result. Thus the emergence of the use of motorcycle was seen by the public as a welcome development.

Motorcycles are used as personal and commercial purposes. Thus, its growth is because of ability to travel on bad road which is prominent in that area. Its referred to locally as *Roba* – *Roba* because of its flexible nature and ability to go to where public transport buses cannot navigate.

By year 2002 the number had risen to 4200. Also its commercial use rose rapidly. By 2013 a total of 1,977,925 motorcycles were counted in Kano metropolis alone. This is attributed to the fact that motorcycle use was seen as a major employment generator for jobless youth in the city.

However, its operation in the city is chaotic, uncoordinated, inefficient and fraught with danger.

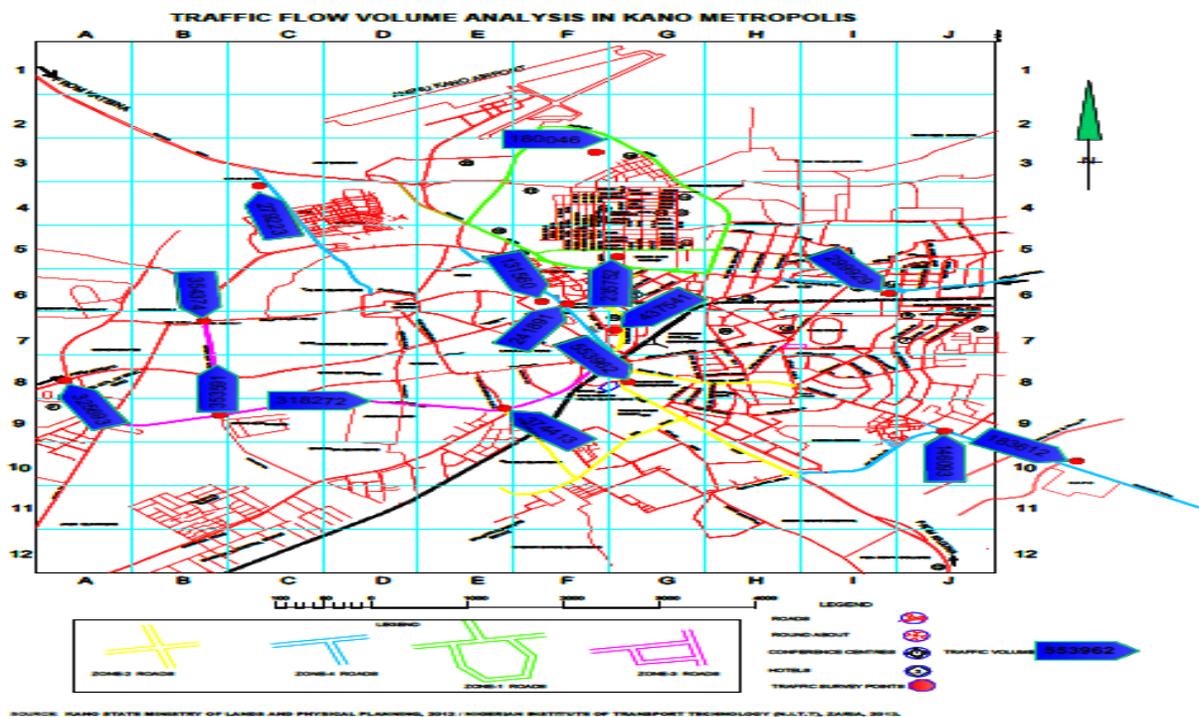


## 2. Methodology

Relevant available literature and secondary data on the study were collected. The sample size and sampling technique to be adopted during the main survey were also determined through the use of 2006 National population census figures and the membership registers of the motorcycle union as guide.

As a result, 60 enumerators were recruited for traffic count on the fifteen identified routes in Kano metropolis. A number of personnel were also recruited to carryout questionnaire interview administration and the collection of relevant secondary data.

Two sets of questionnaires were administered on operators, and commuters and users. Total number of questionnaires administered were; operators 420 and 560 users of registered operators. Respondents were selected randomly. Information elicited from the questionnaire administration included; socio-economic characteristics of riders and users, service demand and supply, fare structure, safety issues, and modes of operation. Data were analyzed using descriptive statistics methods, which includes; tables, maps, graphs, percentages and photographs for emphasis.



## 3. Issues on Road Safety

The causes of road traffic accidents as articulated by the FRSC include Human factors, Mechanical factors and Environmental factors.

Human Factors- such as lack of skill in driving, poor knowledge of traffic signs, rules and regulations, over speeding, driving under the influence of alcohol, over loading and dangerous overtaking has been noted as human factors that contribute in one way or the other to accidents on our road. Ohakwe in the study of Obinze/Nekede/Iheagwe road in Imo state found that 30.3% of the accidents recorded on the road were traceable to human factor due to reckless driving. Other studies carried out by Onakomaiya and Salifu aptly painted the picture of how human factors have contributed in no small way to the road traffic accidents recorded in Nigeria and Ghana respectively were a combination of largely illiterate or inexperienced or drunk or over-confident drivers, unconcerned about the lives of other road users are saddled with the enormous responsibilities of safety while driving. Also most of the motor garages spread across the country are filled with spots where alcohol is freely sold to both drivers and passengers alike.

It is important to note that 60% of accidents occurring on the roads are attributable to human factors; therefore to effectively reduce the carnage on our roads the different roles played by the road users must be thoroughly examined.

Mechanical Factors- Poor vehicle maintenance, failure of engine system, break system and electrical system are the various mechanical factors that have been enumerated to contribute to road traffic fatality in Nigeria. Ohakwe in the study of the road in Imo State noted that 21.5% of the RTA was due to inexperience and mechanical faults.

Environmental Factors- Poor road conditions, absence of road signs, parked, abandoned or broken down vehicles on the roads without adequate road signs and poor weather conditions have all been implicated as some of the causes of RTA on our roads. Ohakwe noted in the study that 21.1% of the accident recorded was due to poor road conditions. With only about 40% of actual road development funding requirement being met by government and only about 25% of actual road maintenance need being met through budgetary allocations, environmental factor issues also significantly contribute to the present situation in the country as depicted in Odeleye J.A. article on Improved road traffic environment for better child safety in Nigeria where he clearly showed a comparative disparity in budgetary spending on roads between the developed and developing countries of the world.

The operators of these modes of transport play the same routes with buses. However, in terms of regulators no serious regulation is put in place by the government to regulate and control activities of the motorcycle and three wheeler operators within Kano metropolis. This in many instances revisits to chaotic, uncoordinated, inefficient and poor public transportation system, hence there is generally no standard in the entire operation of these means of transport within Kano metropolis. Furthermore, as part of the operation of motorcycle and three wheeler in Kano metropolis, there are undersigned and on official park that these mode of transport have developed for themselves irrespective of the effects on other road users as well as the impairment of free traffic flow and safety conditions many a times they obstructs the flow of traffic thereby creating congestions. More often they not these are problems associated with these means of transportation system within the Kano metropolis, they include the following:

- i. Lack of spare parts for effective repair and maintenance, due to this problem many three wheelers and motorcycle have been abandoned and remain unserviceable.
- ii. Absence of traffic segregation between motorcycles, three wheeler and other traffic user, this often create traffic conflicts in the metropolis.
- iii. Over speeding by the riders of these modes of transport which often result into loss of lives and in some cases fractures.

#### **4. Results and Discussions**

Nigeria was ranked 191 out of 192 countries of the world in the year 2013 with unsafe roads and available data show that at least Eleven (11) Nigerians die on daily basis from fatalities caused by road crashes in the country and Forty eight (48) sustain different degrees of injuries or the other based on the annual report by the Federal Road Safety Commission of Nigerian (FRSC).

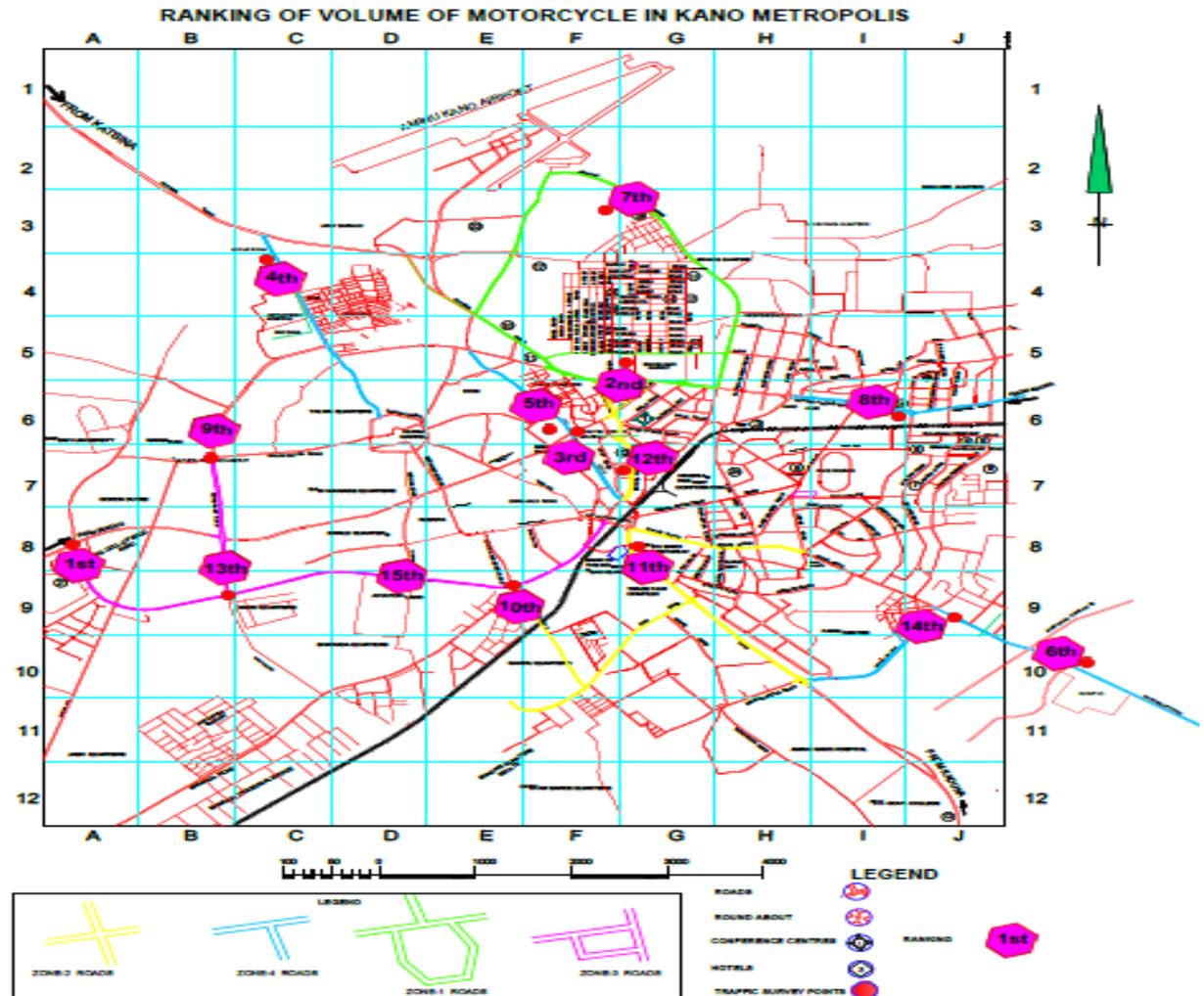
Alcohol and drug utilisation especially during festive periods of the year such as the Christmas and Sallah periods by most motorist and pedestrians have been found to be high which has necessitated the FRSC during such period of the year to carry out enlightenment campaign in motor parks and garages on the dangers involved. Also the designs of roads in the country generally do not take into cognisance pedestrians, cyclist etc as in most cases the roads are built solely for the vehicles thereby creating an easy avenue for road traffic crashes to take place once any of the road user gets drunk or tipsy. In addition alcohol and enhancing drugs are freely sold in most motor parks and garages in the country.

The main industrial Union for motorcycle operators is called ACOMORAN. It has one million, five hundred fully registered members and addition one million associate members who are not on their register. It is a male dominated industry. The repair technicians are individuals, unorganized and operate on road side. They operate mainly on congested routes within the metropolis.

Distance and time of the day affect the fare charged. Commercial motorcyclist enjoy patronage, because it offer flexible services and can easily maneuver in traffic congestion. 68.7% of users confirmed that they have been involved in accidents. Because of culture and religion reasons users of motorcycles prefer not to use safety helmet. Recklessness of the riders account for 70% of recorded accident.

The result from observatory survey on motorcycle operation within Kano metropolis showed that, overloading, riding against traffic (contra flow), over speeding, and disregard for safety helmet, are prominent among the operators

Furthermore, the use of drug and alcohol is significant among the respondents. 67.2% of the respondents explained that they take some form of energy drink. 13.4% also smoke marijuana. In addition, 10.4% and 6.0% respondents claimed they take all from of energizers and alcohol respectively. The implication of this is increase accidents and unsafe road environment.



A total of 1,977,925 motorcycles were counted on the entire routes, with an average Carbon monoxide emissions rate of 3.2%, hydrocarbon emission rate of 4643ppm and carbon dioxide at 4.37% with air coefficient of 1.1λ.

The following indices were recorded from focus group discussions. That using motorcycle as a means of transport within Kano metropolis are; faster, flexible, generates employment but creates health problem and is unsafe.

## Recommendations

- i. Road Taxing for motorcycles.
- ii. Separation of motorcycle Lane will reduce accidents,
- iii. Motorcycle circulation restriction
- iv. Total withdrawal of polluting motorcycles from circulation.
- v. Implementation of mandatory safety helmet use
- vi. Provision of exclusive lanes for motorcycle
- vii. Technology application e.g. installation of monitoring devices (red light cameras and speed cameras).
- viii. Periodic training of commercial motorcycle riders.

## Conclusion

The study has shown that motorcycle operation is unsafe, and loosely regulated, notwithstanding its employment and income generation capacity.

Consequently, the authorities need to institutionalized a regulatory regime that will curtail the recklessness of motorcycle riders in Kano in particular and Nigeria in general.

Finally, enlightenment campaign for operators on risks involved and the need for safety, needs to be addressed aggressively

## References

### References

Onakomaiya, S. O. **Unsafe at any Speed: Towards Road Transportation for Survival.**

University of Ilorin Monograph, Ilorin, Nigeria 1988.

Salifu M. **Urban Pedestrian Accidents in Ghana.** Int. Ass of Traffic Safety Sciences

(IATSS) 20 (1) pp 1996.



**ENERGY, CLIMATE AND AIR QUALITY CHALLENGES:  
THE ROLE OF URBAN TRANSPORT POLICIES IN DEVELOPING COUNTRIES**  
2 - 5 FEBRUARY 2015, ISTANBUL - TURKEY ITU MAÇKA CAMPUS

Odeleye, J. A. Improved road traffic environment for better child safety in Nigeria. Submitted for presentation at the 13<sup>th</sup> ICTCT workshop

Ohakwe, J., I.S. Iwueze and D.C. Chikezie, 2011. Analysis of road traffic accidents in Nigeria: A case study of Obinze/Nekede/Iheagwa road in Imo State, Southeastern, Nigeria. Asian J. Applied Sci., 4: 166-175.

Ogunsanya, A and Galtima. M. (1993) – Motorcycle in public passenger Transport service in Nigeria; Case study of Yola town in urban Passenger transportation in Nigeria, Ikya S.G. (ed), heinemann Education book Nig. Plc, Ibadan.