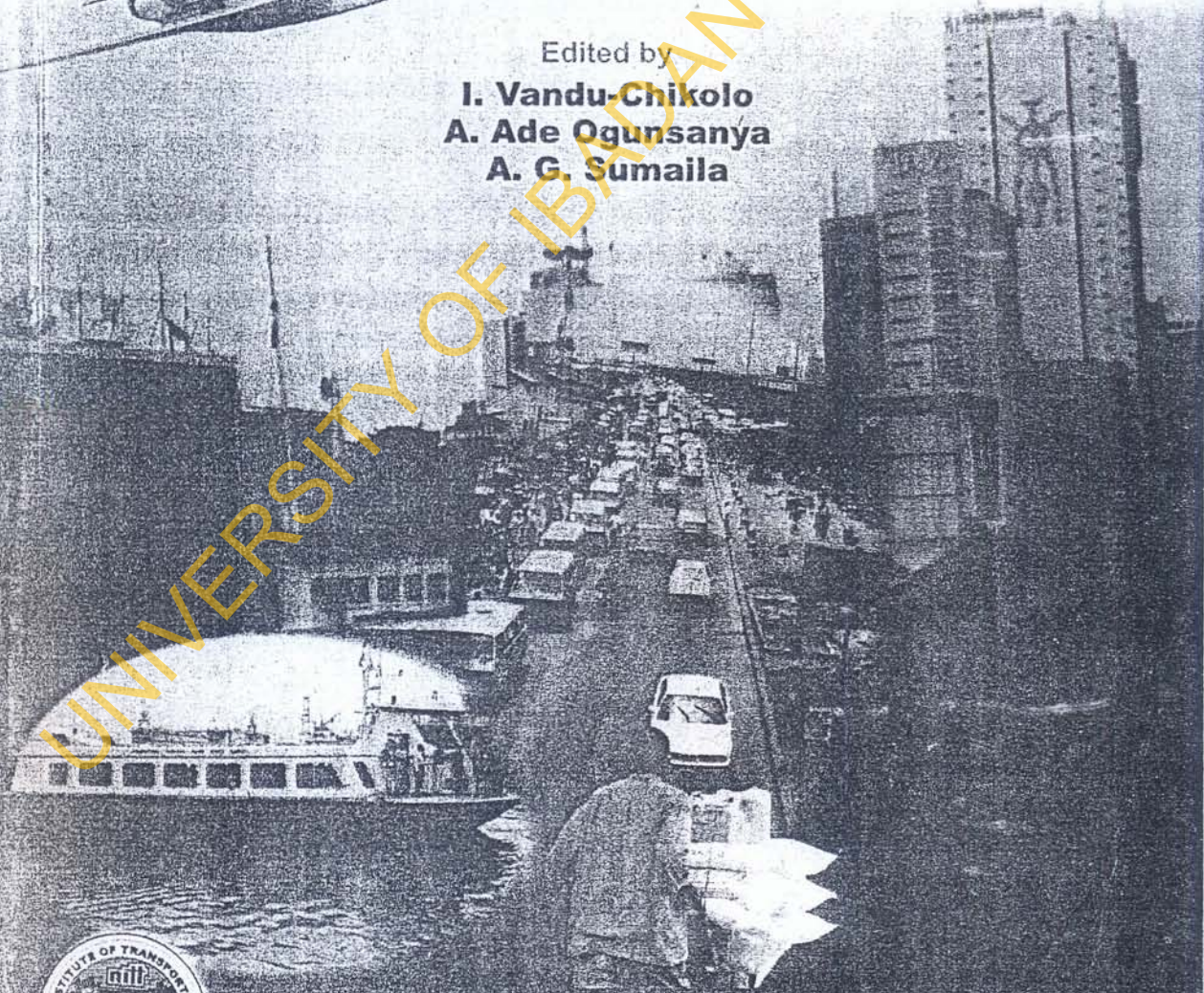
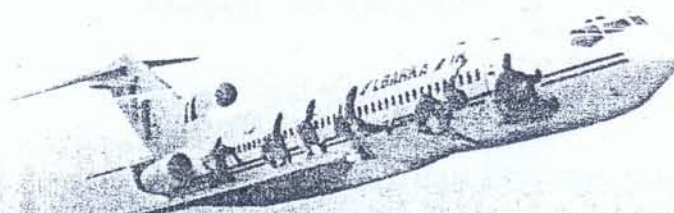


*Perspectives*  
*On Urban*  
**Transportation**  
*in*  
*Nigeria*

Edited by

**I. Vandu-Chikolo**  
**A. Ade Ogunsanya**  
**A. G. Sumaila**



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Edited by I. Vandu-Chikolo, et al

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## CHAPTER FIFTEEN

### SPECIAL ISSUES IN URBAN TRANSPORTATION IN NIGERIA

By  
G. T. Arosanyin  
and  
O. Ipingbemi

#### INTRODUCTION

The city without transportation is moribund. Cities and transportation are interdependent both as cause and effect. As cities and transportation evolve simultaneously, some special effects are created. Sometimes such effects are a reflection of the economic, political and social environment within which the city and its transportation system are embedded. In Nigeria these effects, which we have here named special issues, are many and are often not captured in typical urban transport research. Nevertheless, they have become part and parcel of Nigeria's urban transport experiences. Though often ignored, they are no doubt vital for improving urban transport service delivery if they are regulated, properly monitored and managed. Some of these special issues about which this chapter is concerned are, walking as a form of transport, parking, car wash services, prayers inside vehicles, child labour, street trading etc. The exposition in this chapter is anchored on participant observation of the authors spanning some years as road transport users, operators and researchers. The use of participant observation approach is highly justified in transport research particularly in Nigeria where the bulk of true information required may not be obtainable through questionnaires. Secondly, the approach allows the researcher to experience the real issues for a better understanding and proper documentation. The special issues discussed in this chapter are restricted to urban road transportation.

## WALKING AS A FORM OF URBAN TRANSPORT IN NIGERIA

Walking is an important form of transport in urban centres of Nigeria. It accounts for more than 80% of short-distance trips that take place in urban centers. This is not surprising as Maunder *et al* (2002) Howe and Dave (2002) have similarly observed the prevalence of walking as a mode of transport in many African countries. Walking constitute the first and the last leg in trip making (see Fig. 15.1). For longer distances, walking is the last resort in the face of inadequate and non-existing transport services. This is particularly the case in most urban centres of Nigeria during fuel scarcity or when as a result of a mass action vehicles are withdrawn from roads. Unfortunately, 98 percent of motorized intra-city movements in Nigeria depend on fuel. Therefore, whenever fuel scarcity is experienced, a substantial proportion of Nigerian urban dwellers resort to walking. Various individuals with different demographic status rely on this means to get to their desired places of work, while other members of urban population walk to some important locations such as banks, post office, medical centers etc so as to meet their basic needs and consequently improve their living standards.

The urban populace most especially the urban poor who cannot afford the cost of public transport walk to perform their various daily activities. The advantage of walking is not limited to its being cost free. It is also environment-friendly, as it is now regarded, globally as an exercise that promotes good health. In spite of these presumed benefits, intra-urban commuters in Nigeria walk in intense heat and this has negative effects on their time, productivity, health and general quality of life. For people who walk using umbrellas, raincoats to avert weather hazards, their walking provides effective demand for these products. Apart from the weather related hazards of walking, pedestrians run the risk of being hit by vehicles. This is because walkways or pedestrian ways are inadequate. In some cases they are taken over by traders who display their goods for sale or, parked vehicles. The walkways are abodes for beggars and destitute, refuse, etc. The pedestrians are

left with no option than to share the road with vehicles. On very busy roads, pedestrian bridges are not provided. In the few places where they are provided, pedestrians do not use them. Thus, the pedestrians are exposed to safety hazards and pollution and its attendant health risk (Arosanyin 1999, 2001).

Walking as a form of urban transport will continue to be part of the urban transport system no matter the level of sophistication of transport in the cities. What is required in Nigeria is a proper urban transport planning aimed at accommodating pedestrians. In this regard, adequate walkways should be provided on urban roads, pedestrian crossing and bridges should be put in place and their use enforced; urban destitute should be rehabilitated and effective urban waste management should be encouraged. All these have the potentials of protecting urban pedestrians.

## **STREET TRADING**

Streets are designed for commuters. They are therefore used by motorists, pedestrians, and for on-street parking. The use of streets for trading is an aberration, and an abuse of business. Street trading which is a common phenomenon in Nigerian cities can be categorized into two: stationary trading on the street and trading-on-motion. In stationary trading on-street traders display their goods either by the road, on the road, in parking spaces, or pedestrian walkways (see Figure 15.2). These are observable during the day and early evenings. During the evenings illumination is obtained from lamps called "Jango" or "Amoritanna" (Arosanyin 2001). The second category of street trading refers to mobile traders. They are of two types: those who move their goods in vehicles, motorcycles, bicycles, wheelbarrows, and sell their wares to buyers along the roads. They heavily obstruct traffic. The second form in this category are those who carry their wares and manouvre within slow moving peak hour traffic persuading commuters to buy. Examples of traders in this category are newspaper vendors, packaged water vendors, vendors of rechargeable card for GSM, snack vendors (see Fig. 15.3). Because they compete with



other vehicles for the use of the road, albeit illegally, they expose themselves to serious accidents.

These street traders include the young and the old, whose major qualification for street trading is poverty. Their inability to rent shops is due in part to the high rents coupled with the fact that the worth of the goods they sell are so small to warrant the renting of a shop. Surprisingly, this street trading thrives as they enjoy the patronage of customers who believe that the prices of items sold on road sides are cheaper than those sold in shops. To the buyers there are advantages. Street traders provide easy access to markets for commuters who may not really have the time to do small purchases in congested cities. Unfortunately, there is little or no 'effort' being made by the government to control these activities.

The effects of street trading are many and varied. On the urban transport system, it reduces the road space available, for parking and vehicle movement. The aesthetic value of our roads and streets are impaired, and the already congested road is worsened by this human traffic that have no business on the roads. Rescue and emergency services are inhibited and frequent accident, noise and air pollution become the order of the day. Commuters too are not spared of some negative consequences such as purchase of fake and expired items, snatching of commuter's bags and jewelries and other valuables, by thieves who often intermingle with the street traders.

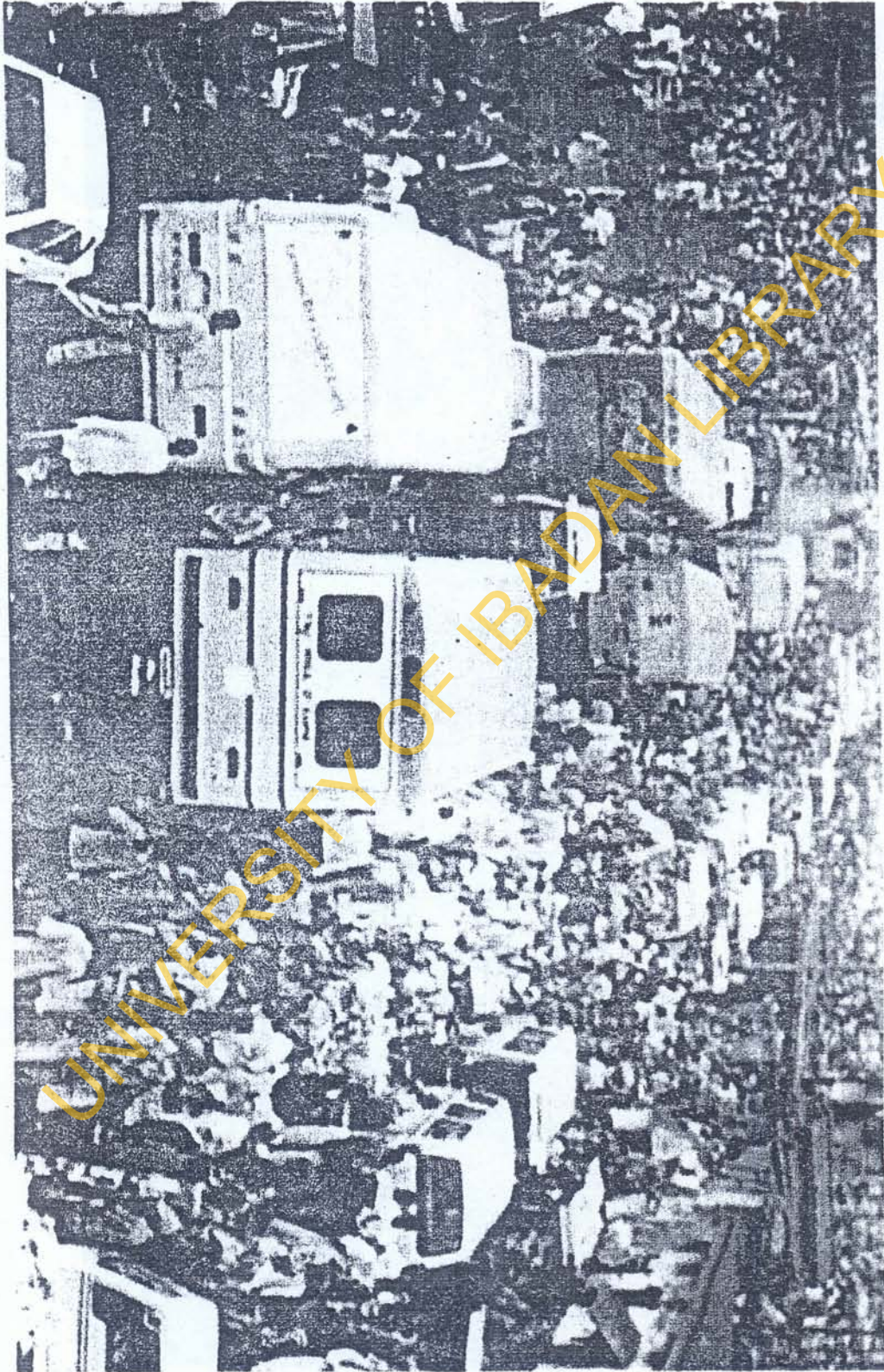
Given the risks associated with street trading in the urban system in Nigeria, it therefore becomes imperative to tackle the phenomenon. At the general level, the government should address the poverty rate. Today about 70 percent of the Nigerian population live below the poverty level. Once there are alternative and better sources of livelihood, people will normally desist from difficult and risky street trading and hawking.

## CHILD LABOUR IN THE NIGERIAN URBAN TRANSPORT SYSTEM

Child labour has now become a global phenomenon. The International Labour Organization (ILO) has described child labour as any child who is below 14 years of age and works for the survival of either himself/herself or that of his family or both. Child labour is hidden because it is prevalent in the informal sectors of the economy. In spite of its hidden nature, the International Labour Organisation estimates that there are 246 million working children in the world and 179 million of these are engaged in activities that put them in danger (DFDI 2002). One of these dangerous activities has to do with urban transportation.

Child labour in Nigeria's urban transportation is evident in three major areas. As 'Agbero' these kids assist in soliciting for passengers for public transport and in the loading and unloading of passengers luggage. The second category is the bus conductors. They act as driver's assistants, collecting fares and facilitating boarding and disembarking of passengers from buses. Some bus conductors double as 'agberos' too. The third category are those that serve as alternate drivers. Although they are not usually allowed to have full control of the vehicles, they assist the drivers with the parking of the vehicles and with taking the vehicles to car wash bay or the mechanics workshop. These alternate drivers are sometimes apprentices or trainees and do not have driving licenses. This occasional driving constitute part of their on-the-job training. Apart from the above categories of child labour, which are directly involved in urban transportation, there are other evidences of child labour in supportive services to the urban transport system. These include car wash services, vulganizing jobs, vehicle repair services, the "alaarus" (load carriers) etc. In some of these services, the evidences of child labour are more of apprenticeship programmes.

These children are generally from poor families, although some of them do it to help their parents who are probably the owners of the business as is found in vulganizing and car wash services. This category



*Walking as a form of urban Transport*

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*Street trading on pedestrian walkway and parking spaces*



who work for their parents do so on part time basis that is after close of school. However, the bulk of children engaged in these activities that are not owned by their parents are into it because of poverty and they seldom attend schools.

The earnings these kids make from these activities are meagre compared to their needs. The gap thus created between what they have and what they need is usually filled by resorting to stealing, touting and thuggery. These children are exposed to smoking particularly marijuana, and to excessive drinking of alcohol.

The above abuses and risks call for concerted efforts aimed at preserving the child life if the future of Nigeria is to be guarantee particularly on the road transport corridor. There is the urgent need for the government to enforce the International Labour Organisation convention about working age particularly in the informal sectors like the urban road transport sector. In enforcing this convention, the government must offer alternatives to engage these youth. This alternative can be sourced in education to a minimum level. The government should consider education to the Senior Secondary School level a minimum as the right of the child. This is because the child would proably be around 18 years after completing the Senior Secondary education. The government must be prepared to pay or subsidize education to the minimum level, if not majority of the children may drop out of school due to inability of their parents to pay the cost of education, thereby exacerbating child labour.

## **PARKING**

The basic aim of urban traffic management schemes and policies is to achieve increased and sustainable urban transport efficiency by enhancing the capacity of the urban transport system to move people and goods, and ensuring that full potential capacity is realized from the existing facilities (Cranknell, 1987). The potential capacity of the road however, is often inhibited by indiscriminate parking and uncontrolled loading and unloading of vehicles. The provision of functional parking sub-system is an integral element of the urban transportation system.

The vigour and vitality of any urban area is a function of adequate and regulated supply of car or vehicle parking spaces to ensure that motorists park relatively close to their final destinations.

By way of definition parking supply is the number of legal parking spaces available in a given area. It could be private or public parking supply. Private parking supply are parking spaces provided for employees or customers of a business or organisation and are not available for public use. Public parking supply refers to parking spaces available to the general public either free of charge or for a fee. The parking situation in most Nigerian cities is chaotic. In most cases parking demand is in excess of parking supply. This therefore leads to parking deficiency. The available parking spaces are often taken over by destitutes, street traders, and refuse. The parking deficiency is more pronounced in down-town areas than planned areas of the cities. Two major reasons are responsible for parking deficiency in urban areas of Nigeria. These reasons can be viewed from both the supply side and the demand side. On the supply side, the spaces available are grossly inadequate. The inadequacies of parking supply are due to poor urban planning and encroachment on existing parking spaces. On the demand side, there has been a tremendous increase in the number of vehicles in Nigeria and consequently in urban areas. This has created a high demand for parking spaces. As parking supply falls, and parking demand rises, the degree of parking deficiency is increased. The consequences of this high parking deficiency are; total blockade of roads in some cases; narrowing of available road spaces; reduced vehicle speed, increased travel time; slow to almost impossible emergency and rescue operations, etc. (see Fig. 15.4)

Various parking policies have been implemented overtly or covertly in Nigeria in the past to reduce parking problems. These include day exemption system (odd/even number plates) (Ogunsanya, 1981), use of fines, towing of illegally parked vehicles, wheel clamps, etc. These programmes were, however, state-specific, which justifies the need for a national parking policy since parking deficiency has assumed a national character. The national parking policy should take cognisance of the land use pattern of the urban areas, culture, conditions of road

network, vehicle flow, etc. Within this national parking policy, the peculiarities of individual urban areas should be recognized and addressed with specific parking scheme.

The parking schemes for any urban centre should be evaluated in terms of relevance, operationality and sustainability. The parking schemes could take various forms such as street garages and parking lots, parking metres, parking disc, resident parking cards, park and ride etc. In any of the schemes chosen, it must achieve a fair balance between short-stay parking and long-stay parking. Above all the success of any parking policy and schemes within the policy in Nigeria is highly dependent on implementation and enforcement. The successful enforcement of any parking policy/schemes in Nigeria is largely dependent on three intertwined issues.

- \* The legislation on parking in urban centres must be sufficiently adequate in addressing the various parking constraints and have appropriate legal backing which stipulates the regulations and fines or penalties for violation of parking rules.
- \* There must be a consensus about the enforceability of the legislation. The agency to enforce the legislation must be adequately equipped in terms of finance, personnel and equipments to perform its statutory roles.
- \* The judicial requirements must be guaranteed to effectively prosecute violators with minimum delay. The procedure for the payment of penalties must be made easy. The options include on-the-spot payment, deferred payment, etc.

While the above factors are crucial for effective parking policy implementation in Nigeria, the government at all levels must be committed to the issue on a sustainable basis so that the evaluation of the various schemes could be easily done to guide future course of action. The private sector should be involved in resolving the parking crisis bedeviling Nigerian cities. The involvement of the private sector could be in the provision of parking systems, management of parking schemes in the form of management contract on behalf of the government, etc.

## PRAYERS INSIDE VEHICLES IN NIGERIA

People across space and time have prayed to God and other deities for intervention in their lives and activities. Prayer is central to any religious belief. In most cases prayers are usually offered in designated places of worship and other places deemed fit by the people concerned.

Prayers are offered either secretly or openly. Secret prayers are confined to the mind of the person offering the prayer while open prayers are offered in most cases by more than one person, and where other people participate in joint vocal prayers. In Nigeria the "prayer ground" has been extended to the bus and public vehicles on urban roads. On commencement of a trip, or when the vehicle is in motion, it is not unusual to find passengers in vocal prayers or singing religious songs. It is therefore pertinent to ask, have our motor vehicles been turned into places of worship? What do they pray for and why? Commuters and drivers pray for several reasons. Apart from the self imposed obligation to pray and commit everything to God, trip makers pray for safe trips, against attack of armed robbers, police delay and accidental discharges, kidnappers vehicle break down among others. It is a general feeling of people that with or without their efforts, with prayers, God will grant them virtually anything.

Out of the above reasons accident-free journey is the most crucial due to the high accident and casualty rate on Nigerian roads. The fact that most people in Nigeria fast and pray before travelling on Nigerian roads is an indication of road safety policy failure. A critical appraisal of road accident situation in Nigeria justifies the need for "divine intervention". Table 15.1 shows that between 1970 and 1997 a total of 747, 374 accident cases were reported which led to 825,392 reported casualties. A look at the accident indices in columns 5, 6 and 7 shows that road accidents is high and therefore a problem in Nigeria. In 1970, there were a total of 180.41 accidents per 10,000 square km. This increased to 401.55 in 1982. The lowest casualty of 173.71 per 10,000 square kilometer was recorded in 1970, while the highest was 437.74 in 1981.



*Street trading on motion*



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*Parking problems: Note on street parking, no drivers in the vehicles. This type of parking forces the pedestrian to walk in middle of the road thereby exposing himself to road hazards*

In terms of casualty per 10,000 population the range is between 1.75 in 1996 and 6.21 in 1977. These indices are on the high side which probably justifies why people pray for 'safe arrival' whenever they are travelling. Apart from the indices above, the costs of casualties are also enormous for the nation. These costs of casualties are shown in column 8 of Table 15.1. The costs were computed by Arosanyin (2000) using human capital costing method. It shows that Nigeria lost about ₦46.6 billion to road accident casualties between 1970 and 1997. In a resource trapped and debt ridden economy like Nigeria, the cost is enormous. There is therefore an urgent need for stakeholders in the road transport sector to address the issue beyond prayers. Critical issues in the prevention and reduction of road accidents in Nigeria should embrace education, enlightenment and enforcement options in the short run and engineering measures in the medium and long run. The Federal Road Safety Commission (FRSC) should be seen as an intervention outfit to address the crisis on our roads with professional touches. If this is to be done, the current arrangement in which the FRSC is under the police should be reversed so that the FRSC could function independently under the supervision of the presidency and not the police (See Table 15:1).

## **CAR WASH SERVICES IN NIGERIA URBAN TRANSPORT SYSTEM**

The use of vehicles for passenger and goods movement within and outside the cities is not only to be done with minimum delay, less cost, and less risk but with the maximum possible comfort. One of the factors that can reduce maximum comfort in the use of vehicles is the state of cleanliness of the vehicle particularly the interior. The cleanliness of any vehicle could be in respect of the outside or the inside. Because of the bad nature of Nigerian urban roads, which in many cases are not tarred, and those tarred are littered with potholes, vehicles are generally dirtier during rainy season than during dry season. The vehicles have to be cleansed daily and the inside constantly disinfected to ward off cockroaches, bugs and other insects. It also has to be deodorised

to eliminate offensive odours. A vital segment of the road transport industry that ensures cleanliness of vehicles is the car wash industry, which is a service provider.

There are commercial car washers providing car-cleaning services at cost. They locate along major roads where pipe borne water is available and constant. When there is water failure, they rely on installed ground pit or cisterns in which they have stored water, which they use for washing vehicles. The pits are either rented or individually owned. The charges depend on the types of vehicles, location of business and availability of water. The business provides employment and income (full time or part time) for thousands of Nigerian male youths. There are no special machines or tools for washing cars except rags, brush, buckets and small vacuum cleaners. Apart from the commercial car washers, car owners do clean their cars for themselves that is "do it yourself". At times, they engage the services of their wards or relations to do the cleaning for them. In most of these cases, payment in cash is usually not made.

The location of commercial wash bays is risky and calls for concern. Because they are found along major roads, vehicle entries and exit from the bays sometimes lead to accident. This would not be so if they were located off the main road. The wash bay operators have queer business tactics of staying on the road to attract and solicit for customers. This poses additional safety risks to their lives. Like activities in the informal sector, car wash industry is also part of the informal road transport sector, which is highly unregulated. The operators' seldom pay taxes on their income except the charges for the use of public water and space.

## **CONCLUSION**

This chapter has tried to provide an insight into some "special issues" in the Nigerian urban transportation system. The special issues are by no means exhaustive. Other issues include the "load carrier", road transport unions motor interchange point touts; repair services mechanics, panel beaters, etc among others. These issues are crucial

TABLE 15.1

## ROAD ACCIDENT STATISTICS IN NIGERIA 1970-1997

| Year (1) | Population (2) | Total Accidents (3) | Total Casualty (4) | Casualty per 10 <sup>2</sup> square kilometer (5) | Accident per 10 <sup>2</sup> square kilometer (6) | Casualty per population (7) | Cost of casualties (8) ₦ |
|----------|----------------|---------------------|--------------------|---|---|-----------------------------|--------------------------|
| 1970     | 53,916,651     | 16,666              | 16,047             | 173.71  | 180.41  | 2.98                        | 684,057,681              |
| 1971     | 54,904,940     | 17,745              | 17,798             | 192.67  | 192.09  | 3.24                        | 758,221,714              |
| 1972     | 55,911,344     | 23,387              | 20,082             | 217.39  | 253.17  | 3.59                        | 909,792,718              |
| 1973     | 56,936,196     | 24,844              | 22,691             | 245.64  | 268.94  | 3.98                        | 1,047,045,927            |
| 1974     | 57,979,833     | 28,894              | 23,652             | 256.04  | 312.78  | 4.08                        | 1,138,378,675            |
| 1975     | 59,042,600     | 32,651              | 25,684             | 278.04  | 353.45  | 4.35                        | 1,259,620,211            |
| 1976     | 60,124,847     | 53,897              | 34,916             | 377.97  | 583.45  | 5.81                        | 1,571,760,622            |
| 1977     | 61,226,932     | 35,841              | 38,023             | 411.61  | 387.99  | 6.21                        | 1,825,564,000            |
| 1978     | 62,349,218     | 36,121              | 38,106             | 412.51  | 391.02  | 6.11                        | 2,050,241,731            |
| 1979     | 63,492,075     | 29,271              | 29,225             | 316.37  | 316.81  | 4.60                        | 1,737,997,043            |
| 1980     | 64,655,881     | 32,113              | 34,221             | 370.45  | 347.63  | 5.29                        | 1,917,773,447            |
| 1981     | 66,790,998     | 35,094              | 40,437             | 437.74  | 388.69  | 6.05                        | 2,330,297,705            |
| 1982     | 68,433,499     | 37,094              | 39,922             | 432.16  | 401.55  | 5.83                        | 2,450,077,625            |
| 1983     | 70,694,957     | 33,029              | 35,686             | 386.31  | 357.55  | 5.05                        | 2,153,606,198            |
| 1984     | 73,035,495     | 28,888              | 32,151             | 348.04  | 312.72  | 4.40                        | 1,912,870,648            |
| 1985     | 75,453,585     | 28,976              | 32,804             | 355.11  | 313.67  | 4.35                        | 1,989,559,198            |
| 1986     | 77,941,196     | 25,118              | 30,330             | 328.33  | 271.91  | 3.89                        | 1,773,086,707            |
| 1987     | 80,482,085     | 24,206              | 28,444             | 307.91  | 262.04  | 3.53                        | 1,661,580,784            |
| 1988     | 83,164,350     | 25,792              | 34,252             | 370.79  | 279.20  | 4.12                        | 2,009,802,600            |
|          | 84,910,801     | 23,242              | 31,503             | 341.03  | 251.60  | 3.71                        | 2,005,525,122            |
|          | 86,693,928     | 21,827              | 28,097             | 304.16  | 236.28  | 3.24                        | 1,883,580,171            |
|          | 88,992,220     | 21,173              | 31,409             | 340.01  | 229.20  | 3.53                        | 1,864,395,291            |
| 1992     | 91,346,965     | 22,489              | 34,881             | 377.59  | 243.45  | 3.82                        | 2,040,656,322            |
| 1993     | 93,595,313     | 21,734              | 34,135             | 369.52  | 235.28  | 3.65                        | 2,085,455,008            |
| 1994     | 96,763,498     | 18,523              | 26,600             | 287.95  | 200.52  | 2.75                        | 1,642,409,184            |
| 1995     | 99,501,902     | 15,830              | 19,514             | 211.24  | 171.36  | 1.96                        | 1,308,610,836            |
| 1996     | 102,317,806    | 14,587              | 17,939             | 194.19  | 157.91  | 1.75                        | 1,172,815,415            |
| 1997     | 105,212,677    | 17,530              | 26,843             | 290.58  | 189.77  | 2.55                        | 1,428,630,008            |
| TOTAL    |                | 747,374             | 825,392            |   |   |                             | 46,613,419,186           |

Note: The land mass of Nigeria is 923,768 square kilometer.

Sources: Column 2: Federal Office of Statistics; Columns 3, 4 and 8: Arosanyin (2000:445); Columns 5, 6 and 7: Authors' computations

and they contribute positively or negatively to the operation of urban road transport system. The positive issues should be encouraged and organized while the negative issues should be eliminated through proper regulation.

## REFERENCES

Arosanyin, G.T. (1999) "Vehicular Air Pollution: Research Needs and Reduction Options for Nigeria" *The Trainer*; Vol. 1(5): 1-11

Arosanyin, G.T. (2000) The Economic Costs of Road Accident Victims in Nigeria *Indian Journal of Transport Management* Vol. 24 No. 6: 441-449.

Arosanyin, G.T. (2001) "The Costs of Vehicular Air Pollution in Nigeria" *Advances in Management* Vol. 2(2): 104-116.3.

Cracknell, J.A. (1987) "Traffic Management Options" In Heraty M.J. (ed) *Developing World Land Transport* London: Grosvenor Press International: 293-295.

DFID (2002) : *Department Issues* 19:8 Department for International Development

Gunn, E.O. (2000) "Road Transport in Nigeria: Cultural and Attitudinal Overview" *The Trainer: Management Issues in Transport* Vol. 1 No. 6: 1-8.

Heil, M. and Pargal, S. (1998) Reducing Air Pollution from Urban Passenger Transport: A Framework for Policy Analysis *Policy Research Working Paper 1991*. Washington D.C.: The World Bank.

Howe, J. and Davis, A.S.C. (2002) "Boda Boda-Uganda's rural and urban low-capacity transport services" *CODATUX Conference*, Lome Togo 12-15 November, 2002.

Hunnicut, J.M. (1976) "Parking, Loading and Terminal Facilities". In Barwald, J.E. (ed) *Transportation and Traffic Engineering Handbook*. Englewood Cliff New Jersey: Prentice-Hall Inc: 675-730.

Maunder, D., Davis, A., Bryceson, D., Howe, J. Mbara, T. and Kibombo, R. (2002) Sustainable Livelihoods, Mobility and Activity Patterns in Zimbabwe and Uganda *CODATUX Conference*, Lome Togo 12-15 November, 2002.

Ogunsanya, A.A. (1981) "Improving Urban Traffic Flow by Restraint of Traffic: The Case of Lagos" *Transportation Vol 12*. pp 183-194

Shaw, D. (1987) "Parking" in Heraty, M.J. (ed) *Developing World Land Transport* London: Grosvenor Press International: 296-298.

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