



Towards Sustainable Public Transport for Disabled People in Nigerian Cities

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ABSTRACT The detrimental impacts of the poor public transport services in Nigeria suggest the need to investigate the mobility situations and livelihoods of disabled people in Nigeria. This paper focused on the tendency of the disabled people to be restricted to certain areas, travel in company of relatives that provides assistance where needed and expose to travel difficulties. Analysis reveals that, determinants of traveling in company of relatives differs by the extent or severity of the physical disability, travel environment, available modes, distance, purpose of travel and cost of travel. The paper also examined whether disabled people traveling in company of relatives are faced or involved in transport externalities. Findings shows that, immobility of disabled people in developing countries particularly Nigeria, have resultant effect on the general livelihoods of this group. This paper suggested the need to review and retool the operational pattern of public transportation services and the planning as well as implementation of friendly travel environmental policy. It also calls for an holistic approach towards the provision of sustainable mobility for the physically- challenged in developing countries- Nigeria.

INTRODUCTION

Disabled people constitute an important proportion of the general population. With the increasing life expectancy in most parts of the world and the dramatic pace of Urbanization in some African countries; particularly Nigeria, the population of disabled people is increasing concomitantly. In a comparative analysis of censuses and surveys from 55 countries, the UN found the level of disability to be between 0. 2. and 20.9 percent (Sands, 2006). The 1991 census of Nigeria yielded crude disability rate of 0.48 percent or 4.8 disabled persons per 1,000 population. It should however be noted that the rate of disability in Nigeria cities varies and however on the increase.

It is unconscionable, therefore that for many persons with disabilities, Nigerian cities offer little or no promise for this group of people. It's however becoming increasingly difficult for disabled people to have a sustainable livelihood. This stem on their inability to access basic facilities. In actual fact, inadequate and unreliable infrastructure particularly transportation services are a fact of life for the majority of the disabled people in Africa and Nigeria in particular. Burnett (1996) and Sands (2006) revealed that the general quality of life for the disabled is substantially lower than the general population. Thus, their

inabilities to meet the basic needs of life showcase their level of poverty. According to Mac Farlane (1985), the quality of life can be measured by looking at the discrepancy between what people achieved and their unmet needs and desires. Thus, the larger the gap between what people has and what they need and want, the poorer their quality of life is (Guerra, 2003).

Transportation being an essential component of sustainable livelihood, provides access to basic facilities, goods and services, it enhances a good quality of life. Therefore, based on the multitude of barriers that hinders the daily activities and participation of the disabled people in urban life, it is a necessity to provide an efficient and effective transportation service and infrastructure which is easily accessible and serving the disabled people in our society. This study provides answers to the following questions:

- (i) What is the travel pattern of disabled people in the study area?
- (ii) What is the interrelationship between the mobility and the economic status of the disabled people?
- (iii) What are the travel difficulties encountered by disabled people in the study area?
- (iv) What are the implications of the existing transport facilities and services on the livelihoods of the disabled people?

The objective of this study is therefore to

discuss the mobility pattern of disabled people and to highlight the barriers that hinder their access to basic needs. The study explicitly established the relationships between the operational pattern of Nigerian public transportation and the quality of life of disabled people. It is anticipated that data presented will be useful to policy makers in formulating sustainable transportation policies for the disabled people specifically in Nigeria and the world at large.

METHODOLOGY

The study was conducted in Nigeria, a West African country with a population of more than 140 million and annual growth rate of 2.8% spreading over 350 ethnic groups (NPC, 2006 and Pyke et al., 2003). The target populations for the study are the disabled people in Nigerian cities. For this study, the WHO (1980: 27) definition of disability was used—a restriction or lack (resulting from an impairment) of ability to perform an activity in the manner or within the range considered normal for a human-being. In order to get a representative sample, the country-Nigeria was stratified into six geopolitical zones, from each zone, a state with the highest population of disabled was chosen. (See Table 1) and Abuja being the Federal Capital of the country and having the least population of disabled was included. A purposive sampling procedure was adopted to approach 3750 respondents. Subsidized organizations or non-governmental organizations providing basic service and assistance for the disabled people in the selected cities were contacted. Based on this, interviewees who satisfied the inclusion criteria were recruited. It should be noted that, purposive sampling method is appropriate when members of a special population are difficult to locate. It is useful to find groups of people who are difficult to approach, such as homeless individuals (Babbie, 1998 and Okoko, 2006). For this study, it seemed reasonable to consider disabled people as a kind of group which is quite difficult to approach and for whom population lists were not available.

The study was based on primary and secondary data. The primary data were derived through a paper based interview questionnaire survey with the disabled people. The major language of survey was English and often involves field assistants to interpret or

communicates with respondents in the language they understand. Information sought from them include; their travel patterns, travel difficulties, societal responses to their physical state, quality of selected travel modes and cost of travel. Is worth mentioning that, the number of questionnaires administered was proportional to the projected 1996 population as given by the National Population Commission (NPC). The reliability of the survey instrument was however conducted using test-retest method, thus given a reliability coefficient of $r = 0.83$.

Data collected were analyzed using simple percentage distribution, correlation and regression statistical techniques. The correlation analysis was used to establish the relationship between mobility pattern of disabled people and selected socio-economic variables; while the regression analysis was used to measure the amount of impact of the socio-economic variables on the travel pattern of the disabled people.

Table 1: Distribution of disabled persons in the selected states.

State	Total population	Population Disabled	Population Disabled per 1,000
Bauchi	4,351,007	19,466	0.22
Enugu	3,154,380	16,641	0.19
Kano	5,810,470	29,074	0.33
Lagos	5,725,116	20,186	0.23
Rivers	4,309,557	15,056	0.21
Abuja (FCT)	371,674	2,029	0.02

Source: Nigeria, 1991 Population Census.

CONCEPTUAL AND THEORETICAL CONSIDERATIONS

This section of the paper discusses the concepts of disability and accessibility. It also applies the theory of equity planning with reference to Nigerian public transportation services and decision making process.

In recent past, disability has been viewed mainly from medical and clinical perspective (Kaplan et al., 1992 and Oliver, 1996); while in the present time, focus is on the function, how specific causes of disability changes the manner by or limits the extent to which life's activities and actions are performed. Thus defining disability is not an unambiguous process; but a change in the perception of disability has been observed in academic discourse (Morris, 1991; Oliver, 1996; Porter, 2002). For instance, the social

model; viewed disability from the societal behaviour or attitudes and how the society organizes and constructs disability with impairments (Mathews, 2002; pp. 43). The World Health Organization (WHO, 1992) viewed disability using the International Classification of Impairments; Disabilities and Handicaps (ICIDH) as “any restriction or lack (resulting from an impairment) of ability to perform an activity in the manner or within the range considered normal for a human being”. According to the Disability Discrimination Act 1995; disabled people are those who have, or who have had, either a physical or a mental impairment that has a substantial and long term adverse effect on a person’s ability to carry out normal day-to-day activities (DDA, 1995).

The European Commission (1996), categorized disability into five-namely; physical disability, sensory disability, learning disability, mental disability and others. Relevant to this study are the application of the WHO (1980) and NPC survey (1991) definition of disability. It is worth noting that, disabled people in most developing countries particularly Nigeria are ridiculed, exploited and often victims of social ostracism. They are also ignore, neglected, mistreated and experiences lower levels of opportunities than the non-disabled group. Despite the importance of transportation as an essential component of sustainable community. The right to travel and access basic facilities were not perceived by policy makers as a key factor that can enhance the livelihood or quality of life of disabled people in developing countries (Elwan, 1999 and Yeo, 2001). This fact was partly justified by the non-implementation of section 8 and 9 of the Nigerians Disability Decree of 1993.

Accessibility is a key transportation element and is a direct expression of mobility either in terms of people, freight or information (Rodrique, 2004). It should be noted that, an efficient transportation systems offers high levels of accessibility if the impacts of transport externalities are excluded. For instance, a number of studies (Focas, 2000; Huby and Burkitt, 2000; Shucksmith, 2000 and Trac, 2000) argued that inability to access transport can lead to people missing out on jobs, education and other social opportunities. From this perspective accessibility is the measure of the capacity of a location to be reached by, or to reach different locations. The capacity and the structure of transport infrastructure are key elements in the determination of

accessibility (Rodrique, 2004 and Venter et al., 2002). The Concept of accessibility has been part of planning process in developed countries for many years. This stem on the fact that; access is a key element in providing the opportunity for both social and economic development. It also forms one of the characteristics of poverty.

Accessibility enhances disabled people’s rights to participate equally in societal development (Guerra, 2003). In other words, poor access to basic facilities – health services, water, education, housing etc has a resultant effect on the quality of life of the disabled. Thus, accessibility concept relies on location and distance. The former is the relativity of places estimated in relation to transport infrastructure. The later however, is derived from the connectivity between locations (Rodrique, 2004). According to Marcos and Gonzales, 2003, P. 25), accessibility refers to activities associated with making facilities friendlier to the disabled people; this include, the installation of ramps for those in wheel chairs. Also of interest is the English Tourism Council (1989) view on accessible tourism, it is the set of services and facilities capable of allowing persons with specific needs to enjoy an holiday and their leisure time with no particular barriers or problems. To lessen the physical access barriers for disabled people, there is need for the provision of paths, ramps, lifts, handrails, clear directional signs, kerb cuts, circulation room, wide doorway, hobbles showers, lowered counters and telephones etc. These elements should be co-coordinated as a continuous accessible way (Darcy, 1998, P. 2). This will enhances transport security for all and particularly the disabled people. Is worth mentioning that, transport security exists when all people at all times have access to safe, reliable, affordable, efficient and comfortable transportation services and infrastructure to facilitate their daily activities and to enhance their livelihood. The main goal of transport security is for individuals to be able to access transport systems needed at all times, and to be able to utilize the service to meet their daily activities or needs. Based on this and compared with advancement from developed world, equity transport planning, emphasized the consideration of the needs and capability of various groups of people in mobility process (Litman, 2006 and Carruthers, 2006).

Equity is a complex concept, which bears several meanings. It is however different from

equality that connotes or represents, mere equalization of a right (Vasconcellos, 2000). Equity according to Litman (2006); refers to justice and fairness. It however means the distribution of impacts (benefits and costs), and the degree to which that distribution is considered fair and appropriate. In other words, equity requires the consideration of the peculiar characteristics of people when deciding how they should use available public resources. Equity in transportation planning and management and more importantly in the provision of public transport services entails the provision of reasonable transportation services that is more accessible for transit dependent population. Basically by tradition, equity planning is concerned with reducing inequalities. Thus, Krumholz (1982) defined equity planning as an effort to provide more choices to those residents or individual who have few, if any choices". This implies that, the physical capability and a host of other factors that constraint the mobility of certain groups needs to be considered and given necessary attention.

Transportation equity according to Litman (2006) can be categorized into three – (i) Horizontal equity (distribution of impacts between individuals and groups considered equal in ability and need). (ii) Vertical Equity with regards to income and social class (distribution of impacts between individuals and groups that differ in abilities and needs) more importantly by income social class). (iii) Vertical Equity with regard to Mobility needs and ability (distribution of impacts between individuals and groups that differ in transportation ability and need). These facts established the notion that, there is a relationship between disability and poverty (Barry, 2002; Finkelstein, 1980 and Yeo, 2001). Based on this categories of equity; there is need for accessible and inclusive transportation design and policy that will facilitate or enhance the movement of the disabled groups. Has practice in developed countries, there is need to provide transport facilities and services that will not only accommodate people with disabilities but encourage and enhances their movement over space. It is interesting to note that, section 8 and 9 of the Nigerian Disability Decree of 1993, emphasized the need to give priority to the disable people or group. It was also mentioned that, "it shall be the responsibility of all organs in the Federal Republic of Nigeria to provide for the disabled; access and adequate mobility within its facilities and suitable

exists for the disabled". It was also stipulated that, "A disabled person shall be entitled to free transportation by bus, rail or any other conveyance (other than air travel) that serves the general public needs; all public transport system shall take steps to adapt fittings for needs of the disabled; and finally, priority shall be given to the disabled in all publicly supported transport system. Accordingly, reasonable number of seats shall be reserved solely for the use of the disabled". It is however dishearten to note that, priority is only given to disabled group in paper and not in reality. In others words, there is an urgent need to implement effectively; the policy statements that recognized the travel difficulties and mobility needs of people with disabilities. This will justify the transportation equity planning exemplified by Litman (2006).

FINDINGS AND DISCUSSION

In all, a total of 3750 cases were recorded. As revealed in table 2, males predominated constituting 70.48% of the total population.

Table 2: Demographical characteristics

	Percentage (%)
<i>Gender</i>	
Male	70.48
Female	29.52
<i>Age</i>	
Less than 20 years	1.23
21- 30 years	23.28
31- 40 years	44.99
41- 50 years	24.91
Above 50 years	4.66
No response	0.93
<i>Education</i>	
Primary School	33.25
Secondary School	19.49
Tertiary	38.83
No Formal Education	8.43
<i>Income</i>	
Less than #5,000	25.95
#5,000 - #15,000	35.23
#16,000 - #25,000	16.61
#26,000 - #35,000	19.89
Above #35,000	2.16
No Response	0.16
<i>Travelling Status</i>	
Travel Independently	25.95
Travel Dependently	65.79
No Response	8.26
<i>Access To Private Car</i>	
Yes	20.85
No	77.47
No Response	1.68

Source: Author's Field Survey, 2006- 2007

Their ages ranged from less than 20 years to above 50 years, majority (1687, representing 44.99%) however was in the 31–40 year age group. It is also worth noting that, about 38.83% of the respondents have tertiary education, while less than 10% have no formal education. The implication of this however, is that most disabled people are more resourceful based on their educational background that enables them to work as professionals and skilled labours. It is therefore pertinent to mention that, about 35.23% of the respondents earn between #26,000 – #35,000 monthly, while above 20% earn less than #5,000 per month. It should be pointed out that, there is a relationship between poverty and disability in most society. In other words, the high rate of poverty among the disabled people can partly be attributed to mobility restriction, societal exclusion and marginalization. For instance the study reveals that 77.47% of the respondents have no access to private vehicles; while those (20.85%) that have the opportunity to own a personal vehicle face an expensive operational cost and highly limited parking spaces in most cities.

Pertinently therefore, public transportation remains the only vital means of mobility for the disabled people to participate in social activities, leisure pursuits and various societal activities. With the unreliable state of public transportation in most Nigerian cities; Adeniji (1987, 2000) and

Odufuwa (2006), mobility of disabled people is often accompanied by extra transportation costs. In actual fact, the study reveals that about 65.79% of the respondents travel dependently, thus increasing the transportation cost. To be precise, travel dependency refers to a person's ability to travel independently without the need for assistance by an attendant, caretaker or family member with the tasks of daily living (Darcy, 1998). It should be noted that, inability to travel independently requires a pre-plan and organize travel activities with other persons with extra economic expenditure.

Nigeria's transport facilities are rapidly crumbling. For instance, location of terminal and terminal facilities- shelter, seats, lights, toilet, time table and security suffers from prolonged serious neglect. As revealed in table 3, sidewalk ways, travel information and travel security are in deplorable state. For instance, most sidewalks are unpaved, poorly maintained and crowded by vendors. Most roads surfaces hinder some wheelchair users from leaving their home for essential trips. Nevertheless, travel information are not easily provided to most disabled passengers and apart from inaccessible location of terminal or bus stops; most bus stops are not adequately taken care of and they are suitable home of lunatics and torts.

It should be pointed out that, transport

Table 3: Perceptions of respondents on transport facilities

Indicators	Very Good (%)	Good (%)	Average (%)	Poor (%)	Very Poor (%)	No Response (%)
Location of Terminal	-	-	12.29	20.35	64.85	2.51
Terminal Facilities	-	-	8.77	35.39	55.28	0.56
Travel Security	-	-	15.28	52.96	29.41	2.35
Travel Information	-	-	-	46.27	53.73	-
Pedestrianization	-	-	5.36	43.57	50.61	0.45

Source: Author's Field Survey, 2006-2007

Table 4: Trip frequency by activity

Activities	5-6 days a week (%)	3-4 days a week (%)	1-2 days a week (%)	1-2 days a Month (%)	No Response (%)
Medical	0.4	9.89	21.15	64.45	4.11
Education	39.79	6.8	52.93	-	0.48
Work	72.43	26.59	-	-	0.98
Banking	-	-	65.52	1.92	32.56
Shopping	-	-	73.63	13.12	13.25
Leisure	-	-	26.72	71.57	1.71
Visitation	-	-	57.57	39.76	2.67
Religious	-	18.59	49.95	31.12	0.34
Others	-	-	-	-	-

Source: Author's Field Survey, 2006-2007

security exists when all people at all times have access to safe and efficient means of mobility to maintain or enhance healthy and active livelihood. In fact, the main goal of transport security is for individuals to be able to use available and effective means of transportation needed at all times, and to be able to utilize the available means of mobility to meet daily activities needs. For most of the respondents, medical, education, work, banking, religious, leisure and a host of others forms the purpose of trips for most disabled people. Table 4 shows that, about 64.45% and 72.43% respectively forms medical and educational trip of the respondents at varying time. The point worth noting is that, disabled people also embark on various trips at varying time of the week and month. Based on this and as earlier mentioned that most respondents lack access to private vehicle, thus various public transport modes forms the notable mobility means for the disabled.

Access to transport; means reducing poverty. In other words, making transport available to disabled people is not enough; but one must also be able to make it affordable. In the light of this, factors underpinning transport security lies within the realm of the following; affordability, availability, accessibility, reliability and comfortability. As revealed in table 5, it is highly surprising that public transportation services using the above mentioned indices are not in good state. As exemplified by Carruthers, (2005), affordability refers to the extent to which the financial cost of journeys put an individual or household in the position of having to make sacrifices to travel or the extent to which they can afford to travel when they want to. Based on this notion, affordability of public transportation by the disabled people can be viewed as the ability to make necessary journeys to work, school, healthy and other social services, and make visits to other family members. In other words, the poor state of public transportation

services in Nigerian cities necessitated the need for disabled people to make provision for extra economic expenditure in hiring a professional attendant during trips in the society.

The implication of this is that, disabled people are forced to spend much part of their income on transportation, thus forcing them to be isolated and live within the margin of poverty and likewise curtail the number of trips that they make and use modes of transport that do not incur a direct cost, such as walking or to live in locations that minimize their transport costs. It should however be noted that, for some essential trips, disabled people are bound to face different mobility or travel difficulties. As revealed in table 6, most of the respondents (22.85%) face difficulties in boarding available public transport; most especially the uncomfortable yellow painted buses or the large "geriatric clumsy buses" called "molues" and the small siblings of the molue also known as "danfos".

It should be mentioned that, the attitude and driving behaviour of most drivers as well as the overcrowding of available modes of travel, prolong waiting time, poor travel information and unaffordable travel cost are major travel difficulties to the disabled people. It is however dishearten to note that, drivers of most public transport in Nigerian cities do not give disabled people enough time to board and alight in comfort and safety. Apart from the disgusting public awareness on disability needs, most transport personnel requires an effective training in assisting disabled people to access available modes of travel. According to the respondents, most importantly those using wheelchairs and other mobility aid like walking stick; are unable to use public transport in most Nigerian cities. Nevertheless, very few that are opportune to use available modes, are extremely affected by various transport externalities (accidents, pollution – air, noise).

Table 5: Perceptions of disabled people on public transport services

Indicators	Very Good (%)	Good (%)	Average (%)	Poor (%)	Very Poor (%)	No Response (%)
Availability	-	-	21.09	52.19	25.97	0.75
Accessibility	-	-	2.29	43.79	53.68	0.24
Affordability	-	-	-	28.19	68.82	2.99
Reliability	-	-	0.56	40.56	56.67	2.21
Safety	-	-	-	45.12	54.48	0.4
Comfortability	-	-	-	25.95	70.45	3.6
Operators Attitudes	-	-	1.95	49.68	46.82	1.55

Source: Author's Field Survey 2006- 2007

Table 6: Traveling difficulties

<i>Problems</i>	<i>Percentage (%)</i>
Boarding Difficulties	22.85
Alighting Difficulties	13.89
Poor Travel Information	18.48
Inaccessible Bus Stops	6.48
Prolong waiting time	11.49
High Cost of Travel	19.36
Unfriendly Responses of operators	7.12
Others	0.32

Source: Author's Field Survey 2006- 2007

Table 7 reveals the result of correlation and regression analysis, it shows that, there is significant relationship between the travel pattern of disable people and income, age, educational level, household size, occupation and marital status. The result shows that the greater the income, the more likely would be the travel comfortability. This is base on access to private cars and the frequency of use. The result further indicates that disabled people using private cars should consider the existing transport infrastructure and time of travel as determining factors. It implies that, trips or travel pattern may be affected by the state of transport facilities. It also shows that, the size of household will determine the cost of travel and travel difficulties to be encountered. In other words, a household with few members that is ready to provide travel assistance to disabled people, help to enhance their travel pattern. Based on the result of the regression analysis, if the travel barriers could be removed, there would be an improvement in travel pattern and livelihood of disabled people in most cities.

The implication of these travel difficulties as revealed in the results is that, most disabled people are cut off from necessary services. For instance, they find it highly difficult to visit

friends, meet employment and medical appointments. Pertinently, they tend to spend higher costs on essential items, thus most disabled people lives a more shabby life and based on mobility constraints, they are unable to participate fully in social activities. This invariably leads to an overall reduction in their quality of life. It is abundantly clear that; inadequacy of transport infrastructural facilities in Nigerian cities and the non-implementation of the stated policies on the welfare of the disabled, partly account for the unsustainable livelihood of disabled people. There is need to improve upon the condition of transport infrastructural facilities in most Nigerian cities in other to ameliorate or put a stop to the mobility stress experienced by disabled people in a developing country like Nigeria.

SUMMARY, POLICY IMPLICATION AND CONCLUSION

With reference to the stated objectives, the study revealed that most of the respondents are educated, while about 77.47% of them do not have access to private vehicle. This implies that most disabled people depend on public transportation for most trips. It was also noted that, higher part of their income were spent on transportation. This is because about 65.79% of the respondents can not travel independently. The study also reveals that, there is a relationship between disability and poverty. This stemmed on the fact that, most valuable or essential trips are curtailed due to the poor state of the Nigerian public transportation services and the prolong travel difficulties encountered.

To accomplish the basic mobility needs of disabled people, there is an urgent need to improve the state of Nigerian public transport. Apart from subsidized travel cost and provision of more comfortable vehicles, there is need to implement and enforce the construction and use of low-cost features on vehicles and upgrading of bus stops. In other words, wider and low-floor steps, hand- rail for boarding and alighting, adequate travel information, removing barriers in bus stops, installation of traffic signals, paving of walkways where available, installation of kerb ramps, prioritized seats and fare concessions should be implemented. Also, improved safety on street is highly pertinent. Nevertheless, road networks should effectively connect residential areas with notable activity centres. This will

Table 7: Results of correlation and regression analysis between the mobility pattern of disabled people and selected socio-economic variables

<i>Socio-economic Variables</i>	<i>r</i>	<i>Coefficient of Determination (r²) %</i>	<i>Regression Coefficient (b)</i>
Income	0.413	17.06	4.63
Level of education	-0.217	4.71	-2.94
Household size	0.503	25.301	2.61
Age	-0.103	1.061	-1.06
Occupation	-0.021	0.04	0.56
Marital status	-0.316	9.986	0.32

Testing at 0.05 alpha level

reduce the walking distance of disabled people. There is need for an integrated and simultaneous development of cities and transportation system in Nigeria. Also, planning and provision of efficient public transportation should put into consideration the capability of the users, thus, applying equity transportation planning strategy. An introduction of training and re-training programme on disability issues should be effectively organize for public transport operators in Nigerian cities.

Based on the premise that disabled people are highly potential and resourceful, transportation policies should emphasis accessibility, affordability and equity. In other words, reducing travel difficulties should adequately be pursued. Is therefore worth mentioning that, such policies should reflect on land use planning, decentralization of activity areas and prioritization of effective non-motorized transport services. On a final note, while developed countries have made substantial progress in enhancing the mobility needs of the disabled people through adequate provision of transportation infrastructural facilities, most developing countries are far behind. However, it should be noted that, though mobility difficulties experience by disabled people is similar world wide, but a total adoption of measures used in most developed countries by developing countries requires adequate consideration of priorities, resources and transport operation and management strategies in existence.

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