

# Urban Public Buildings and Accessibility Challenges in Nigeria

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**Abstract:** The trends of public buildings accessibility and circulation challenges confronting persons with disability are contemporary concerns in the focus of environmental experts internationally. This is relevant given the restriction implications of disabled persons on public buildings. On the other hand, this seems not to be so in developed countries going by both practice and investigation consideration. The research consequently examined challenges for persons with disabilities across urban public buildings in Niger delta. The research considered environmental observation and designed questionnaire methods for data acquisition whereas standard deviation (STD) principal components analysis (PCA) and Pearson correlation coefficient were the methodical tools employed. The result established that school buildings (0.50), police station accounted for (0.72) and courthouses (0.62) etc with restriction factors for persons with disabilities in Niger delta urban environs of Nigeria. In furtherance, institutional buildings (20%), legal building (13%), transportation building (12%), medical building (10%) and banking/recreational buildings (7%) were the classified public buildings. However, The research demonstrated that there was a weak negative relationship between public buildings and wheelchair ramp at ( $r = -0.212, p < .05$ ), elevators ( $r = -0.56, p < .05$ ) and modified toilet ( $r = -0.51, p < .05$ ). The article settled with recommendations on approaches for including the necessary facilities that makes public buildings accessible for all the citizenry of Niger Delta and beyond through proper consultations, architectural and engineering designs.

**Keywords:** Public, Building, Challenge, Disability and Niger Delta.

## I. INTRODUCTION

Public buildings designed for universal consumption are not accessibly by persons with physical disability across sub-Saharan Africa. The system is not neither new nor anonymous despite the critical growth and development of fashionable public buildings. The relevant authorities simply haven't built or make equitable and universal consideration for urban public buildings that accommodates disabled persons. For the disabled, it means either not having the accessibility to public places in urban centre whereas expert has battled these issues since timeworn; and recently, start-ups' have struggled at offering new solution to the challenges. (research work 2020).

Public buildings implies an equitable and universal structures or places planned and built with the necessary infrastructural facilities either by the government, community,

nongovernmental organisations and philanthropist to enhance its accessibility by abled and disabled persons (ADPs) of a particular environs. In most occurrences, public buildings are discussed as public infrastructure that offers numerous functions and concentrates ecumenical services for the whole citizenry. For examples: schools, hospital, libraries, churches, town halls, markets, banks, post offices, secretariats complexes etc (research work 2020).

Accessibility denotes having the chances of entering public areas without impediment to every individual, irrespective of his or her disability or special need, ensuring the integration of the wheelchair user into the society and thereby granting them the capability of participating in activities of daily living and life equality. Although the encouragement towards the development of modern public buildings that contained the necessary infrastructural facilities will demonstrate the direct source to tackle inaccessibility of urban public buildings by the physically disabled (PDs)

Previous researches have shown that accessibility of urban public buildings by the disabled persons are inadequate, few studies provided yield figures that incorporate data on government measures that improved the chances of physically disabled persons (PDP) for accessibility of urban public buildings. However, the visibility and strategic analysis indicated that government was relatively less concern towards the accessibility of public buildings by persons with disability. However, [2] Utilised eighty-four different unrestricted buildings such as the education building and amenities, health services, offices, departments and organizations, athletic and recreation, religious assemblies and financial institutions to research the accessibility of the physical infrastructures (public buildings) in the Kumasi metropolis in Ghana. Other data the studies considered are roads, entries, height of steps, grade of ramps, sinks, entrance to washrooms, toilets, urinals, automated teller machines and tellers' counters. The findings recorded that wheelchair handlers' hard access to about 40.5% public buildings, entrances 52.3% plus 87.4% roads that connected the public buildings whereas twenty-five percent of the public buildings accessible by the physical disabled persons designed with two floors and above exist with elevators that linked dissimilar floors. Their work concluded that all the accessible public buildings erected in Kumasi city do not consider the physically compromised. In furtherance,

explained that the significant observation on course of this research was the target to consider the physical impaired in accessibility of public buildings occur during the building renewal alone. While the laid down strategies that considered the accessibility of buildings by wheelchair handlers were inadequate.

Through random sampling of local telephone book sources,[14] looked at the availability of public buildings by the wheelchair users in Al Ain city of the United Arab Emirates. The studies focused on 17 buildings but the variable considered include parking, ramps, entrances, accessible routes, toilets, elevators, public telephones and water fountains. His work recognised 79 items built on the Americans disabilities act guidelines (ADAAG). The result demonstrated that accessible road had the highest mean score of 76% against parking lots with a mean value of 19% and all the public buildings fail to attain hundred percent expectations with the contents of the investigation procedure. The implication is that much consideration was given to improve the accessibility of wheelchair user to public areas in the UAE city of Al Ain, irrespective of poor legislation framework.

[6] researched the determinants and the compliance of public buildings in central business area (CBD) of Istanbul, Turkey. The objective was to assess wheelchair accessibility to the guidelines of the instrument and identify architectural/public building barriers confronting the wheelchair handlers. The research used expressive statistics of 26 different public buildings in central business area of Istanbul. The work also considered the direct survey method of data collection, environmental observation and measurement while simple percentages and means score were used for the assessment. His findings established that people with wheelchair are involved in many accessibility issues of public buildings in almost all the populated city in a unindustrialized nations. The study concluded found that the prominent architectural blockade facing the disable is public transportation matters with that had the least mean value of (25%). while entrance to public buildings accounted 79 percentage. Though the study stressed that the intention to enhance the accessibility of the physical impaired on the course of constructing new public buildings were considered.

Within Silom and Siam central business district (CBD) of Bangkok, [15] analysed the cross-sectional expressive survey of three précised facilities (wheelchair ramps, elevators and modified toilet) in unrestricted buildings of 5 floors and above. Their studies analysed 62 public buildings and discovered that the three basic facilities under investigation were not found in the public building. Other internal facilities such as slope ramps, elevators and improved toilets accounted for percentage score of twenty-six, forty-nine, and one public building one-to-one. The studies concluded that basic facilities available for the physical disabled in Bangkok city were discovered to be inadequate while the solution anchored on delivery of suitable facilities through government special statute.

Similarly,[11]investigated the wheelchair accessibility of public buildings in the central business district of Harare, Zimbabwe. The study objectives include assessing the wheelchairs accessibility into the public buildings in the central business district and identifying architectural barriers confronting wheelchair operators in public buildings. In addition, the qualitative analysis stressed that 20 public buildings were considered where as simple percentages and means score measurement was employed to determine the level of compliance to the guidelines of the instrument, and wheelchair accessibility to the surveyed buildings. However, their findings proved that elevators became the maximum average accessibility of the physical impaired with 83% value; the parking areas recorded the lowest average value of 18%. While ramps, entrance and toilet facilities accounted for 39%, 71%, 51% individually. The work summarised that parking places and ramps for people using wheelchair is perhaps due to the bodily defied persons and specialists in the direction of physically capability were not inclusive or involved in the architectural drawing and erection of the public buildings. They maintained that extraordinary amenability of building entrances and toilets designs were directly built by chance and failed to agree with the desires or expectations of individuals walking with wheelchair. Finally, their work recommended for collaboration between physical disabled and different expert such as therapists, physiotherapists, politicians, engineers and architects to enhance physically disabled accessibility of public buildings.

[10]Look at the perspective of people with mobility limitations (PWML) in Zambia. the study focused on insight into the participation experiences of PWML in the social, cultural, economic, political and civic life areas and the connection of these with disability in Zambia and to establish the position of physically disabled persons in Zambian . The study utilized questionnaire design, focus group discussions and personal interviews to gather information across the 75 PWML of five of district of Zambia. Their study applied nominal group procedure in grade faraway buildings and services that postured barriers to chances in life zones and the interference with the entire household lifestyle. The result explained that unapproach ability of education institutions, workplaces and spaces were behind the decline in participation with deleterious inferences for individuals, family, social and economic facets of the members. However, administrative buildings, service buildings, and transportation were generally observed as the most essential then had the minimum reachability by the physically impaired. They also established that people with mobility constraint in Zambian tattered disadvantage in usage of services and facilities available for the public thereby declined their right of full and impartial life sharing to decline economic capability. The research stressed the need for the supporting measures that should be injected for the government to recall the importance of enhancing environmental opportunities to consider citizens equal rights.

[1] Considered the initial development and corroboration for a feature portion for evaluating the approachability of the built environment in Zambia. The work focused on determination of environmental potentials that act as a setback for the participation of persons with mobility constrained and identified by wheelchairs or crutches. The researched used Participation-Based Environment Accessibility Assessment Mechanism (P-BEAAM) via cluster discussions, interviews and 88 PWML obtained from five zones in Zambia considering the opportunities of their physically developed environment. The findings shown that accessibility hindrances are facing the participation of physically defied on daily basis while The P-BEAAT also demonstrated good homogeneity with Cronbach's  $\alpha$  score of 0.91. In conclusion, the author detailed that P-BEAAT was designed because of life genuineness and resident's understandings in Zambia especially in assessment of environmental potentials significant in the participation of daily life of PWML related across emerging nations.

Scientifically, [9] considered wheelchairs participate and move at home and in the community over an entire yearlong period. The study employed global positioning system (GPS) tracker for mobility in the community, accelerometer for bouts of wheeling mobility and urgent recall interviews to identify supports and barriers to mobility and participation. The result proved that many trips per day were engaged on the summer day at ( $P = .03$ ) and  $0^\circ\text{C}$  for days of snow and temperatures, those that depend on commercial transportation detailed greater weather-particular dynamics in their journey methods and the daily sessions of movement sustained similar through seasons; whole daily detachment wheeled, duration, and speed were advanced on summer days, days without snow, and temperature days of above  $0^\circ\text{C}$ . As maximum equal of outdoor wheeling bouts always arisen in summer ( $P = .02$ ) and with temperatures above  $0^\circ\text{C}$  ( $P = .03$ ). However, the Unreachable municipal environments stood as a basic hindrance to community movement and participation. In precipitate, the authors considered the influence of various seasonal weather conditions on community mobility and involvement for resident with wheelchair.

[12] Compare the accessibility to wheelchair users of public buildings built in pre and post International Year of the Disabled Persons in Harare central business district in Zimbabwe. The investigation analysed 20 dissimilar public buildings of two open floors and beyond. The result explained that irrelevant dissimilarities existed in parking areas, ramps and toilets among the public buildings built for the International Year of the Disabled Persons (IYDP) and the ones erected after. The work also illustrated that entrances was better in post International Year of the Disabled Persons than pre IYDP. However, significant dissimilarity existed in elevators between pre and post International Year of the Disabled Persons IYDP. In Ibadan metropolis of Nigeria, Hamzat and Dada (2005) used public buildings such as hospital, education, social, recreation centres and government

ministry/agencies to research accessibility of Public buildings by wheelchair individuals. Their result figured and determined: doorway width, height of thresholds and steps, width of routes and grade of ramps. The work later determined accessibility via edited survey of Americans with Disabilities Act Accessibility Guidelines.

[7] Evaluated way and level of accommodative the wheelchair users access public buildings in Khulna, Bangladesh. The assessment married government administrative centre, public institutions, colleges, polytechnics and universities, hospitals, libraries, post offices and court buildings. but the concerned areas of the evaluation anchored on existence and standard of facilities available for wheelchair people, which could be accessible parking, ramps, elevators, doors, and essential interior facilities like water closets and drinking-water fountains. The author added that Bangladesh lack detailed accessibility procedures document, though encompassed accessibility in the Bangladesh National Building Code (BNBC) of the year 2008. However, the analysis was completed through the aid of abridged survey material of the Americans with Disabilities Act Accessibility Guidelines (ADAAG) and BNBC 2008. His findings proved that just five (5) out of the 75 public buildings had facilities that enhanced the accessibility of wheelchair people. The work also pinpointed amendments are required in twenty-one (21) of the public buildings found to be unfitting for wheelchair residents. The study revealed that public buildings are, in general, not very accommodative of wheelchair users. The also confirmed that seven (7) out of the 38 buildings, entrances (45.1%) and 19.4% of the roads were made accessible for the wheelchair. But hospitals which demonstrated (66.7%) were the most accessible buildings while social/ recreation buildings were not accessed.

[4] Determined how libraries known to be major parts of higher education institutions can be bodily accessible by restricted figure of People with disabilities in same institutions. The research was held in 2015 and Kwame Nkrumah University of science and Technology served as the study area. Their exploration strategy considered a desk survey, interviews and a physical audit of the university library System together with the assessment list initiated from international accessibility standards. The result revealed that 16 libraries were evaluated while libraries at the university was totality inaccessible physically and stood as constraining factors to PWDs in the academic environment. Finally the research sanctioned those issues pertaining the retrofitting of the public libraries were designed to improve its accessibility and in return assist participation of 2030 Agenda for Sustainable Development in Ghana.

The study done by [5] Adopted 111 physical impaired persons schooling with University of Ghana to evaluate the perception of Persons with Disabilities (PWDs). The students were ask to release evidence about place of their residence, institution of study and places they participate in different activities to gain their intention within the



University of Ghana. Their study result proved that University community is doing everything humanly possible to provide enabling that encourage abled and disabled pleasance, but the responses from People with disabilities pinpointed that the struggles could not be favourable. But work added that the University is expected to improve more when the prospects of PWDs are deliberately tackled and integrated into the design and execution processes of construction and makeover activities.

[13] Viewed at modification and involvement of disability fittings in building of modern facilities and performing of disability persuaded strategies that linked to admission, students’ accommodation status and others facet of school life. The work added that major component that failed to acquire abundant consideration was the nature of campus walking environment and the way mobility among the students gains promotion. For the school walking environment, the investigation considered accessibility auditing arrangement, 30 visually impaired and a wheelchair user whereas in-depth interview guide served as primary data collection instrument for the qualitative analysis. The findings shown that lack of walkway in particular high pedestrian traffic zones, disjointedness of sidewalk and path blocking objects stood as the factors that decline disabled students from using sidewalk on campus. The research concluded that recent walking environment together with implementation of state and international guideline should consider the building of an complete environment.

[3]Studied the accessibility of the Sofoline Interchange in respect to persons with disabilities. The research gathered information via questionnaires and checklist that view the opinion of project consultant, the contractor, the client / Ministry of roads and highways in kumasi metropolitan. In furtherance, the work disclosed that facilities needed by the visually impaired such as audio communications, handrails, tactile markings and curbs were absent in the sofoline interchange, hindering the visually impaired person the accessibility. They concluded that there is need to encourage relevant bodies involved to form alliance and seek solutions that will tackle the issue, mostly whenever the construction of some facilities that helps persons with disabilities to access public buildings free.

[15] Considered the needs of disabled persons for superior way out in the design of squares, pavements, parks and other pedestrian areas. They explained that as well as improving life for the incapacitated, the deliberate remedies will improve the areas they have been using and are neither unpleasant nor has additional luxurious. They maintained that the procedure implies "fairness" in the society which could be described as a city that belongs to abled and incapacitated persons. They added that every good city provides all the necessary facilities and create chances for good environment and accessibility to for all. Finally, their studies used analytical – descriptive research method while the result demonstrated that urban

planning do well while preparing a comprehensive plan that takes care of everybody in cities.

## II. RESEARCH METHOD AND PROCESS

The research collaborated primary and secondary sources of information. Preceding works on circulation and challenges of public buildings accessibility by persons with disability and interrelated materials from issued and unissued form the subordinate source of information in this particular research. Electronic -libraries, research work, papers from national and international institute of architects and town planners, government official gazette, records and reports etc

Primary Source: however, environmental observation and arranged questionnaire survey that produced response from persons with disabilities to concealment issues such as the facility required by disabled persons to access public buildings constitute the primary sources. Whereas profiles of disabled residents and causes of non-accessibility of public buildings in the study areas and facilities necessary for universal accessibility for public buildings.

In addition, the research stratified eighteen major urban centres in the Niger delta region of Nigera and built strongly on population compactness after which nine urban centres emerged for the research. Therefore 594 quantities of opinion forms were disseminated to disabled persons in the nine selected cities of Niger delta region (Akure, Aba, Warri, Benin, Calabar, Uyo, Port Harcourt, Owerri and yenagua ). Nonetheless, 491 survey questionnaires signifying 91 percent were reverted and used for the general analysis.(See the detail in table 1).

Table 1: Disabled communities and public Buildings Sampled in Niger Delta Region Nigeria

S/N	Selected Cities	Public Buildings	Disabled Persons	Question naires	Percentage
1	Akure	69	109	63	8%
2	Aba	48	98	51	6%
3	Warri	92	225	75	14%
4	Benin	71	108	57	7%
5	Calabar	53	111	65	10%
6	Uyo	81	126	79	13%
7	Port Harcourt	102	250	83	20%
8	Owerri	48	141	80	17%
9	Yenagua	39	83	41	5%
	TOTAL	603	1,251	594	100%

## III. RESULT AND DISCUSSION

### *Public Buildings and Universal Accessibility in Niger Delta Cities of Nigeria*

Analysing the standard deviation suitable for this research, fifteen (15) significant public buildings with accessibility restrictions to persons with disabilities in Nigeria and beyond.

The statistics available demonstrated that school buildings with the standard deviation figure of (0.50) appeared to be most significant public buildings persons with disability could not access because of design and construction difficulties or exclusions. The implications is that after Nigeria civil war, about 95% of public buildings designed and constructed by architects, civil engineers and other environmental experts in Nigeria has failed continuously in considering the necessary facilities that enhanced physically disabled persons accessibility to public building. That is why they don't involve or participate in public gathering, hearing and governance etc. However, police station accounted for (0.72) and courthouses (0.62). Based on the current insecurity and human right violation in the country, persons with disability are restricted by design and construction to access public places that guaranteed their security and expel societal intimidations and gain a sense of belonging in their various neighbourhoods. That is why some of the physically challenged persons suffer one psychological problem or another and many are eager to commit suicide, murder, become false witnesses and create other problems that subject a community to dilemma. Therefore, the analysis later explained that libraries (0.64) railway station (0.66), health centre (0.52) and hospital (0.76) were determined as restricted public buildings. Other include: motor parks (0.78), public gardens and parks (0.81) were among the public buildings restricted to people with disability. Nevertheless, the public buildings identified by people with disability are post office, town hall, and airport and banks which accounted between (0.86), (0.90), (0.94), and (0.96) respectively. See the table below

S/N	Public Variables Researched	ST.D	Mean	Disabled inclusiveness
1	School buildings	0.50	4.4	Inadequate
2	police station	0.72	3.9	Inadequate
3	Court house	0.62	4.2	Inadequate
4	Libraries	0.64	4.1	Inadequate
5	Railway stations	0.66	4.0	Inadequate
6	Health centres	0.52	4.3	Inadequate
7	Motor park	0.76	3.6	Inadequate
8	public gardens and parks	0.78	3.4	Inadequate
9		0.81	3.3	Inadequate
10	Post office	0.86	3.0	Inadequate
11	Air port	0.90	2.8	Inadequate
12	Banks	0.94	2.6	Inadequate
13	Town hall	0.96	2.5	Inadequate

Source: Researchers Field work (2020)

### *Classification of Universal Public Buildings in Niger Delta Region of Nigeria*

The analysis for arrangement of public buildings that restricted participation of disabled persons in major Nigeria cities were demonstrated in charts and figs. Based on the analysis, the research classified the 13 universal public buildings into 5 components, as a result incorporating them to fewer significant public places through the encouragement of principal component analysis: Component 1 is significant and clearly encumbered on public buildings such as school buildings (.87), libraries (.84), and town hall(.83), as visibly dissimilar from other public buildings with eigen valuation of 8.50. It elucidates 20.12 percent of variance in the public places unfriendly with people of disability. Therefore, component 1 is a manifestation of institutional public buildings without the necessary facilities that enhance the participation or the consumptions by the physically challenge in urban areas. The significant variable of the component is school buildings (.87). Component 2 is considerably and surely loaded on court house (.77), police station (.72) post office (.65) with eigen value of 4.04. It explains 12.82 percent of variation in the urban public buildings. Component 2 is therefore, an index legal building. The important adaptability of component 2 is court house of (.79). Component 3 is implicitly and clearly loaded on railway stations (.70) airport(.62), motor park (.60), it has an eigen value of 9.57 and explains 12.23 percent of the identified variance of public buildings available in urban centres.

Component 3 is an index of transportation buildings in Niger delta. The unfolding capricious of the component is railway stations (.73). Component 4 is suggestively and positively loaded on hospital (.74) health centre (.71) on eigen value of 4.755 but explains 9.563 percent of determined modification in existing public buildings of the region. Component 4 is an index of medical building. The most variable of the component is hospital (.74). Component 5 is suggestively and certainly loaded on bank (.75), public gardens and parks (.73) with the eigen score of 11.81: it explains 6.01 percent of the identified variance in universal buildings benefit. Component 5 is an index of financial/recreational places in Niger delta urban areas. the crucial variable of the component is bank with factor loading of (.73). The cumulative percentage of adjustment demonstrated by the 5 component (institutional buildings, legal buildings, transportation building, and banking/recreational building) is 61.23 percent. This leaves 39.77 percent impenetrable variance of the universal public buildings that restricted the disabilities. From the analysis, the 5 components of public buildings namely: institutional building, legal buildings, transportation building, medical building and banking/ recreational buildings inaccessible to persons with physical disabilities Nigeria. See table 4 for details.

Components	Percentage	Public Building Variables	Rotated component factor loading
1.Institutional Building	20%	School buildings	0.882
		Libraries	0.865
		Town halls	0.753
2.Legal building	13.3%	Court houses	0.823
		Police station	0.725
		Post office	0.645
3.Transportation Building	12%	Railway stations	0.634
		Airport	0.593
		Motor park	0.614
4.Medical building	10%	Hospitals	0.625
		Health centres	0.554
5.Banking / recreational Building	7%	Bank	0.587
		Gardens and recreational parks	0.544

Sources: field survey 2020

*Relationship between Public Buildings Facilities and Persons with Disabilities*

For the purpose of unrestricted public buildings in Niger delta and beyond, this research analysed the existing relationship between public buildings facilities and persons with disability. Based on that, four (4) different assessments were considered through (wheelchair ramp, elevators, modified toilet and slope ramp) of the public buildings. None the less, analysis was actualized by Spearman’s rho correlation coefficient.

*Wheelchair ramp:* For public buildings accessibility and disabled persons, the statistics produced a correlation coefficient of ( $r = -0.212, p < .05$ ). The implication is that negative relationship exist between wheelchair ramp and universal public buildings in Niger delta region of Nigeria. The more the increase of the public buildings, the less or non-inclusion of the wheelchair ramp facilities. This suggests that the power of the relationship is pathetic. The measurement of determination is 2.0% which explains 2.0 percent of public variance inferring that, the universal public buildings considered only 2.0 % of wheelchair ramp in design and erection of modern public buildings.

*Elevators:* The study on the relationship between universal public buildings and elevator accounted for a correlation coefficient ( $r = -0.56, p < 0.5$ ) which maintained that the relationship was weak and negative. This suggested that the coefficient of willpower is 5.1% and detailed that all the public buildings in the regions contained just 5% of the elevator that enhance the accessibility of public building by the physically disabled. However, non-inclusion of elevators in almost(95%) all the professional designed public buildings found in Niger delta area of Nigeria restricted persons with disability.

*Modified toilet:* The analysis for modified toilet facilities and public buildings accessibility and disabled persons explained indicators correlation coefficient of ( $r = -0.51, p < .05$ ). The insinuation is that negative relationship occurred between modified toilet and universal public buildings in Niger delta region of Nigeria. The inference is that the surplus the public buildings in the area, the decline the modified toilet facilities suitable for persons with disabilities while the strength of the relationship is pitiable. The dimension of weakness is 1.0% which explains 1.0 percent of public buildings variance in all the universal public buildings available in the region. The analysis concluded that just 1.0 % of modified toilet facilities suitable for disabled person can be found in almost all the planned and executing public buildings.

*Slope ramp:* The examination between slope ramp design or facilities and public buildings existing in the area proved uncorrelated at ( $r = -.061, p > .05$ ). Based on these studies, significant relationship was not found while wheelchair ramp, elevators, modified toilet and slope ramp never existed in available and proposed public buildings in the region. As a matter of fact, has been a major challenge or reasons disabled persons are restricted to public buildings in Niger delta and beyond. See the table below.

S/N	Public Building Facilities	Spearman rho	Significant level	Number
1	Wheelchair ramp	-.212	.000	594
2	Elevators	-.056	.049	594
3	Modified toilet	-.051	.271	594
4	Slope ramp	0.61	.039	594

Researchers survey 2020

IV. RECOMMENDATION

1. To curtail the restriction of the physical challenged persons from accessing public buildings across the region of Niger delta, the Niger delta development commission(NDDC) charged with the responsibility of physical development and has developed numerous buildings for public accessibility need to embark on holistic rehabilitation of those buildings built by the agency and ensure that all the necessary facilities that accommodate persons with disabilities in public buildings are included properly during the rehabilitation process. Again, all the newly proposed public buildings emanating from the agency (NDDC) should involve the input or participation of both abled and disabled persons. So that the design and implementation stages of such public buildings by an architect or other expert will accommodate every citizenry irrespective of health challenges or status.
2. For government to decline inaccessibility of urban public buildings by the disabled component of the society, all the relevant facilities (ramps, appropriate stairs, suitable cover streets, connectivity bridges lifts, elevators) that has been restraining or serving as

an impediment for persons with disability to access public places should be made top priority in every proposed public building henceforth. This will increase the accessibility of standard facilities designed and built in accordance to international approval and consequence, abolish discrimination, and violation of the disabled right to public buildings in Nigeria.

## V. CONCLUSION

The poor accessibility and circulation challenges confronting physically disabled persons in urban public buildings are not experienced within the Niger delta environment of Nigeria alone, but a serious challenge that requires inclusive strategy across the urban centres of sub-Sahara African. As a result, the research considered the accessibility challenges of physically disabled persons in the direction of urban public buildings of Niger delta region. The analysis detailed that school buildings, libraries, court house, police station, sports centres, etc are the identified public buildings posing accessibility difficulties to persons with disabilities. But on classification of the public buildings, the study revealed that institutional building, legal building, transportation building, medical building and banking/recreational buildings are the public places with 62% statistical clarification. The relationship between public buildings facilities (wheelchair ramp, elevators, modified toilet and slope ramp) and persons with disability providing significant across the urban centres of the region. Although, it is our ultimate opinion for the research to endorse that all the relevant facilities that has been restraining or serving as an impediment for persons with disability to access public places or buildings should be made top priority in every proposed public building henceforth.

## REFERENCES

- [1]. Banda, C.M, Nitz, J.C., and De, J.D. (2012) "Participation-based environment accessibility assessment tool (P-BEAAT) in the Zambian context" *Disability Rehabilitation* 34(14)1232-1243.
- [2]. Cosmos, Y., Evans, Y.K.A., and Emmanuel, K.N.(2017) "Wheelchair accessibility to public buildings in the Kumasi metropolis, Ghana" *African Journal of Disability* 6, 341.

- [3]. Danso, A.K., Atuahene, B.T. and Agyekum (2000) "Infrastructure Facilities For Persons With Disabilities: A Case Of The Sofoline Interchange" Kwame Nkrumah University of Science and Technology, Kumasi, Ghana 1-11.
- [4]. Eric, P. T., John, T. B., and Danso, A.k. (2017) "Deterrent Libraries: Denying Persons with Disability" *Journal of Science and Technology*, 37 (1) 100-110.
- [5]. Evans, Y. K. A., Anthony, K. D., and Eric, P. T.(2015) "Persons with Disabilities and the Built Environment" *Ghana Journal of Higher Education* 2 ( 2343-6948) 72-94
- [6]. Evcil, A.N.(2009) "Wheelchair accessibility to public buildings in Istanbul " *Disability Rehabilitation Assist Technology* 4(2)76-85
- [7]. Fawzia, F.(2018) " Accessibility of Public Buildings in Khulna, Bangladesh, for Wheelchair Users" *www.dcidj.org* 29 (4) 84-97.
- [8]. Hamzat, T.K, and Dada,OO (2005) "Wheelchair Accessibility of Public Buildings In Ibadan, Nigeria" *Asia Pacific Disability Rehabilitation Journal*" 16 (2)115-124.
- [9]. Jaimie F. B., Jacquie, R., and Franco, C.(2018) " Seasonal Patterns of Community Participation and Mobility of Wheelchair Users Over an Entire Year" *Archives of Physical Medicine and Rehabilitation* 2018 99(8):1553-1560.
- [10]. Martha, B.C, Jennifer, C. N., and Desleigh, D. J.(2014) "Impact of inaccessible spaces on community participation of people with mobility limitations in Zambia" *African Journal of Disability* 2014 3(1).
- [11]. Useh, U., Moyo, A.M, and Munyonga, E. (2001) "Wheelchair accessibility of public buildings in the central business district of Harare, Zimbabwe" *Disabil Rehabil.* 2001 23(11):490-496.
- [12]. Moyo, A.M, Useh, U. Siziya, S., and Munyonga, E. (2000) Comparison of wheelchair accessibility of public buildings in pre and post International Year of Disabled Persons (IYDP) in Harare, Zimbabwe: a case study. *Centre for African Journal of Medicine* 46(5):124-127.
- [13]. Prince, K. O. and Regina, O. A.S. (2019) " Sidewalk Accessibility and Pedestrian Safety among Students with Physical Disability in the University of Cape Coast" *journal of social sciences* 2 (2) 1-14
- [14]. Rivano, F.(2004) " Wheelchair accessibility of public buildings in Al Ain, United Arab Emirates (UAE)" *Disability Rehabilitation* ,26(19) 1150-1157.
- [15]. Salman, H., Maryam, E., Bitu, B., Sanaz, R. and Mohammad, A.K(2014) " Improving Of Urban Public Spaces Safety In Order To Using Physical Disabled Persons" *International Journal of Civil Engineering, Construction and Estate Management* 1 (2) 47-56.
- [16]. Waenlor W, Wiwanitkit V, Suwansaksri J, and Soogarun, S. (2002) "Facilities for the disabled in the commercial districts of Bangkok--are they adequate" *Southeast Asian Journal of Tropical Medicine and Public Health.* 33(3)164-175.