



Assessment of Public and Private Buildings Accessible to People with Motor and Sensory Disabilities in the City of Yaoundé (Political Capital of Cameroon)

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Abstract

This study assesses the level of consideration accessibility during construction and renovation of buildings open to the public in Yaoundé city (the political capital of Cameroon). Despite the collection of textual data, this research required a field observation, on the edifices of departments concerned with this study. The study was carried out by reasoned choice. Two hundred houses have been sampled, that is one hundred and forty-two public constructions and fifty-eight private services open to the community. Three criteria were defined in the evaluation of the buildings selected for this study. These are accessibility measures linked to the external path and access to the establishment (considered at 35%), accessibility measures linked to the plane and upright interior path (noted at 35%), and methods implemented to promote access to information by people with disabilities (gauged at 30%). During the analysis, the average of the accessibility frequencies of the different groups of structures was calculated. The level of accessibility of specific buildings was obtained from the addition of the three standards (criterion 1 + criterion 2 + criterion 3 = 100%). The average total frequency of buildings in a specific area was being shot from the sum of the frequencies of single establishments out of the total number of establishments listed in that area. Given the results of the data processing, the total average frequency of accessible public and private buildings is 24.52% or 25.90% for public houses and 23.15% for private buildings. That result justifies the reason why the study concludes that the development, implementation, and triennial evaluation (at the level of municipalities) of program accessibility agendas are being identified as favorable alternatives for the construction of establishments open to the public and accessible to people with disabilities.

Subject Areas

Environmental Sciences, Sociology

Keywords

Motor Disabilities, Sensory Disabilities, Accessibility, Buildings, Inclusion

1. Introduction

The Social exclusion of people with disabilities is a reality in most countries of the world. It is branded by the sometimes-involuntary marginalization of fundamental human rights, which are essential for the consolidation of social connections (Ken D, 2016) [1]. It is based on the United Nations Convention on the Rights of Persons with Disabilities and its optional protocol which is implemented since May 3, 2008 (United Nations, 2014 [2]; Marianne, 2010 [3]). Accessibility is one of the main themes that are being developed in this convention document. According to Article 9 of the United Nations Convention, accessibility aims to promote the empowerment and full participation of people with disabilities at all levels of life. This is supposed to take into account by the member states, measurements to ensure fair access to the physical environment, transport, information, and communication, including information and communication systems and technologies, and other facilities and services open or provided to the public, in both urban and rural areas. Rendering to the guidelines of Article 9 (paragraph 1a), accessibility also applies to buildings, roads, transport, and other indoor or outdoor equipment, including schools, housing, medical facilities, and places of work. The putting into practice of the above accessibility measures is regulated by Article 9 (paragraph 2), which calls on the contracting States to develop and apply accessibility measures.

In Cameroon, the issue of protection and promotion of people with disabilities dates back to the beginning of the 20th century, with decree No. 90/1516 on November 26, 1990, laying down modalities for the application of law No. 83/013 on July 21, 1983 (Republic of Cameroon, 1990) [4], relating to the protection of people with disabilities. This historic involvement can justify the spontaneous commitment of Cameroon, which is one of the first countries to have ratified the United Nations convention of 2006 (United Nations, 2006) [5]. This position of the government was reflected in 2010, by deliberation, adoption, and the promulgation of Law No. 2010/002 of April 13, 2010 (Republic of Cameroon, 2010) [6], on the protection and promotion of people with disabilities. The modalities of access for people with disabilities to public and private infrastructure are presented in Section 3, precisely in articles 33 and 34. These guidelines have since justified the strategic measures taken by the administration and civil society. It was particular to catalyze this vision that the Ministry of Social Affairs in 2013 jointly signed a circular letter in favor of accessibility for people

with disabilities to public and private buildings (Republic of Cameroon, 2013) [7]. In addition to the Ministers of Social Affairs and Public Health, other heads of ministerial departments in the field of infrastructure (Minister of Housing and Urban Development, Minister of Public Works, and Minister of Public Procurement), had joined this awareness-raising project on the construction of accessible buildings and infrastructure. In 2018, the Cameroonian State once again showed its attachment to the fight for the well-being of people with disabilities, in particular through decree No. 2018/6233/PM on July 26, 2018 (Republic of Cameroon, 2018) [8], setting out the modalities of application of law n° 2010/002 April 13, 2010, on the protection and promotion of disabled people. Recently in December 2021, Cameroon has further illustrated its attachment by decree No. 2021/751 of December 28, 2021 [9] ratifying the United Nations Convention on the Rights of Persons with Disabilities, adopted on December 13, 2006. These implementation processes are defined in Chapter 4, which emphasizes accessibility for people with disabilities to infrastructure (Article 18), housing, transport, and communication.

Based on the legislation raised, Cameroon identifies itself as an honored destination for people with disabilities. In other words, the latter can find their adequate measures for their development. Mobility, which is highlighted in article 4 of the 2018 implementing decree, is one of the milestones of social inclusion. It is identified as a requirement for stating communication and involves making public and private infrastructure easily reached to facilitate the empowerment of people with disabilities in search of goods and services that are offered by society, particularly in ministries, town halls, hospitals, markets, and shopping centers, etc. This positioning establishes the precise foundation of this research, which is carried out to evaluate the taking into account people with motor and sensory disabilities in the construction or renovation of public and private infrastructure in the city of Yaoundé (political capital of Cameroon).

2. Methods and Tools

This study has been carried out to measure the level of attention of accessibility (for the people with motor and sensory disabilities) in the construction and renovation of structures intended for public and private services. As the political capital of Cameroon, the city of Yaoundé has been defined as a study area. This research has been structured in three main stages, namely, the collection of bibliographic data, the records of field observations and data processing.

At the end of the conceptual research, observations and field surveys were carried out based on random sampling by reasoned choice. The public services were chosen as a priority, in particular because of the close links with article 4 of the implementing decree No. 2018/6233/PM on July 26, 2018 [8]. The public buildings were privileged to measure the level of respect by the government of the accessibility mechanisms that guide its inclusion policy. With regard to private establishments open to the public, the choices were based on the main ser-

vices provided in these establishments specializing in various areas (health, education, professional, legal, purchasing, and sales, etc.) which have priority for men.

Based on the above criteria, two hundred structures intended for public and private services were observed in the city of Yaoundé. Apart from administrative buildings and United Nations organizations, which for the most part identify with specific geographic sites, other buildings (town halls, sub-division, police stations, hospitals, markets, educational establishments) have been chosen, fairly in the different districts. These choices are based on a premise that lists people with disabilities in all the districts of the city of Yaoundé. The same applies to basic services from which they must be able to benefit in their separate municipalities. The distribution of the sampling of the selected buildings is presented in **Table 1**.

Table 1 shows the number of buildings that were observed during this study. These are the buildings that accommodate nine specific types of services, which are presented in the first column of the table. Regarding the administrative buildings, the assessment was carried out in various buildings (Senate, national assembly, prefecture, Cameroon Elections headquarters, National Commission for Human Rights and Freedoms, national center for the production of passports, National Center for the Rehabilitation of Disabled People, 4 buildings intended for justice, 13 ministries, 7 sub-divisions, 7 Town Halls, and 16 police stations). Six buildings occupied by United Nations Organizations (UNHCR,

Table 1. Number of public and private buildings observed and evaluated in the city of Yaoundé.

Types of services	Number of public buildings	Number of private buildings
Administrative buildings	54	
United Nations Organizations	6	
NGOs/Associations		5
Communication services	3	10
Educational establishments	43	15
Hospitals	19	6
Markets	17	
Supermarkets		17
Power supplies		5
Subtotals	142	58
Totals		200

FAO, UNDP, UN WOMEN, UNESCO, UNICEF)¹ were observed during this study. Due to their explicit implications of disability issues, five civil society buildings (Sightsavers, Platform Inclusive Society for the Persons with disabilities, Promhandicam Association, Cameroon Rehabilitated Young Blind Club) have been evaluated. An evaluation was also carried out in 58 educational establishments, namely 43 public schools (4 universities, 20 high schools, and 19 primary schools), and 15 private structures (6 universities, 3 colleges, and 6 primary schools). The observations were also carried out in the main hospitals in the city of Yaoundé. Twenty-five health structures (19 public and 6 private) were observed. Regarding public hospital structures, these are mainly refereed (4), district (4), and district medical centers (10).

Three main criteria were defined to assess the accessibility of the buildings concerned with the study. These are the mechanisms related to the exterior path and access to the establishment, the measures related to the horizontal and vertical interior pathway, and the protocols implemented to promote access to the public with disabilities. **Table 2** presents the main evaluation criteria taken into account by this research.

Table two presents the three essential criteria that were taken into account when appraisal the accessibility of buildings. Each criterion is detailed by secondary information accompanying by specific observations defined for the evaluation. In **Table 2**, the codes Ia, IIa, IIIa... are defined for the evaluation of the level of access of the building in the three standard mentioned above. In the case of buildings without elevators, 2 multiplied the total result of the evaluation of the devices linked to the horizontal and vertical paths.

Processing and analysis operations were carried out at the end of the field observations and evaluation phase. Excel 2013 software was used for analysis and processing of statistical data. During the analysis, the average of the accessibility frequencies of the different categories of buildings was calculated. The level of accessibility of specific buildings was deduced from the addition of the three criteria (criterion 1 + criterion 2 + criterion 3 = 100%). The average total frequency of buildings in a specific area was deduced from the summation of the frequencies of separate establishments out of the total number of establishments listed in that area.

3. Results

The collection and processing of data made it possible to obtain succinct results not only on the average total accessibility frequency of public buildings observed, but also on the level of accessibility of private and on religious buildings open to the public.

¹UNHCR: High Commission for Refugees; FAO: Food Agriculture Organization; UNDP: United Nations Development Program; UN-WOMEN: United Nations dedicated to gender equality and the empowerment of women; UNESCO: United Nations Educational, Scientific and Cultural Organization); UNICEF: United Nations International Children's Emergency Fund.

Table 2. The main criteria taken into account for the evaluation of the accessibility of public and private buildings in the study.

I-Devices linked to the external path and access to the establishment or facility (criterion 1 = 35%)	
Sub criteria	Observations/Evaluations
Signage (easily spotted and easily understood) Ia	The building can be identified by the PD (Ia1 = 2.5%). The main entrances to the building can be identified by the PD (Ia2 = 2.5%). The numbers or denominations are visible in front of each door (Ia3 = 2.5%). A building plan exists in Braille (Ia4 = 2.5%).
Guide strips Ib	Guide bands exist sites where the equipment and ordinary surface do not allow effective guidance of PD (Ib = 2.5%)
Presence of ramps (permanent or removable) not very steep, without jumps and with rest stop (inclined plane less than 6%) Ic	In the presence of a permanent ramp longer than 10 m, and to facilitate the mobility of people with motor disabilities, rest landings (1.20 m × 1.40 m) exist at the top and bottom of each plane inclined (Ic1 = 2.5%). Permanent ramps longer than 10 m are designed with rounded edges to avoid jumps (Ic2 = 2.5%).
Minimum width of the accessible path (between 0.90 and 1.20 m) Id	The width of the access path varies between 0.90 and 1.20 m (Id1 = 2.5%). In this accessible path, a maneuver space with the possibility of a U-turn exists to facilitate the mobility of people in wheelchairs (Id2 = 2.5%).
Accessibility of the exterior floor covering Ie	The floor covering of the access path is not loose (sand, gravel, grass paths, thick mats), non-slippery, non-reflective, and without obstacles to the wheel (Ie = 2.5%)
Accessibility to external doors/gantries/SAS If	The door opening system is accessible in a seated position as well as in a standing position (If1 = 2.5%). The main doors have a passage width of between 0.90 m and 1.20 m (If2 = 2.5%). The glass doors are visible and do not create visual disturbances (If3 = 2.5%), (5). Maneuvering space exists on either side of each door or gate (If4 = 2.5%).
II-Devices related to horizontal and vertical interior routing (Criterion 2 = 35%)	
Sub criteria	Observations/Evaluations
Signage (easily spotted and easily understood) IIa	The doors are identifiable (IIa1 = 2%). The numbers or names are fixed near the specific doors (IIa2 = 2%) (horizontal circulation). There is an easy tracking information to facilitate the orientation of people with disabilities (IIa3 = 2%) (horizontal traffic). A handrail located between a height of 0.80 m and 1.00 m exists on each side of the stairs (IIa4 = 3.5%) (vertical circulation).
Minimum width of the accessible path (between 0.90 and 1.20 m) IIb	The structural aisles are 1.20 m wide (IIb1 = 2%) (horizontal circulation). The side aisles have a width of 1.05 m on the ground (IIb2 = 2%) (horizontal circulation). Maneuver spaces with the possibility of a U-turn exist on every 6 m (IIb3 = 2%) (horizontal circulation).

Continued

Accessibility of the floor covering IIC	The accessible path is loose, non-slippery, non-reflective and without obstacle to the wheel (IIC = 2%) (horizontal traffic).
Specific provisions concerning lifts IId	There is an easy tracking information to facilitate the orientation of people with disabilities to elevators (IId1 = 3%) (vertical circulation). The elevator door has a minimum width of 0.90 m (IId2 = 3%). The elevator car has a depth of approximately 1.40 m, and a minimum width of 1.10 m (IId3 = 3%) (vertical circulation). The number or name of each floor served by an elevator is easily visible on each landing (IId4 = 3%) (vertical circulation). The specifics and structure of the external and internal controls of the elevators allow their recognition and use by people with disabilities (IId5 = 3.5%) (vertical circulation). In the elevators, the devices make it possible to take support and receive by suitable means, the information related to the movement of the car (IId6 = 2%) (Top-down circulation).

III-Devices for public access (Criterion 3 = 30%)

Sub criteria	Observations/Evaluations
Marking IIIa	The reception area is fleshed and easily identifiable and accessible for people with impairment (IIIa = 15%).
Receipt equipment IIIb	Receipt equipment is easily usable by people in a seated and standing position (IIIb1 = 5%). The furnishing allows visual announcement from the front (IIIb2 = 5%). The reception center has a lighting device to facilitate lip reading for people with hearing loss (IIIc3 = 5%).

*PD: People with Disabilities.

3.1. Low Representation of Public Buildings Reachable to People with Disabilities in the City of Yaoundé

The results of the statistical analysis show very poor accessibility to public buildings in the city of Yaoundé. By referring to the three evaluation criteria, the buildings constructed and renovated have very few devices adapted for the mobility and communication of people with disabilities. **Table 3** shows in particular the average total frequency of accessibility of public buildings observed.

Table 3 presents statistical data on the level of access of public buildings (142) that were measured in the city of Yaoundé. Four major pieces of information emerge from this table. On the one hand, the level of accessibility of the external environment of the buildings observed is very low (an average total frequency of 31.95%) of construction. Referring to field observations, external access boils down considerably to the existence of written information allowing specific structures to be identified. In fact, the adapted mobility elements (guide strips, adaptive permanent and removable ramps, adapted cross-section, relevant floor covering, appropriate external doors and gantries) were hardly identified in most structures. The average total frequency of external access, although not

Table 3. Average total frequency of public buildings accessible to people with disabilities in the city of Yaoundé.

Types of services	Total mean frequency of criterion 1 (%)	Average total frequency of criterion 2 (%)	Total mean frequency of criterion 3 (%)	criteria 1 + 2 + 3 by types of buildings (%)
Administrative buildings	40.20	31.40	23.30	31.65
United Nations organizations	40.90	32.00	22.80	31.90
Communication services	36.45	29.70	21.30	29.15
Educational establishments	29.75	27.35	24.65	27.25
Hospitals	38.45	29.90	21.70	30.00
Markets	5.85	7.20	2.90	5.30
Totals by type of criterion for all buildings (%)	31.95	26.25	19.45	25.90

Source: 2021 field survey.

very representative, corresponds to the greatest compared to other pathways that were taken into account for this research. In fact, only 26.25% of the buildings are equipped with an interior path (transversal and perpendicular) allowing independent mobility for people with motor disabilities, and the visually and hearing impaired. The results of the observations indicate very poor accessibility to lifts, staircases with handrails and structural walkways which for the most part do not illustrate operation spaces (for people with motor disabilities in a wheelchair).

The inadequacy of public access systems is also one of the parameters that hinders the access of people with disabilities to inform. **Table 3** shows an average total frequency of 19.45% of access devices appropriate to the types of disability concerned with the study. Indeed, reception equipment is identified as the main barrier to accessing information in offices. According to this study, generally this reception furnishing is difficult to access in the “seated” position. The same is true of reception stations, which for the most part do not have lighting devices that could facilitate lip reading by hearing impaired people.

Based on the three criteria presented in **Table 3**, the average total frequency of approachability of public build is very disproportional, with 25.90%. This value constitutes a major obstacle in the context of inclusion and empowerment of people with incapacity. Indeed, it demonstrates a weak site for mobility and action for population with disabilities. According to **Table 3**, the average total frequency of accessibility varies significantly from one institution to another. Administrative buildings and United Nations organizations correspond to the ser-

vices with the highest frequencies of ready buildings with 31.65% and 31.90% respectively. Very few hospitals (30.00%) and communication services (29.15%) turn out to be reachable with regard to the total average prevalence presented in **Table 3**. Educational establishments (27.25%) and the markets (5.30%) represent the least accessible establishments compared to the various services previously presented.

3.2. A Minority of Construction Accessible to Citizens with Incapacity in the Private and Religious Sector of the Yaoundé City

As in the previous section, the results of the field data processing illustrate a very low representativeness of private and denominational buildings accessible to people with motor disabilities, and to the hearing and visually impaired. Based on the three criteria taken into account in this study, the buildings constructed and/or renovated have a very small number of keys variables to their accessibility by people with disabilities. **Table 4** illustrates the average total frequency of inclusive buildings identified in the private and faith-based sector of the city of Yaoundé.

Table 4 show the data on the level of accessibility of a workforce of 58 private buildings observed in this study. As in **Table 3**, four main pieces of information flow from this illustration. These are not only statistical data on accessibility to exterior and interior pathways, but also the average total frequency of access to

Table 4. Average total frequency of private buildings accessible to people with disabilities in the city of Yaoundé.

Types of services	Total mean frequency of criterion 1 (%)	Average total frequency of criterion 2 (%)	Total mean frequency of criterion 3 (%)	criteria 1 + 2 + 3 by types of buildings (%)
United Nations organizations	35.30	26.95	20.80	27.70
Communication services	30.65	25.70	19.25	25.00
Educational establishments	30.45	25.35	18.55	24.80
Hospitals	22.25	23.90	19.00	21.70
Supermarkets	19.90	21.15	45.60	28.90
Power supplies	10.85	2.20	19.20	10.75
Totals by type of criterion for all buildings (%)	31.95	26.25	19.45	25.90

Source: 2021 field survey.

public admission devices, and the total average attainability of all fifty-eight buildings.

Based on the information presented in **Table 4**, only 24.90% of private buildings have access characteristics who can allow mobility in the external environment and entry to buildings. For most of the establishments identified, external access is identified exclusively by the existence of textual signs that facilitate the location of specific structure. Other criterion conducive to the mobility (in the external environment and access to buildings) of people with disabilities (guide strips, suitable permanent and removable ramps, suitable cross section, suitable floor covering, doors and appropriate external porticos) have been poorly identified in most structures.

In private and religious establishments, the level of access to the external environment of buildings (24.90%) is still more observing compared to that of the internal path (20.85%). Regarding the horizontal interior path, the study shows a very small fraction of institutions among which the minimum width of the path is suitable for the mobility of disabled people on wheelchairs. The same applies to directional markers in relief intended for the use of visually impaired people. Regarding vertical circulation, the study identifies a small number of buildings with handrails on either side of the stairs. The same is true of elevators, which for the most part do not have an appropriate tracking system for orienting people with disabilities.

The fourth column of **Table 4** presents data on the appropriate devices for the access of people with disabilities in buildings. Based on the information in this column, only 23.75% of constructions have devices that are keys for accessing verbal and written information. According to this study, most of the equipment identified in buildings is difficult to access from a “seated” position, which is a major difficulty for people in wheelchairs. With regard to reception stations, suitable lighting devices (which facilitate lip reading by the hearing impaired, and the reading of written information by visually impaired people) are almost non-existent in most contact points.

Referring to the three criteria presented in **Table 4**, the average total frequency of accessibility of private and religious buildings is very low, with 23.15%. This average value, although varying according to the building, remains low in view of the information presented in column 5 of **Table 4**. Supermarkets identify themselves as the services with the most accessible buildings, regarding a frequency that is 28.90% compared to civil society buildings (27.70%). Communication services and educational institutions rank third and fourth, with 25.00% and 24.80%, respectively, while hospitals (21.70%) and food (10.70%) rank illustrate as the least accessible services in private and faith-based services.

4. Discussion

4.1. Poor Consideration of Accessibility in the Different Levels of Construction of Buildings

This study highlights the extent to which accessibility is taken into account in

the construction and renovation of infrastructure intended for public reception. This takes into account remains weak compared to the data presented in the two preceding tables, with in particular the average total frequencies of accessibility which are substantially identical, that is to say 25.90% for **Table 3**, and 23.15% (**Table 4**). This research also shows very little consideration of accessibility in interior traffic (upright and lateral), since the ground floor of buildings is identified, in most sites as a setting reserved for people in a situation handicap. This observation gives rise to a causation of legislation drawn up with the aim of promoting and protecting the rights of people with disabilities. Indeed, and unlike the measures highlighted in Law No.83/013 July 21, 1983 relating to the protection of disabled people, Chapter 4 of Law No.2010/002 April 13, 2010 (Republic of Cameroon, 2010) [6] on the protection and promotion of people with disabilities, underlines the need to take accessibility into account in a generalized framework. According to this legislation, the implementing decree, of which has been signing since 2018 (Republic of Cameroon, 2018) [8], it is no longer just a question of adjusting and limiting the frameworks reserved for people with disabilities, but above all about taking into account of their rights and duties in the overall construction of buildings. This implies not only an adaptation of the simple ground floor, but also of the tools and devices allowing to reach the upper floors, at the level of which generally identify specific services which should be intended for all in a context of inclusion.

4.2. Lack Regard of Accessibility in the Construction of Buildings in Africa Compared to Other Continents

This study has the distinctiveness of highlighting the evaluation of public and private buildings accessible to people with disabilities in the city of Yaoundé, the political capital of Cameroon. It is part of the rich stream of scientific work done in recent decades to highlight inclusion. The work of WAD Keerthirathna *et al.* (2010) [10] is part of this trend by emphasizing access for people with disabilities in public buildings. These authors highlight the basic design requirements (entrances, door openings, stairs, steps and handrails, handrails, elevator, balcony, hallways and toilets) defined in 1998 by the Sri Lanka Ministry of Social Services. It is based on these requirements that the authors evaluate the accessibility of specific buildings (banks, educational buildings, hospitals and retirement homes, offices and administrative buildings, train and bus stations). Unlike this study, which presents a low frequency (25.90%) of accessibility of public buildings, the study carried out by WAD Keerthirathna *et al.* presents a level of accessibility (entrances, opening of doors, stairs, steps and handrail, ramps) average greater than 70% in the main services involved (banks, educational buildings, hospitals and retirement homes, offices and administrative buildings, railway and bus stations).

Several authors have also worked on the evaluation of the accessibility of buildings and public spaces open to people with disabilities in most regions of the world. These include in particular Ayse Nilay Evcil (2009) [11]; Can Gungor

(2013) [12]; Hugues (2014) [13] Gladstone SK (2015) [14]; IAU (2015) [15]; Wai Kin Lau *et al.* (2016) [16]; Aini Q *et al.*, (2018) [17], Zogning (2017) [18], Zogning and Boulla (2021) [19]...). The study carried out by Ayse Nilay Evcil (2009) [11] especially explores the accessibility of people in wheelchairs in public buildings in the city of Istanbul in Turkey. According to this research carried out in 2009, the frequency of buildings ready to people in wheelchairs is 79%. Another study carried out by Can Gungor (2013) [12], assesses the buildings of the Faculty of Architecture of the University of Gazi, referring to the Turkish standard “TS9111.2011” relating to the requirements for the accessibility of buildings to people with disabilities. This assessment of the level of accessibility of the renovated buildings shows a substantial improvement in the possibilities of upstanding circulation in the building. The same applies to the connecting elevators used there for the vertical ligation of the levels of the education building.

Gladstone SK (2015) [14] also carried out a study on the assessment of accessibility of public buildings for people with disabilities in Ghana. The results of this study showed a very low frequency (22%) of accessible parking lots and driveways around 32 government service premises. With regard to internal arrangements (horizontal circulation, building entrances, width of corridors, floor coverings), this study identified 22% of buildings with these characteristics. Vertical circulation (ramps, stairs, and elevator) was also taken into account in this study, which identified a low frequency (20%) of public buildings with appropriate ramps and elevators for people with reduced mobility. Regarding sanitary accommodation and communication aids, Gladstone SK (2015) [14] identifies 8% and 5% respectively of constructions that have these characteristics adapted to people with disabilities.

This research by topic identifies itself as one of the main research carried out in Cameroon, precisely in the area of accessibility for people with disabilities to public and private buildings. It has the distinctiveness of presenting factual data on the level of accessibility of said constructions. It responds, so to speak, to theories developed for more than a decade by the Cameroonian government. Indeed, it has been since 2009 that Cameroon has presented a practical guide on the accessibility of people with disabilities to infrastructures and buildings that are public or open to the public. This orientation went before the ratification in 2013 of a joint circular letter on the facilitation of accessibility for people with disabilities or reduced mobility in the built environment (Republic of Cameroon, 2013) [7]. Three main implementing measures are prescribed in that. The second point is in particular recommended: “a scrupulous and effective follow-up of the taking into account of the handicap approach in the realization and the maintenance of the works comprising special arrangements making them accessible to the various categories of people with reduced mobility and concerning in particular access ramps to buildings, accessibility to doors, elevators and toilets, width of corridors, floor coverings, toilets, sidewalks and other pedestrian traffic routes, nameplates or sound plates and parking lots”. The need

to check such devices before acceptance of works open to the public is determined in the third paragraph of the joint circular letter referred to in this part. This study is therefore of capital interest and makes it possible to question these theories, particularly in the absence of statistical documents on the changes observed since the taking into account of these numerous texts on accessibility.

4.3. A Non-Existence at the National Level of Programmed Accessibility Agendas Identified in Europe and America

This study condemns the absence of specific programs for a real implementation and evaluation of the accessibility of buildings open to the public in Cameroon. The decentralization process is identified as an approach that should help promote consideration of accessibility in the construction and renovation of buildings. In countries such as France and Canada, actions in terms of adoption and implementation of accessibility are considerably advanced. In Quebec in particular, the study carried out by Patricia L (2017) [20] presents an inventory of the movement of people with disabilities, highlighting access to transport and the accessibility of buildings and public places. In other words, this research is an evaluation of the effectiveness of government policy in its own right, for a true exercise of the right to equality. It highlights the frequency with which town halls support various accessibility projects, in particular those relating to the adaptation of buildings (old and new). Unlike Cameroon, most French cities in general and the municipality of Paris in particular are implementing accessibility because of a programmed accessibility master plan implemented in the period 2016-2024. It is particular to assess the program that the audit report of the inventory of the accessibility of public facilities and services to people with disabilities was drawn up by the Paris City Hall (French Republic, 2018) [21]. The approach is the same in the city of Créteil is also part of the same reasoning and in particular presents a dynamic assessment of the accessibility of renovated buildings. Based on an initial inventory of 111 establishments open to the public, this community shows a considerable evolution of renovated buildings, which pinkish from 11 in 2014, and 55 in 2018.

5. Conclusions

The main goal of this study was to evaluate the level of accessibility of public and private buildings welcoming the public in the city of Yaoundé, the political capital of Cameroon. By referring to international and local policies and legislation in terms of promoting the rights of people with disabilities in general, and the construction of accessible public and private buildings in particular, this research required observation of 200 buildings (142 from the public and 58 in the private/denominational). Nine main types of services were explored. The sampling of public buildings identifies six variables, namely administrative buildings (54), United Nations organizations (6), communication services (3), educational establishments (43), hospitals (19) and markets (17). With regard to buildings

open to the public and falling within the private/denominational sector, the study also identified six main groups, namely Non-Governmental Organizations and Associations (5), communication services (10), educational establishments (15), hospitals (6), supermarkets (17) and food (5). Three evaluation criteria were adopted for this study. These are devices related to exterior path and access to facilities (rated at 35%), methods related to horizontal and vertical interior flow (graded at 35%), and devices for public access (ranked at 30%).

Other sub-criteria presented in **Table 2** were defined in the evaluation of the three above-mentioned modalities. The processing and analysis of the data point to two main results. On the one hand, the level of accessibility of public buildings in the city of Yaoundé remains low. For this first category, the average total accessibility frequency is 25.90%. It varies considerably depending on the type of service. United Nations buildings rank first with an average total frequency of 31.90% of accessible buildings. This frequency is more or less decreasing depending on the establishment. This is the case of the administrative buildings (31.65%), hospitals (30.00%), communication services (29.15%), educational establishments (27.25%), and markets (5, 30%). On the other hand, the second major result of this research is that of the minority of inclusive buildings in the private and religious sector in the city of Yaoundé. In fact, this total average accessibility frequency is 23.15%. This frequency also differs depending on the service. Supermarkets and civil society organizations have the most reachable buildings with respective frequencies of 28.90% and 27.70%. With respective average total frequencies of 25.00% and 24.80%, communication services and private educational establishments form the second group with the most accessible buildings, compared to hospitals (21.70%) and power supplies (10.75%). Ultimately, this research shows very little application of accessibility in the construction and renovation of buildings, compared to the findings observed in various countries (France, Turkey, Canada, China, etc.). On the basis of the strategies implemented in the so-called developed and emerging countries, the development, implementation and triennial evaluation (at the level of municipalities), programmed accessibility agendas are identified as favorable alternatives for the construction of establishments open to the public accessible to people with disabilities.

Conflicts of Interest

The authors declare no conflicts of interest.

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