

Enhanced Accessibility to Transport Infrastructure for People with Disabilities Living in Urban Areas in Benghazi Libya

Alkhansa .M.R.Aljanzouri ¹ , Dr.ir.m.Ruslin Anwar,m.si.² , Dr.Yulvi Zaika³
^{1,2,3} Dept. Civil Engineering, University Of Brawijaya ,Malang, Indonesia

Abstract: This paper discusses the concept of accessibility for disability people and how it can be incorporated in transport planning. Accessibility refers to people's ability to reach goods, services and activities, which is the ultimate goal of most transport activity. Many factors affect accessibility and the many obstacles facing the disabled .Accessibility can be evaluated from various perspectives, including a particular disability person , location or activity. Conventional planning tends to overlook and undervalue some of these factors and perspectives. More comprehensive analysis of accessibility in planning expands the scope of potential solutions to transport problems. This report summarizes the work undertaken in Phase I of the project, which investigated the status quo and needs and barriers in my case study (Benghazi); Phase II of the project intends to assess the applicability of current guidelines and standards.

Keywords: Accessibility - Transport Infrastructure – barriers faced by disabilities people

I. Introduction

The issue of accessibility for persons with disabilities in Benghazi is one, which has gained attention only in recent times.

Currently, however government do not Pay attention to accessibility details when implementing infrastructure construction projects, construction specifications do not include all details regarding facilitating access.

The difficulties faced by the disabled in Benghazi changed after he crawled architect others planned by the building owners.

Try to pay attention to the problems faced by the disabled when it is used for public roads and provide scientific advice and guidance to the Municipal Council to find solutions to them, the main objectives is investigate the range of accessibility and Identify barriers faced by disabilities people in urban areas in the second largest cities of Libya to improvements facilitate in the level of personal Accessibility and safety for pedestrians with disabilities and older persons through the provision of pedestrian infrastructure and facilities which cater to the needs of all pedestrians.

II. Literature Review

2.1. Defining Disability

an impairment is any loss or abnormality of psychological, physiological or anatomical structure or function; a disability is any restriction or lack of ability (resulting from an impairment) to perform an activity in the manner or within the range considered normal for a human being;

a handicap is a disadvantage for a given individual, resulting from an impairment or disability, that limits or prevents the fulfillment of a role that is normal depending upon age [1]

2.2 Types of Disability and the Needs of People with a Disability

2.2.1 People with Physical Disabilities:

Conditions that result in physical disabilities include spinal cord injury, arthritis, multiple sclerosis and a number of other conditions of the muscular, nervous and respiratory system.

2.2.2 People who are Blind or Vision Impaired:

It is estimated that there are about 10966 Libyan who are blind or have some kind of vision impairment. Access requirements for people with vision impairments vary widely. The blind and vision impaired undergo individual training by orientation and mobility instructors to negotiate the pedestrian environment to ensure their safety and to encourage independence. The provision of information on signs must ensure those with vision impairment can read and process information easily. Signs at transport interchanges and bus stops should provide information in tactile and Braille formats

2.2.3 People who are Deaf or Hearing Impaired:

It is estimated that there are approximately 7336 deaf people in Libya. These people use mainly oral communication. People who are deaf or hearing impaired rely heavily on visual information to safely negotiate the transport environment. Good sight lines and clear visuals such as signs will assist their movement.

2.3 Disabled Population in Libya

The latest data we have on the disability in Libya is based on a countrywide survey carried out by General Authority for Social Solidarity Fund in 2012 . The Survey estimated the percentage of the disabled population at around (1.46%) of the total population. Results and the recorded numbers of persons with disabilities in the Public Authority for Social Security Fund managing the affairs of the disabled That the number of persons with a disability (87,746 people), Of them (57.8% male) and (42.2% females). The results also show the following:

- that the percentage (43.57%) with a mobility impairment.
- percentage (22.84%) suffer from a mental disability.
- that the percentage (13.74%) suffer from a hearing impairment.
- percentage (12.64%) with a visual impairment.
- (7.21%) with a psychiatric disability. [2]

The results also showed the following: -

- 1 - (10.3%) of the total number of people with disabilities under the age of 15 years.
- 2 - that the percentage (14.9%) of the total number of people with disabilities is located between the ages of 15 and less than 25 years old.
- 3 - that the percentage (20.6%) of the total number of people with disabilities aged between 25 and less than 35 years old. [3]

2.4 Defining Accessibility:

Accessibility (or just access) refers to the ease of reaching goods, services, activities and destinations, which together are called opportunities. It can be defined as the potential for interaction and exchange [4]

but their perspective is often limited:

- Transport planners generally focus on mobility, particularly vehicle travel.
- Land use planners generally focus on geographic accessibility (distances between activities).
- Communications experts focus on telecommunication quality (such as the portion of households with access to telephone, cable and Internet services).
- Social service planners focus on accessibility options for specific groups to specific services (such as disabled people's ability to reach medical clinics and recreation centers).

2-5 The Infrastructure In The City Of Benghazi :

a city like Benghazi, which is characterized by overpopulation which up to 562 067 in 2012 [5].the streets suffer from cracks and fossils, as well as poor implementation of projects in the sub-contractors, as well as poor maintenance .Pedestrians suffers in general and those with disabilities particularly a lot of problems when they use the road . Fossils and pitfalls and a lack of signals of traffic and the lack of asphalt in some streets as well as the small side walk in some of the main streets . Not limited excavations and bumps on the street and one , but extends to many from the main streets and domestic " especially the main streets within the neighborhoods that had not maintenance for many years.[6]

There is no systemized public transport system in Benghazi despite the city's size and significance. A popular system of minibus (microbuses) has developed in recent years; In the other hand, there are difficulties and problems still facing disabled people in their lives, and movement, in particular, the most basic services are not available for them such as the blind is facing the problem like the Public phones did not provide putting prominent figures , not provide directional Indicators & detectable Warnings to help them When the sidewalk intersects streets , with no sidewalks appropriate in many streets, and the lack of warning sound when texcavation work on the streets, and the lack of warnings or awareness of drivers give disabled the right to walk, and not to provide special services like Accessible Ticketing Machine. The city is currently experiencing slow development's work taking place in the city.

2.6 Strategies for Improving Accessibility:

This section describes various ways to improve accessibility. Current transport planning and evaluation ,practices tend to focus on certain types of accessibility improvements, particularly those that increase motor vehicle travel speeds and parking convenience, which limits the scope of potential solutions to transport problems: Accessibility and mobility demand varies depending on the quality of options available. .it can be improved by developing new transport and location options that better respond to consumer needs and preferences [7].

Accessibility can be improved by increasing roadway capacity and design speeds, improving traffic management, improving parking facility capacity and convenience, and increasing vehicle safety.

Public transit improvements can increase mobility and accessibility in several ways. They improve mobility for non-drivers and increase transport affordability, and they can reduce traffic and parking congestion by attracting

discretionary travelers (people who would otherwise drive). In addition, high quality transit often provides a catalyst for more accessible, walk able land use development patterns, which further increases mobility options and improves accessibility [8].

III. Research Plan And Methodology

3.1 - The study population

The study population consists of People with Disabilities in Disabled Rehabilitation of Center Benghazi and Charity disabled women was 223 people.

3.2 - The study sample

The study sample included of 140 People with Disabilities in the Center of Disabled Rehabilitation , which had been identified from a table (Kejcie& Morgan). Were as follows: for males was chosen (84) and females (56).Based on the survey's methodology and goals , was selected sample according to the Stratified Random Sampling .

3.3- Statistical analysis.

The researcher used the program SPSS . In order to determine the reality of barriers faced by disabilities people in urban areas in the second largest cities of Libya., in order to determine the degree of consent degree was converted respondents answer on the Likert scale quintet. From one to five and categorized Three levels high, medium and low, On the grounds that the degree a neutral is medium and offset 3 from 1 to 2.5 Low And from 2.5 to 3.5 average level is 3.5 to 5 is a high level. In order to know the relationship between the Disability and barriers faced by disabilities people.

3.4 Study Tools

A questionnaire was prepared, for barriers faced by disabilities people in urban areas in the second largest cities of Libya., he was distributing an open questionnaire and a questioned to the Disabilities about the problems that they face it . The questionnaire was distributed to 140 Disabilities within the center.

IV. Results of Study

The result of the study are presented in the same order as the section and statements appear in the questionnaire .the questionnaire consisted of four section .namely:

- Section A –Biographical information
- Section B – The Social barriers to accessibility
- Section C - The Psychological barriers to accessibility
- Section D- The Psychological barriers to accessibility

4.1 Biographical information :

Section A covered biographical information, including type of disability, period of disability, the pattern of road use, gender, Age of respondents.

Fig (1) result of biographical information Responses according to Age

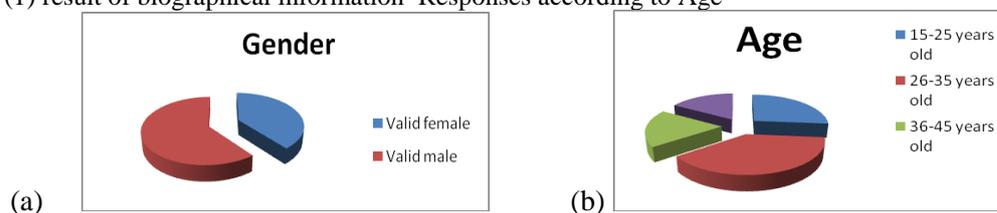
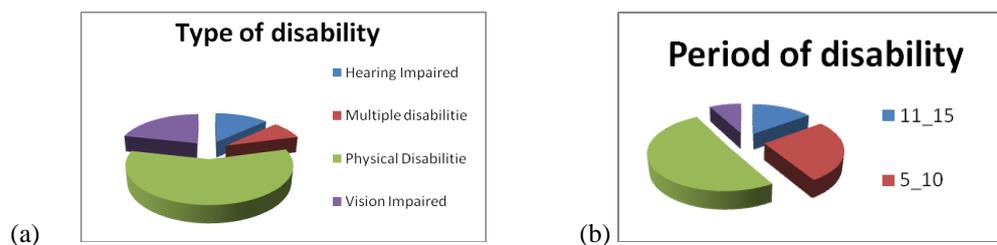


Fig (1) result of biographical information (a) Responses according to Gender(b) Responses according to Age

Figure 1a shows that a high number of disabled males compared to females .and figure 1(b) shows the ages of those that rose after the revolution in which disability in young people between the age of 26-35 rebels returning from the battlefield.



Fig(2) result of biographical information (a) What type is your disability (b) Responses according to how long they have been in the disability ?

Figure 2c shows a high proportion of this increase is in physical disability in males , Figure 2d shows The number of disabled people in the city dramatically in the last three years. This rise due to the war

4.2 Analysis and interpretation of results of section (B) Social barriers

4.2.1 Lack of public disability awareness

Transport staff and other passengers can create barriers for disabled people using public transport. The problems associated with a general lack of awareness among the public of the needs of people with disabilities.

Problems were often encountered when requesting help because the participants felt other passengers offered help in a patronizing or demeaning way, or due to ignorance of the needs and problems of disabled people among the public.

4.2.2 Lack of staff awareness and training

As public service providers, and staff transport plays an important role as an interface between passenger and service. Yet been reported negative attitudes and ignorance staff specific barriers to use public transport

3.2.2 Communication

.People who suffer from hearing and / or speech impaired often have difficulty in communicating with employees as well as with other passengers . To the lack of visual information such as destination signs on vehicles were absent, and it was these passengers have faced difficulty in identifying the right vehicle to climb. . Well as the possibilities for writing tickets or requests for information were often limited because of illiteracy among the drivers , and people with special needs and other passengers . The complex fare structures also hard for some people with disabilities to understand

4.2.3 Cost

it highlighted the high transport costs almost universally as a significant barrier to mobility - especially with disabilities often have to bear the burden of cost is higher than the non-disabled counterparts. People with physical disabilities, especially those who use wheelchairs, and are often limited to the more expensive forms of transport because of the cheapest forms of inaccessible

4.3 Results of section (C) Psychological barriers

Some of the participants self-conscious about disability and to avoid the use of certain modes of transportation or ask about assistance. Concern about personal security and also a barrier for some participants. People felt insecure about other moving roads and sidewalks, especially in heavy traffic

4.4 Results of section (D) Structural barriers to accessibility

4.4.1 Information

People with sensory impairments often had difficulties identifying the correct vehicle to board, the correct fare to pay, or the point at which to disembark. Operators frequently did not display route numbers or destination signs prominently, and failed to illuminate them at night. People with visual impairments reported not being able to find the correct platforms or bays to board their train or bus, due to an absence of tactile and other information to guide them inside public transport facilities

4.4.2 Vehicle Design

Engineering design for buses and taxis pose major obstacles to be used by people with disabilities . These included :

- High entry steps with high risers (especially the first step from the ground –step in a bus is usually up to 50cm from the ground);
- The lack of sufficient grab rails entrances and inside the vehicle

- The narrow door openings ;
- Narrow lanes (aisles)and seat spacing , which hinders maneuverability inside the vehicle
- vehicle floors were slippery or not level.

4.4.3 Transport infrastructure

Alongside the design of the vehicle , the inadequate infrastructure design major structural barriers to the mobility of persons with disabilities . Rarely are designed and bus stops , parking lots, and stopped and ranks used by the minibus -type vehicles with the needs of persons with disabilities in mind. According to people with physical disabilities deprived of access to bus stations because of the need to negotiate steps and stairs , due to lack of adequate seating and waiting areas , as well as their inability to use banking facilities in the streets for lack of appropriate space for the movement of wheelchairs

4.4.4 Pedestrian environment

The environment for pedestrians often presents the first hurdle to take a trip . The problems have been reported by participants often a combination of design and construction practices, defective or inadequate , and the adequacy of facilities management , and natural features of the terrain the absence of sidewalks and paved adequately maintain sidewalks limited of mobility of people with various disabilities . Uneven surfaces , garbage, , and vegetation often disheveled forced people to use the road , which led to increased vulnerability to infection . Krebs was often difficult to negotiate for people with mobility devices

4.4.5 Planning

Several of the barriers experienced by people with disabilities directly related to the planning of networks and public transport services , as well as the facilities available in the streets. It is also the lack of interest of government to provide for Devices and signals, for example, warning signal . audio devices , direction indicator and detectable in the streets , Even though the Sign with the international symbol in all barking spaces and the lack of plan for development of schemes what exists to increases the difficulty experienced by disabled people in the use of transportation and promote weakness pedestrian environment appropriate for them.

4.5 Analysis of Strengths ,Weaknesses, Opportunities and Threats

Table 1 SWOT matrix

	Strength	Weakness
Opportunities	The beneficial policies from Ministry of Transportation and Utilities in the new government give Attention to improve accessibility for persons with disabilities .(S/O) Improving infrastructure and supporting development projects in the utilities sector . (S/O) adjustments to the directory Libyan Standards and Specifications and developed to provide a suitable environment for the disabled . (S/O)	The city suffers from violation of the standards nonprofessional Implementation for infrastructure projects and lack of the furniture and equipment which help the disabled in the street (W/O) The weakness of the current financial system (W/O) The lack of statistical database accurate and complete maps of the network of roads and land use (W/O) The security situation is unstable and this may affect the implementation of projects and also in the sense of a disabled safe to get out of the street (W/O)
Threats	The steady increase in population , and the high proportion of disabled people in the city and the needs of the rapidly growing and the presence of adequate infrastructure , and Transfer of appropriate and sufficient to meet this substantial increase (S/T)	of laws , regulations and local authorities , would disrupt the work of the local council in particular. This requires a return to the Ministry of Transport before the adoption of the central Thus laws for consultation and to prevent conflicts of laws, and their issuers. the cost is high and try to find alternative solutions to reduce the cost and make it more attractive for the investor (W/T)

V. Conclusions:

- 1.The number of disabled people in the city dramatically in the last three years. This rise due to the wa. Where he became a high number of disabled males compared to females. Beside it a high proportion of this increase is in physical disability in males , Concentrated between the ages 26-35
- 2 Because of the deteriorating security situation in the city. Disabled people feel insecure in the use of the road or public transport, especially females,
- 3The built environment in Benghazi is totally inaccessible for persons with disabilities. This includes, buildings, roads and transportation, particularly public transportation.

4 sensing public transport staff about the deficit. For this, they must be given specialized training to help the
5 helpless passengers.

VI. Recommendations:

1. The local council have to pressure on the government and the concerned authorities to improve the city's infrastructure and open the way for the private sector to contribute to the development
2. They must create a social awareness about the need for an accessible built environment for the persons with disabilities.
3. Promotion of disability awareness and training of public transport drivers and conductors,
4. Implementing low-cost, high-impact features in vehicles, such as sufficient grab rails, high contrast color on step nosing and grab rails, large print destination signs, and reserving seats for passengers with disabilities.
5. Improvements to the infrastructure such as seating and shelters at bus stops platforms, high contrast color on step nosing and hand rails.
6. Prioritized planning targeting the above improvements initially at high priority locations and routes, in a way that addresses all stages of the travel chain.
7. Provision of information on all stages of the travel chain in accessible formats.
8. The government must start racing to the adoption of disability rights legislation in Libya.

References

- [1] World Health Organization (WHO), International classification of impairments, disabilities and handicaps (Geneva 1980), pp.27-29; and World Programme of Action concerning Disabled Persons, para. 6.
- [2] (Libyan Social Security Corporation(2012))
- [3] Ministry Responsible for People with Disabilities Report, A Report on Disabled Persons, No. 23, pp 75 January 2006
- [4] Walter G. Hansen (1959), "How Accessibility Shapes Land Use," Journal of the American Institute of Planners, Vol. 35, No. 2, pp. 73-76
- [5] Bureau of Statistics and Census Libya , National Survey of residents 2012 .
- [6] Government of Libya (1987), libyan law for The Persons with Disabilities (Equal Opportunities, protection of Rights and Full Participation) Act, 1987
- [7] VTPI (2006), Online TDM Encyclopedia, Victoria Transport Policy Institute
- [8] VTPI (2006), Online TDM Encyclopedia, Victoria Transport Policy Institute