Universal Design Methodologies in Developing Countries: Case Study-Tirana

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1 ABSTRACT

In developing countries, people with disabilities face a multitude of obstacles in their physical environment preventing them from participating in social, cultural and professional life. Given this tort, major concerns of people with disabilities in Tirana City are presented.

In this context, this paper explores different methods to analyze the existing situation. First, an actual scene of disability in Albania and factors that influence their isolation are given. In addition, existing state of accessibility in physical environment is indicated. In regard Albanian framework lack of accessibility design standards.

Furthermore, a questionnaire was conducted to a group of people with different disabilities to detect their main problems that need immediate action. Low level of provided services for this category is revealed. The results show that the disabled people and their family belong to the marginalized part of the society. As such, incorporating Universal Design into the urban city life is vital. As results show, despite people benefits, construction and renovation costs seem not to be prohibitory.

To further address this issue, two case studies “Agimi” cinema and “Don Bosko” cross-road are developed as a practice of universal design that professionals should consider and use.

2 INTRODUCTION

Disability affects hundreds of millions of families in developing countries. Currently around 10 per cent of the total world's population, or roughly 650 million people, live with a disability (Disabled World 2011).

Wherever they may live, but in particular in developing countries people with disability are facing a multitude of obstacles in their physical environment as they are excluded from basic necessities such as education, employment, health care, social services as well recreational activities. These barriers except physiological and psychological aspects influence in their limiting economic opportunities, becoming so among the poor. Case studies in a number of countries show that higher disability rates are associated with higher illiteracy, poor nutritional status, lower inoculation and immunization coverage, higher unemployment rates, and lower occupational mobility, among other characteristics (Peter 2004). A barrier free environment is the key factor for this group of people to be included in all aspects of social life.

Several authors have studied the environment design and its impact into disabled development. People with impairments are rarely involved in design processes. Designing any product or environment involves the consideration of many factors, including aesthetics, engineering options, environmental issues, industry standards, safety concerns, and cost (CUD 2011). Connell defined the concept of Universal design as "the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design" (Connell, et al. 2008). Universal design ranges from inclusive and non-discriminatory design of products, cars, architecture, and urban environments and infrastructure, all the way to information technology and telecommunications (Nasar and Cowley 2007).

A conceptual development has taken place in the disability field during the last 20 – 25 years. Only half of the countries around the world have developed accessibility criteria in their building codes and standards, as reported by the Special Rapport to the United Nations. While some countries have well developed technical specifications, others are still introducing accessibility into their building codes (Commission 2007). There has been progress in reducing barriers in the transport environment particularly in high-income countries, and many of the low and middle-income countries have also adopted accessibility policies (The World Bank 2008). However, it is often a challenge to put these policies into practice due to lack of resources for implementation as well as the inadequate monitoring and enforcement of the policies.

To reduce the isolation of disabled people, different kinds of interpersonal telecommunication services (like video-telephony or electronic mail, which can include speech, image and text transmission) are provided by means of telematic networks (Roe 2001). The role of computers is irreplaceable for its contribution to enhance social inclusion and autonomy of users with disabilities giving them access to education, labor, information, communication, leisure, etc., often through telematic networks. (Abascal and Nicolle 2005).

There are several organizations operating in developed countries, that in close corporation with development actors, local communities and government try to build strategies and projects that reduce obstacles to participation of people with disabilities. In Developing countries there is often a legislative framework for accessibility, but this is rarely applied in practice.

Albanian legal framework is in processing and has yet to be completed regarding this issue. It must enforce its improvement so it can better serve the needs of disabled people.Thus, addressing the issues affecting people with disabilities and reducing their isolation is the aim of this study.

This study would be a useful research for the rights of persons with disabilities for local government, transport planners, professionals in the building industry and all those involved in one way or another with improving built environment and accessibility. Thus, the government, through laws, must take full responsibility and assist this community

3 METHODOLOGY

In Europe 12 to 14% of the population are disabled (UNDP 2010). The percentage of people with disabilities is increased with age. Eighty per cent of persons with disabilities live in developing countries, according to the UN Development Program (UNDP 2010). The World Bank estimates that 20 per cent of the world's poorest people are disabled, and tend to be regarded in their own communities as the most disadvantaged.

3.1 Statistical evidences in Albania

Evaluation of disability in Albania is made by special committees of experts specialized in different fields. Disability statistics collected by the government of Albania represent the number of people registered to receive disability pensions and also those registered as recipients through the social welfare system. Currently they are reduced in the number of people with disabilities and the main types of disability.

According to data received from the Ministry of Labor, Social Affairs and Equal Opportunities, is shown the prevalence of persons with special disabilities categories in Figure 4.

Type of disability	**Total**	**Urban**	**Rural**	**Caretaker**
i. Disabled born or living with impairments till 21 years old	44794	19669	25125	7288
mental, sensory, physical	35547	15166	20381	3593
Blinds	8621	4197	4424	3142
paraplegic and quadriplegic	626	306	320	553
ii. Invalid	30250	26274	3976	1462
working disabled	29676	25904	3772	1500
disabled from war	574	370	204	
Total	75044	45934	29101	8788

Table 1 Prevalence of disabled people categorized by type of disability (2006)

The number of disabled people registered is increased around 10 times during 3 years (Kospiri, et al. 2010). This includes only people who are commissioned and benefits pensions and support services (MPCSSHB 2008). In fact the number of people with disabilities is higher than official

sources indicate. According to the statistical data more than 4% of total population of Albania is considered disabled and Tirana has the highest number of this community.

The main problem of disability in Albania is lack of proper infrastructure for facilitating accessibility of these people. Another problem is that only few people are attended in social care institutions, in schools or rather working as illustrated in the figures below (Table7-8).

Employment is one of basic human rights. The employment of people with disabilities is achieved through vocational rehabilitation services in accordance with medical and educational state (MPCSSHB 2008). According to PAK, the disabled employment rate is low. Only 2,275 of 9,533 people with disabilities that are able to work have had the opportunity of employment (SSS 2008). A small number of employees indicate the low degree of awareness of the Albanian society and employers as part of this society to consider persons with disabilities as active part of society.

The facts show that there is a progress made in the establishment of new social services for people with disabilities compared to previous years.

Considering these dramatic statistics and current state of the environment that surrounds us this study will follow with the implementation of standards in buildings and infrastructure trying to improve and facilitate the lives of disabled people.

4 APPROACH

The research is designed on the basis of qualitative method. First a questionnaire was conducted to 20 people with different disabilities living in Tirana. Through the questionnaires were emerged the main problems that these people are facing especially with physical environment. Considering their social and physical exclusion was decided to redesign one cultural building and also one of the main cross-road in Tirana in order to demonstrate universal design approach in build environment. Information and materials used for the models are provided from Tirana's Archive Institution and from observation in place, while standards used are based on BS 8300:2009 Codes of practice.

Finally, the implementation of these standards is illustrated in both models. Effects and improvement of universal design concept are discussed at the end.

5 CASE STUDY

5.1 General description

Facilitation of physical barriers to be accessed and usable from all is one of the basic principles of universal design. In Albania, as well as in other developing countries, these physical barriers exist everywhere. However, Albania seems to be in the right way considering disability issues. Legal framework is promoted in the field of disability trying to comply with UN convention of human rights. But, the legal framework has not been approved yet.

Although positive steps have been identified, the level of implementation of international standards in accessible building design and construction is insignificant.

Considering the above mentioned standards and the result of questionnaire, the study discusses how two different build spaces should be improved (see Figure 1).

Figure 1 Location of case study models

The first case study selected as an entertainment building is “Agimi” cinema. Built since in Italian regime, is located on the ground floor of “Agimi” residential buildings, and surrounded by commercial services (see Figure 2).

Figure 2 Location of "Agimi"cinema

More than 50 years of history, this cinema was opened in December of 2010 after a long time in silence. In fact, the project for reconstruction of the cinema, designed by German firm "Cine-project", except the function of the building, has preserved almost untouchable the structure of the old cinema (KSN 2010).

In addition, a second case study is evolved to indicate an outdoor space (see Figure 15).

Figure 3 Location of "Don Bosco" cross-road

Located in the east part of Tirana, Don Bosko is one of main cross-roads selected to be redesigned. Despite the traffic, this cross-road does not satisfy disabled pedestrian conditions. In spring 2011 this section of the road was reconstructed from Tirana Municipality, but many problems are encountered in crossing the roads.

5.2 Implementation of standards

5.2.1 Case study 1

Cinema is one of the most preferred places were disabled people wanted to go to and entertain themselves. As in Tirana none of the cinema has provided attendance of disabled people is the right case to indicate some recommendations that should be considered while designing a building like this.

In order to demonstrate implementation of standards is designed the access from parking place to cinema hall (see Figure 4). First to be considered is one parking place for disabled people and the space required for the wheelchair movement. It is important noting that parking space for disabled people is placed near the entrance of the building and is combined with directional arrows and international symbol of access. Moreover, a kerb ramp with blister tactile walking surface indicator is located in the pedestrian cross line close to the parking place. Kerb ramp dimension are 250x120cm while the gradient is 12.5%. Directional and traffic signs are also indicated in the project. Their position and height does not prevent the path to the building or pedestrian movement on the sidewalk. To direct people with disabilities especially those with visual impairment or those who have some residual vision, a directional tactile walking surface is designed from kerb ramp to the entrance stairs. Another tactile surface is placed 40cm away from the beginning and at the end of the steps indicating for hazards. Both tactile surfaces have difference in luminance to the surroundings. Also a visual warning line is set on the steps. In addition, an upright kerb with handrails in both sides is positioned near the stairs (see Figure 4).Landing of the stairs is the proper space needed for a wheelchair circulation.

The entrance door is designed with handles that can be opened by people in wheelchair. Visual indicator stripes and international symbol of access are marked on the door. To address people with different disabilities sound system, tactile signs and brail are situated near the entrance. Figure 26 displays how the entrance should be designed.

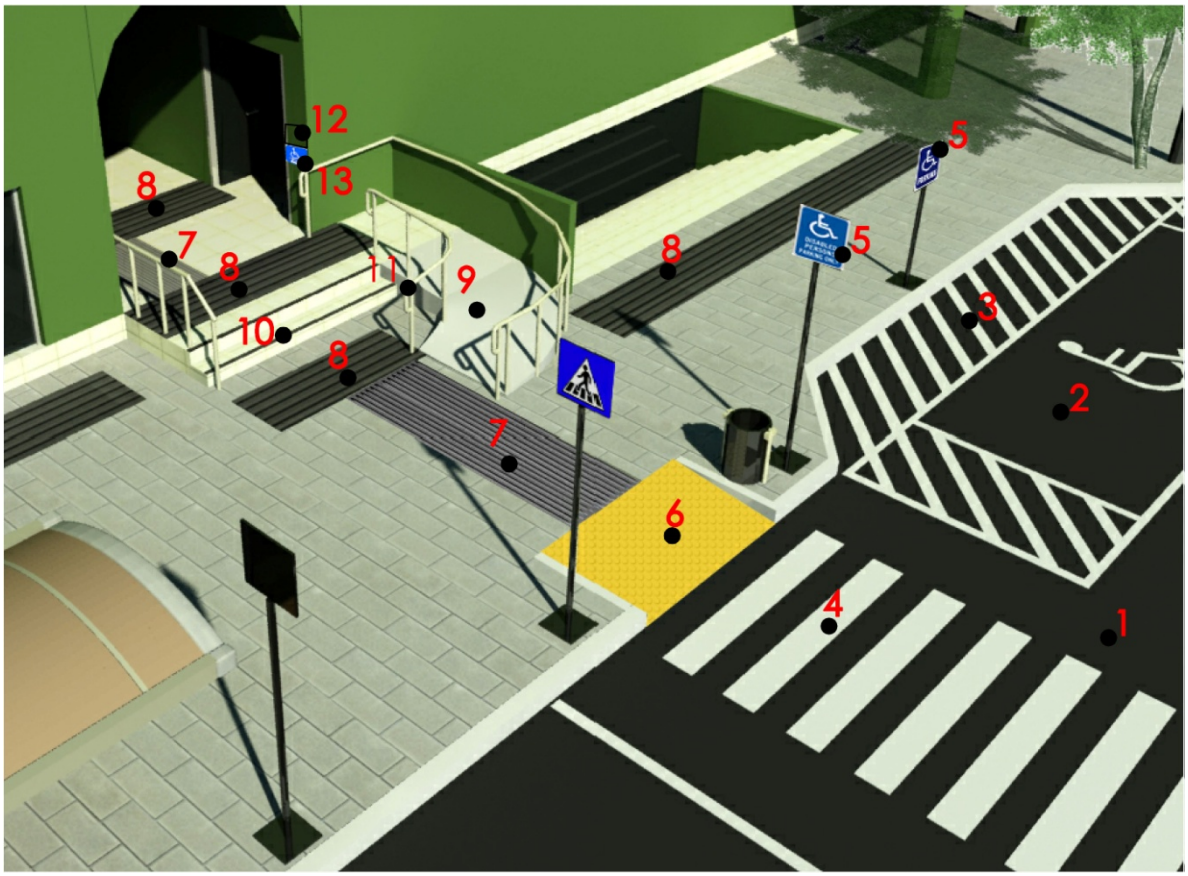

Figure 4 Accessible entrance

Based on British recommendations of reception area and circulation passageways for disabled people intervention in the indoor environment of the cinema are made (see Figure 5). Suitable access to the reception area and clear signs indicating routes to other parts of the buildings are provided. The reception desk is designed in accordance with disabled people need. While, passage to the toilet is expanded in order to be usable by people in wheelchair (see Figure 5).

One of the main problems restricting people in wheelchair to get into the cinema hall was the staircase. To solve the problem a stair lift system is placed in the staircase in order to make accessible this section of the building.

Two places are provided for disabled people. Figure 6 shows how the space required for disabled people is designed.

Considering the places provided for disabled people, it is necessary to put one unisex toilet for this category. Figure 7 illustrates design of the toilet based on the British standard.

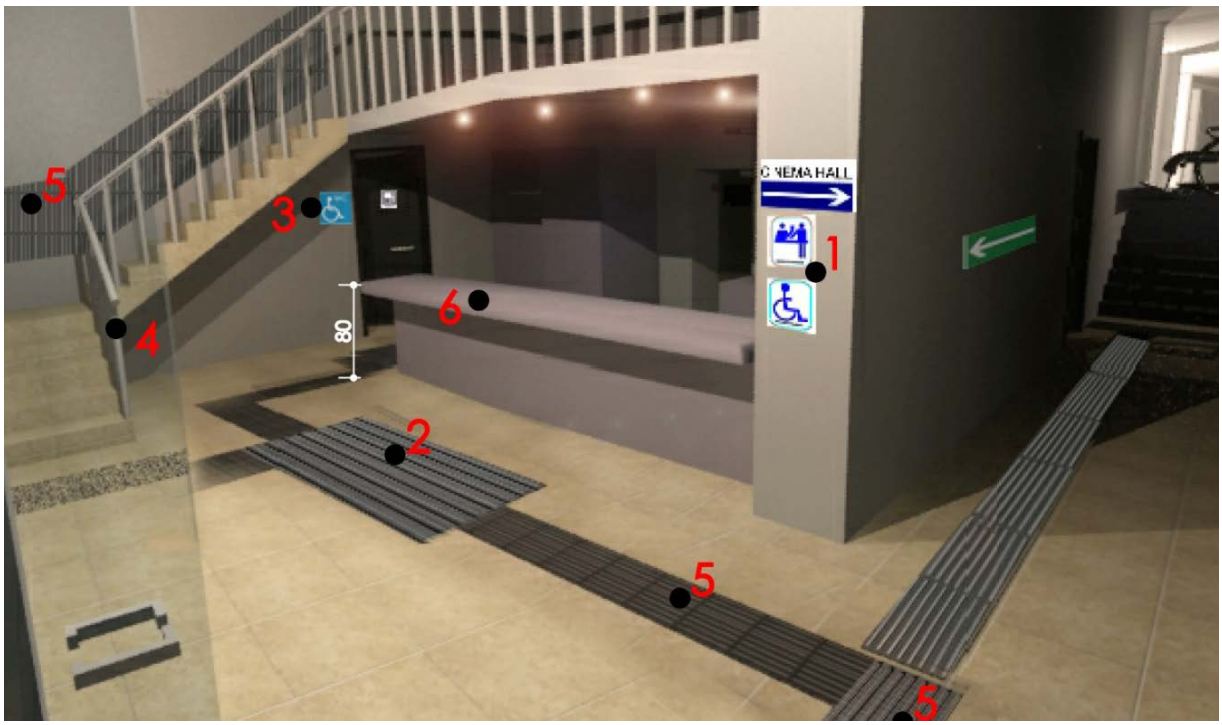

Figure 5 Reception Hall View

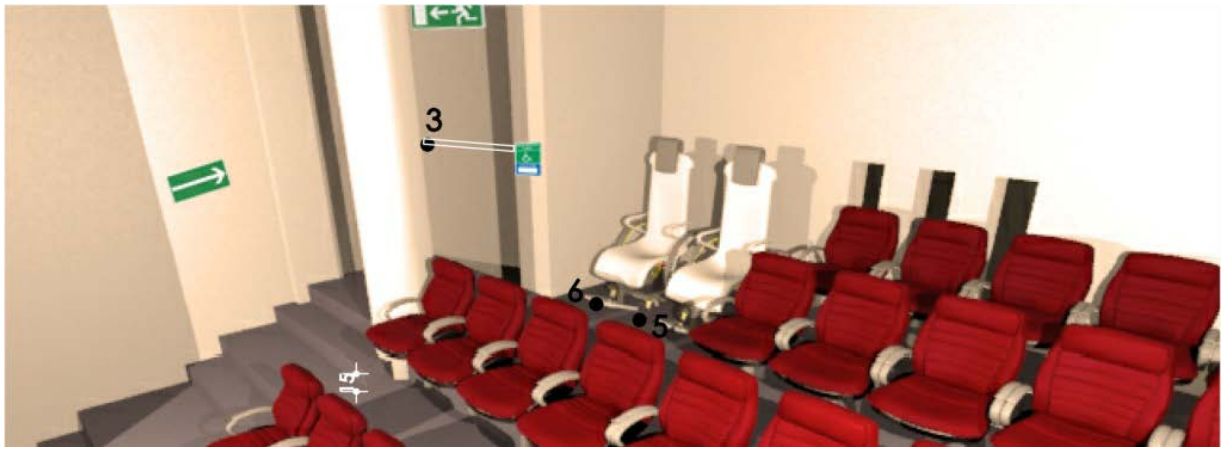

Figure 6 Access to cinema hall

Figure 7 Design of unisex toilet for disabled people

5.2.2 Case study 2

In order to facilitate and to improve the situation in cross roads the second case aims to indicate the right design. Considering all the problems mention in above section, an immediate solution should be given to pedestrian space creating a safer path for all pedestrian. The design is focused in accessible pathways of pedestrian from a mid-island sidewalk to the sidewalk on the other side of the road (see Figure 8). The minimum width of 120cm is kept for pathways. To protect blind pedestrian, a minimum clearance above the pathway of 210 cm is given. The first intervention is done in positioning the kerb ramps. Kerb ramps are laid within the pedestrian crossing line having the same width of 250cm. Crossing is resolved perpendicular with roadway. To ensure appropriate gradient, a minimum width of 120cm is set. Surface of kerb ramp is covered with warning tactile blister surface. A special importance is given to tactile guide ways. Blind persons and those with reduced vision will find the way through guideways approximately 30cm designed in pedestrian ways to direct them in complex path, near the building or other furniture of the sidewalk and near the sidewalk border. The texture of tactile walking surface for information on direction is different in color and contrast from other surroundings.

Furthermore, to assist people with sight impairment acoustic signal are set at pedestrian intersection accompanied with push buttons. Also, information and signs are present in layout crossing. Figure 8 displays how the cross-road should be designed.

Figure 8 Design of cross-road to be accessible for all

6 DISCUSSION

6.1 Discussion on results of the survey

Results of the questionnaire show that, people with disabilities and their family member, belong to the marginalized part of Albanian society. Most of disabled people are people with motor disability, while persons with visual and mental disability are fewer in number. Age most affected from disability is 25-45 years old. Also, results indicated that the majority was not given the possibility to be educated. Despite their great desire to work, only those persons who are members in various associations have managed to find a job, others have not found the possibility yet.

Through the questionnaire is revealed a low level of provided services for people with various disabilities.

Disabled people interests and need are neglected as they do not participate in public discourse. In regard, these obstacles affect not only people with disabilities but also their families that have to stay home to provide care. In addition, incomes of the family probably will decrease.

The study highlights two main problems that lead to the isolation of persons. From one point of view, all buildings are inadequate for easy and safe movement of disabled people, on the other side streets and public transport system leading to these buildings are not accessible for this category. Lack of ramps, elevators, signs and information; narrow areas, inadequate lighting and sanitary areas are main elements they are complaining for the indoor environment. While, lack of kerb ramps, visual signs and acoustical signal are main problems concerning the street furniture. Despite physical barriers, disabled people are concerning about social obstacles and indifference they face in various institutions and other buildings. They claim that disabled people are not treated equally with other citizen.

At the end, results of the questionnaire demonstrate that issues afflicting to people with diverse disabilities and their need goes most for financial and health care treatment. This is a very important indicator as it reveals once more the poverty they live due to their disability.

6.2 Discussion on results of the implementation

As many previous studies have approved, improving the surrounding environment contribute in the integration of disabled people in society. Thus, both case studies try to give solutions by implementing recommended standards that developed countries are practicing.

The first case study indicates how a cinema building should be designed to attract and entertain people with disabilities. While the second case study covers the design for a safe and accessible cross-road.

As the cinema was not designed for disabled people there were found a lot of obstacles for various disability especially for those with movement and visual disability. Lack of ramp, signs and information are main problems observed in place. Another problem is finding the entrance of the cinema as it is not visual. Inside the cinema people have difficulties to orient because no information is provided. Furthermore, spaces and its furniture are not designed taking in consideration to be usable by all.

First, is shown how to design approach to the cinema, the outdoor space then is demonstrated the indoor space. A particular attention is given to the entrance access route. As the cinema hall has provided two places for disabled people especially those in wheelchair, a car-parking is set near the entrance for them. Getting on the sidewalk is solved by placing a kerb ramp with tactile walking surface. To ensure easy and safe pathway to the entrance especially for people with visual concern, tactile walking surface which inform on direction are designed from the kerb ramp to the stairs of the building entrance. The entrance stairs have been modified to facilitate orientation and circulation of disabled people. Also, an upright kerb is positioned next to the stairs providing access for people sitting in wheelchairs. It is necessary to emphasize, that the route is accompanied with information signs and signals indicating the entrance of the cinema. Also inside the building, all the information needed for orientation is provided through symbols, signs and signals. Moreover, tactile surface in walls are used to direct people with visual impairments. Through an adaptable stair lift system is ensured the access to cinema hall, where both places of disabled people are designed based on normative. In designing indoor spaces for disability should be provided minimum one unisex restroom for

them. To design toilet for disabled people, the surface of cinema building was expanded as it lacks of space needed. Even in this part of the cinema are located proper signs and signal.

Everything designed is based on universal design concept, in order to be accessible and usable by all people, no matter their disability is. Implentation of universal design has an addiotional value of 13000 Euros of the reconstruction cost of „Kinema Agimi“ building. This amount is the result of special equipment used for this category, in particular the construction of disabled people restroom and the stair lift system. Improving the conditions referred people with disabilities; cinema will help enhancing their lives, by guaranteeing entertainment and integration in society. This case study is a good example that demonstrates implementation of standards in existing building or even in new designs.

The second case stresses the main points to be focused in designing street routes. The design pays attention to pedestrian access and safety. First, an immediate removal of the obstruction that can cause hazards for blind people or can create fatigue for people in wheelchairs is proposed. The design consists of simple and free layout. Secondly, kerb ramps are positioned at the end of the sidewalk in order to provide easy and safe access. Design of kerbs concerns in maintaining the right gradient and width and covering with warning tactile materials that have different color from the surrounding environment. To direct blind people and those with visual concerns in the sidewalks are designed guide ways with tactile surface on information.

An important attention is given in placing visual and audit information. Through the audit information will benefit not only people with visual restriction but also people that are to slow in passing g the cross-road.

Comparing to the cinema, the additional cost of „Don Bosco“ cross-road reconstruction is about 3000 Euro when universal design is applied. This indicates best that the impact of universal design implementation has an insignificant impact on the cost of public spaces reconstruction. According to previous studies, this ammount is even smaller when universal design is applied since the first phase of construction.

Considering both case studies is assumed that, implementation of accessibility standards, assist the diversity of people with disability to fully participate in social life and even to improve their impairment.

7 CONCLUSION

People with disabilities are the most restricted part of the society. Obstacles in physical environment exclude them from participating in daily activities. A barrier free environment is the key factor that helps disabled people improving their physical and social status. Therefore, the study aimed to reveal universal design concept and its challenges.

Also, the study attempted to bring solution on the built environment addressing the wide diversity of people with disability.

First a questionnaire was conducted to people with various disabilities. The results of the survey dictated the immediate need for adaptation of the built environment in Tirana City. Taking into account accessibility, usability and safety, two case studies were carried out. First study identified “Agimi” cinema situation, while the second study presented “Don Bosco” cross-roads problematic. It is necessary to emphasize that, both environments studied lack of basic requirements needed from disabled people. Observations in place, have examined many barriers and difficulties people with various disabilities were facing. Thus, both environments were redesigned based on accessibility and usability standards. Implementation of standards attempted to enhance accessibility in outdoor and indoor environment and ensuring the participation and integration of disabled people in all aspects of life. It results that application of universal design has a small additional cost of building‘s reconstruction while in public spaces is insignificant. But, considering reduction of accidents, improvement of disabled people access in physical environment and social mobility the benefits are impressive.

In regard, the study assumed to demonstrate universal design approach from building to urban scale.

Regarding all the problematic and solution given, the study elaborated a useful research that addresses human rights of disabled people and draws attention for local government and all professional relating with the development of building environment. It is important that all designers take the responsibility to ensure a barrier free environment, in order to improve not only the quality of design but also the quality of life for people with disabilities.

To conclude, government should pay attention on projects, products and services to be accessible for people with severe disability. In order to promote universal design approach for a barrier free environment future works should be focused on enhancing accessibility in the field of built environment; improving the legislation related with human rights especially in the field of building development and make sure that is implemented by all and ensuring involvement and participation of diverse disabled persons in decision making.

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