

THE GENERAL PRINCIPLES TO ENSURE A BARRIER-FREE URBAN ENVIRONMENT AND THE TRANSPORT NEEDS OF PERSONS WITH RESTRICTED MOBILITY

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***Abstract:** Most of the people need a barrier-free environment (persons with pram, the elderly, persons with disabilities). The principles to ensure a barrier-free urban environment are as follows: ensuring the freedom of movement of persons with disabilities of all categories within the city or other settlement both on foot and using the personal, specialized of urban public transport vehicles.*

Based on the questionnaire-based studies, the paper determines the level of disabled people's demands for transport services. The sociological studies showed that of the total number of respondents, 83.7% of movements of physically challenged people gives preference to travels by city buses. There have been identified the compact accommodation points of persons with restricted mobility, as well as their travel destinations in transport services.

In recent years, particular attention has been paid to respect for the rights of people with disabilities, reflecting a new understanding of disability, as a social and political phenomenon.

The usual urban environment for people with disabilities, without others' help, is a hard-to-overcome, and often impenetrable maze.

An environment adapted for people with disabilities and other people with limited mobility is called a barrier-free or accessible environment. The majority of the population has a vital need for a barrier-free environment. The consumers of a barrier-free environment are: a person with pram; the elderly; people with disabilities. This is why accessibility is associated with this social category, and the assessment of their needs is at the core of the principles of accessibility. Out of that came the rule: where the disabled person passes, the other people will pass as well.

According to statistics, up to 25% of the population belong to the consumers of the accessible environments, among them the proportion of disabled people is about 10%, children under 4 years old - up to 5%, people over 70 years old - up to 10%, and this does not take into account pregnant women and people, traveling with prams, with luggage, on bicycles and roller skating.

According to the UN, people with disabilities comprise around 10% of the world's population, and their share continues to grow. The main causes of disability are: population aging, the lack of development in individual countries, the substandard quality and inaccessibility of the public health, environmental problems, man-made disasters, occupational and road traffic injuries.

According to statistics from the Ministry of Labor, Health and Social Affairs of Georgia, 125 014 state social assistance recipients have been registered in Georgia by 2017, plus persons with disabilities of different categories.

Demographic studies show that the age profile of the population is changing and will continue to show an increase in the proportion of older people in society. Along with the aging of society, the number of people with various forms of disorders is growing, and this will lead to a significant increase in the number of people with disabilities [1]. With age, cases of disability are becoming more frequent and serious. For example, by the beginning of the 21st century, the percentage of people over 65 in Canada was 12%. By 2041, this number is expected to rise to 23% [2]. Such statistics were recorded in the USA, Europe and Japan.

Among the problems that have serious economic consequences for Georgia, the foremost is the complex demographic situation. It is about shortfall in income associated with the reduced population. The authors of the UN report on Population Policy believe that the continued population aging may lead to declining numbers of people of working age.

People with disabilities shall: have equal rights; be recognized as people being of equal worth; have equal opportunities for their participation in society; have the right to stay in society and receive the necessary support within the conventional structures of society. In addition, they should have equal responsibilities and should receive support needed to carry out these responsibilities. There are 22 rules, each with specific conclusions and consequences, four of which are directly related to accessibility.

Accessibility. States should recognize the importance of accessibility in the process of creating equal opportunities for persons with disabilities in all areas of society. For persons with disability of any form kind, States should:

- a) implement programs of action to make the physical environment accessible to them;
- b) undertake measures to provide access to information and communication.

Education. States should recognize the principle of equal opportunities in primary, secondary, vocational and higher education for children, youth and adults with disabilities, in the integrated structures. They should ensure that the education of persons with disabilities is an integral part of the general education system.

Employment. Both in the countryside and urban areas, they should have equal opportunities for productive and income-generating employment in the labor market.

Economic policy. States have financial responsibility for national programs and measures aimed at creating equal opportunities for persons with disabilities. [3].

At the contemporary level in Georgia, increasing attention is paid to the design of the environment, buildings and structures, taking into account the needs of people with disabilities and other people with restricted mobility. They define the following objectives:

The first one – ensuring barrier-free travel within city or other settlement of: persons with disabilities of all categories; disabled people and other people with restricted mobility both walking and by vehicles (personal, specialized or urban public ones);

The second one – providing information: visual, tactile and audio information – focused on various groups of people with restricted mobility;

The third one – a complex solution of the public services system: calculation and placement of facilities, both specialized, that is intended only for elderly and disabled persons,

and the general-type (new and modernized), intended for the shared use by healthy people and persons with disabilities in all spheres of life.

In European cities, motive power on the bus routes is adjusted to the service of disabled people by using the low-floor models. The use of low-floor models. There are thoroughly organized the route network, loading refuges and pedestrian crossings, the attraction zones and sidewalks are accessible to disabled persons and other people with restricted mobility.

The loading refuges of the shuttle buses - the major form of transport, are elevated to the floor level of the passenger compartment, where people can ride in on a wheelchair. The stations are equipped with electronic displays informing about the arrival time of each route. With such an organization of urban passenger transport, special transport equipped with lifting devices becomes a supplement. In France, for example, there is organized the taxi service with the lifting devices for the disabled persons.

Countries such as Austria, Brazil, the United Kingdom and Hong Kong have already reaped the benefits of the introduction of the well-drafted market strategies, which target older tourists. Annual revenue of the restaurants and hotels sector in the United States grew by 12% due to the introduction of new standards. Contrary to popular belief, both older people and people with disabilities have significant purchasing power. Elderly consumers represent that part of the market, which is characterized by maximum purchasing power. The 45-54 age group spends 17% more than the average family per capita. In second place are the expenses of representatives of the group aged 55 to 64 years, who spend 15% more than the average per capita indicators. The elderly generally people have greater opportunities for leisure and travel more than they allowed themselves in the past.

With regard to Georgia, the situation with tourism, travel, recreation and treatment for people with disabilities remains less than favorable. Possessing huge potential in this field, we not only did not create conditions for people with disabilities, but sometimes, it is difficult even for ordinary people to find a rightful place to relax in our resorts. All this negatively affects both the people's physical and moral welfare, as well as on loss of business profits. Considerable popularity is enjoyed by foreign tours, mostly due to a fairly well-developed infrastructure and high quality of service. As a result, the country loses huge revenues, on which many tourist countries subsist.

The universal design is the design of the environment, means of communication, goods and services, contributing to their applicability by all people, regardless of their age, body size or abilities.

One example of the universal design is the shelf entrance to the building without a sill. This design benefits not only persons with disabilities, which lead to restricted mobility, but also helps to move people with prams, or those who carry heavy boxes or other bulky items into premises.

Another example is subtitling on television. The words spoken simultaneously appear in writing on a TV screen. This is not only useful for the hearing impaired or deaf people. The philosophy of the universal design is based on the idea of creating an environment, products and services that would be useful to everyone, and not just to persons with disabilities.

An important element in the city's life support system is transport infrastructure. Until recently, scant attention has been paid in our country to its characteristic such as accessibility for persons with disabilities and restricted mobility groups; as a result, it needs to be improved in many cities. When forming a barrier-free environment, priority must be given to the route network. The choice of forms of specialized transport service largely depends on its state. Where the conditions allow, the low-floor bus models may operate on urban passenger transport routes. If this is not the case, it is possible to organize a specialized route with buses equipped with the lifting devices. A simpler option is a social taxi and individual specialized

transport. In any case, in parking lots, on the approach to the stopping points, at pedestrian crossings and in the attraction areas of facilities, accessibility standards should be observed.

To date, little attention is paid to such characteristics of determining the indicator of transport accessibility in the quality of passenger service, as accessibility of public transport for people with restricted mobility, in terms of “barrier-freeness”.

Passengers of this category require certain, special characteristics of accessibility, and the motive power, and transport infrastructure and the urban environment, and information. Access to social space and the possibility of using urban infrastructure are preconditions for ensuring autonomy and independence for persons with disabilities.

That is why, the broad concept of access to the urban environment implies the equal participation of persons with disabilities in the complex of the social worlds, in all sectors of society [4].

Describing *the transport accessibility*, the availability of the stopping points of the routes of public transport; the number and frequency of runs of public transport lines and shared taxi to the facility, including free ones; taxi ranks; convenience of transport interchanges; the provision of parking for personal vehicles, the dedicated area for parking spaces for disabled people, the organization of movement on the travelators (a travelator is a moving stair-less walkway that allows for speeding up or easing the movement of pedestrians, which can be used by wheelchair users). *Walking accessibility* determines the convenience of reaching the object by the consumer by foot within certain standards.

Indicators of the transport needs of persons with restricted mobility (PRM) in Kutaisi are calculated on the basis of data obtained from the questionnaire surveys.

When replying to the third question of questionnaire: “Can you walk on your own from your place of residence to the nearest stopping point?”, the replies were divided as follows: 28.7% of respondents freely use the existing infrastructure; for 43.6% of respondents, the provision of pedestrian infrastructure encounters difficulties; for 16% of respondents, walking on pedestrian paths presents significant difficulties; and for 11.7% of respondents, pedestrian infrastructure is completely inaccessible [5].

The analysis of the results obtained shows that for 38% of PRM, the city’s pedestrian infrastructure is a significant barrier to managing the transport needs. In this case, pedestrian infrastructure is completely inaccessible to wheelchair users (77% of respondents), practically inaccessible to blind deaf-mute persons (84% of respondents), and generally inaccessible to people suffering from diseases of the locomotor system, auditus and disorientation.

The analysis of the age categories of PRM revealed that the existing pedestrian infrastructure is inaccessible or almost inaccessible, first of all to children (36.1%) and older people (28.4%).

The analysis of the calculated values of the composition PRM group for independent movement shows that 52% of them needs the barrier-free transport infrastructure and free entrance to vehicles (the absence of high stairs, the absence of steep ramps, the availability of handrails, the availability of seats, the access road for public transport to the route transport to the loading refuge with minimum clearance, etc.) [6].

A further 4% of the population needs a “smooth” infrastructure that does not have the barriers (the presence of ramps, elevators, lifting devices, etc.). The urban population needing to adapt this “smooth” infrastructure to them is more than 38% - these are people in wheelchairs, people with prams, people with a trolley. Of these, almost 46% are children.

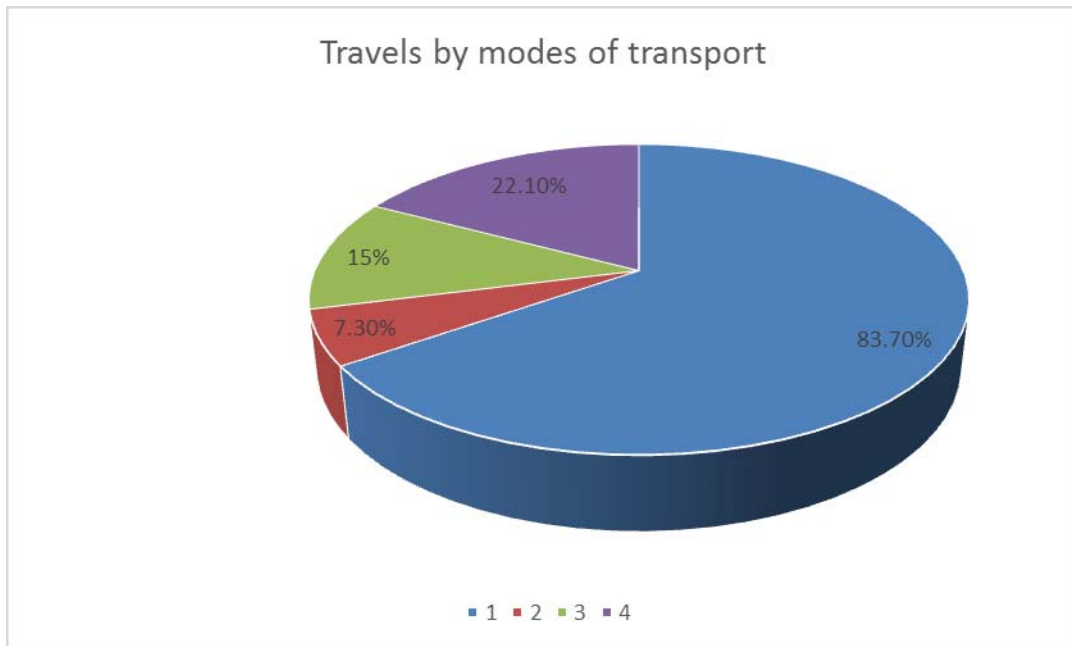


Fig. 1. Mode of transport using for traveling

1-City bus; 2- Taxi car; 3- Specialized (social) taxi; 4-Personal car (as a driver or passenger).

The sociological study (Fig. 1) showed that of the total number of respondents, 83.7% of movements of physically challenged people will travel to and from the facility of destination using the city buses. Taxi cars are used by 7.3% of PRM for the round-trip travels. Traveling by specialized (social) taxi - 15%. A significant number of trips (22.1% of the total volume) is carried out by a personal car as a driver or passenger.

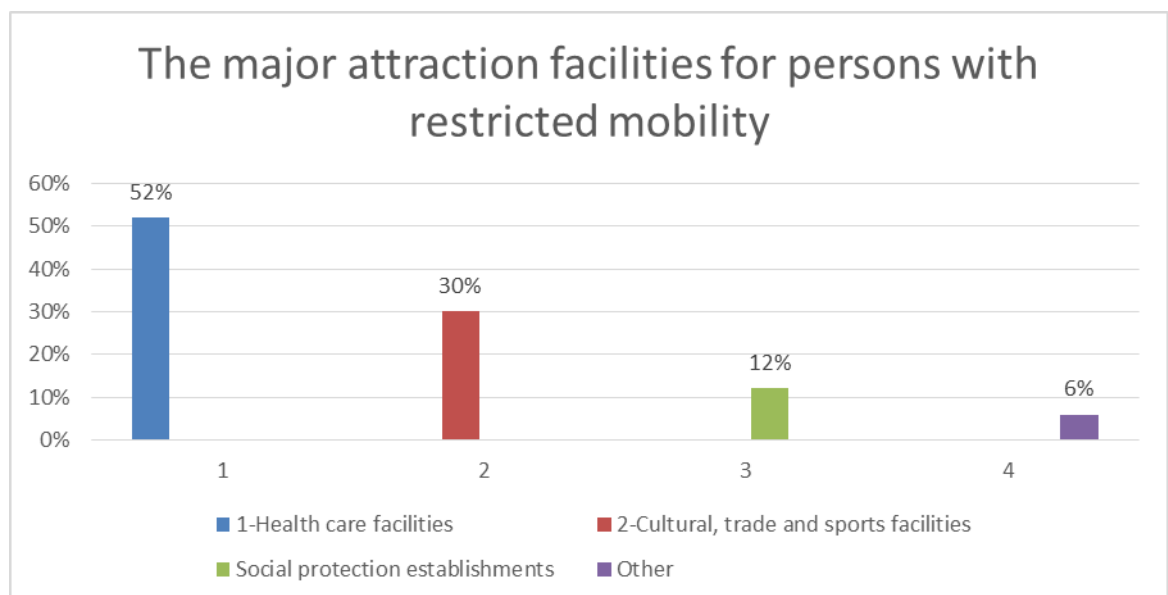


Fig.2. The major attraction facilities for persons with restricted mobility in Kutaisi

Travels by a specially equipped minibus (social taxi) are mostly carried out by people over 60 years old. The personal cars are mostly used by people under 60 years of age.

The greatest needs for increasing the number of trips by fixed-route passenger transport are felt by persons with disabilities in wheelchair (by 38.9%) and people with prams (by 25.7%).

The questionnaire-based sociological study conducted in Kutaisi identified 4 points for the compact accommodation points of persons with restricted mobility (PRM) (Fig. 2), and the points by the city districts, where the city bus services will be available for residents living alone.

The questionnaire-based studies identified the following travel destinations in transport services: 52% - health care facilities; 30% - cultural, trade and sports facilities; 12% - social protection establishments; 6% - other travels. Regarding the educational and work travels of disabled persons, they are provided by the appropriate establishments using specialized transport.

Summarizing the analysis, the following conclusions can be drawn:

- Passenger transport is social, since it allows for realizing one of the real constitutional human rights – the right to freedom of movement. Passenger transport is considered an essential element of social infrastructure, ensuring the maximum accessibility of the entire territory to all residents;
- More than 47.2% of PRM in the city moving without the wheeled technical devices and about 33,7% moving with the wheeled technical devices need to be adapted to the transport system;
- Priority measures for ensuring accessibility of transport and transport infrastructure facilities;
- among the most popular modes of transport that will have to be adapted to disabled people, the emphasis should be placed on public transport, as well as a social taxi;
- Scheduling the operation of public passenger transport by days of the week would not be appropriate: transport must be accessible to all population groups and it must address the needs of the people for travels.

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ОБЩИЕ ПРИНЦИПЫ ОБЕСПЕЧЕНИЯ БЕЗОПАСНОЙ ГОРОДСКОЙ СРЕДЫ И ТРАНСПОРТНЫХ ПОТРЕБНОСТЕЙ ЛИЦ С ОГРАНИЧЕННОЙ МОБИЛЬНОСТЬЮ

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***Ключевые слова:** пассажирский транспорт; осмотр; вопросники; пешеходная инфраструктура; лица с ограниченной подвижностью.*

***Резюме:** Большинству людей нужна безбарьерная среда (люди с коляской, пожилые люди, инвалиды). Принципы обеспечения безбарьерной городской среды заключаются в следующем: обеспечение свободы передвижения инвалидов всех категорий в пределах города или другого населенного пункта как пешком, так и с использованием личного специализированного городского общественного транспорта.*

Основываясь на анкетных исследованиях, в документе определяется уровень потребностей инвалидов в транспортных услугах. Социологические исследования показали, что из общего числа респондентов 83,7% передвижений людей с ограниченными возможностями отдают предпочтение поездкам на городских автобусах. Были определены места компактного размещения лиц с ограниченной подвижностью, а также места их назначения в транспортных услугах.