

ZAGADNIENIA TECHNICZNE ZWIĄZANE Z TRANSPORTEM OSÓB NIEPEŁNOSPRAWNYCH

THE TECHNICAL PROBLEMS CONNECTED WITH THE TRANSPORT OF THE DISABLED PEOPLES

W artykule stwierdzono, że zdolność poruszania się ludzi jest nieodzowną częścią naszego życia. Właściwe planowanie oraz zintegrowany system transportu są bardzo ważne dla zapewnienia ludzkiej potrzeby poruszania się. Celem transportu jest więc zapewnienie wysokiej jakości usług dla wszystkich ludzi, także niepełnosprawnych. Wymaga to dostosowania technicznego przystanków oraz pojazdów do osób niepełnosprawnych. Artykuł omawia także inne wymagania techniczne stawiane środkom transportu z uwzględnieniem osób niepełnosprawnych.

Słowa kluczowe: transport, techniczne problemy, osoby niepełnosprawne.

This article deals with mobility as the necessary part of our life. The transport integration and planning are very important for providing sustainable mobility. In view of this aim the high-quality services have to be offered to passengers also for the disabled peoples. It includes also bus stops, vehicles suitable for disabled persons. This article presented the other technical conditions for the transport means which must carry the disabled peoples either.

Keywords: transport, the technical problems, the disabled peoples.

1. Introduction

Disabled persons form important and still growing part of society and the number of them will increase in the process of growing older population. At average 10 % of European Union population are disabled persons (50 million). The disabled person group includes people with physical and sensual disability, learning disturbances, with mental problems.

Transport and environment accessibility is very important for providing access to work, school and it enables to disabled persons to participate in the society life, to provide goods and services, to enjoy the social contacts with friends and family, to move free and independently within the urban or country area. If the accessibility is not provided for disabled persons in the same way as for healthy people, the disabled persons are underprivileged. Transport and environment accessibility is the basic right. It increases the independency of disabled persons and their active integration to the life of society.

The transport and environment accessibility is not only useful for disabled persons but also for other persons with limited capability of mobility, also for older people, parents with children, people with temporary disablement [1]. And also for people with large baggages. The good practice examples have shown that the transport system and environment accessibility increases the number and frequency of service users what is very important from the commercial point of view.

The mobility is the necessary part of our life for economy and also for the leisure time. Its negative impact influences our life. There are still more traffic congestions. The overflowed traffic arteries and congestions become the part of our everyday life. The scientists have already discovered the relation between the economic growth and the need of mobility. Simply with growing level of living the transport grows too. The globalization, increasing internationalization of economy and integration of Central European and East European countries generates the new requirements for transport system efficiency. The changes

of transport policy, transport management and infrastructure are necessary. It is also important to decrease the energy input with increasing transport volumes what will have the positive influence on the environment.

On the other side the increasing transport volumes have the negative impact on the environment and cause the decrease of quality of life. The transport consumes the same volume of energy as the industry production. There is also the problem with limited capacity of infrastructure. For reduction of these negative impacts the new conceptions of transport have to be discovered. The research and development has the important role in this part. The innovative research policy has the important task to change the relation between the transport, economy and environmentalism.

2. The mobility and planning of the integrated transport system

The urban and transport planning has many synergic effects. The coordination role is very important because it puts together the landscape planning with transport planning and it enables to create the integrated approach to these problems and it provides the integration of different transport modes. The factor of strong political lead is applied on the regional level [2,4]. It allows the coordination and planned development to the different transport modes what creates the compact system focused on user. The regional planning gives the possibility of direct subsidies to the suitable investment. This is the way how the means of public transport can be competitive with the individual transport.

The regional view of this problem allows to see the connection between the land utilization and transport planning and effectively creates the new formulas of land development which will increase the role of public transport and decrease the dependence on the individual transport.

The main reason of integration is untransparency and in-

efficiency of the state-of-the-art when many of citizens prefer individual transport because it is difficult to orientate in the tangle of transporters, time tables and prices. The integrated transport system means the providing of public transport when the different transport modes cooperate and create the transparent system with integrated tariff, transport conditions and regular intervals between links. The next stages could include the coverage of the rest of region in 5 years. Integrated system has 7 advantages: the unified tickets, integrated prices, season tickets, regular departures, possibilities of changes, improvement of services and improvement of awareness.

3. The social exclusion in transport area

Some persons are excluded from the system of easy availability. Our task is to eliminate the barriers to the mobility.

The sustainable mobility development for everyone is the global aim. This aim is achieved by the basic specific and operational targets.

The operational targets are the concrete tools which the specific aims are realized with. In the mobility programme there is mainly:

- 1) the creation of barrier free lines which will allow to all citizens the free and safe move by all means of transport,
- 2) the connection of barrier free lines with regional transport systems and overregional corridors,
- 3) the abidance by rules of free and safe moving for all the citizens in the case of all new constructed buildings and transport systems, including their repairs and reconstructions.

The mobility programme represents the complex of preventative measures in term of system elimination of all kinds of barriers, offers verified methodological processes for good-quality processing of proposals for making accessible all the transport chains (traffic roads, means of transport, objects for providing the services and information systems), increases the safety of traffic and also:

- 1) eliminates the most serious causes of accidents in traffic,
- 2) solves the question of safe access to the labour market, development of human resources and increases the competitive advantage of labour force and improves the quality of mobility for all citizens,
- 3) creates conditions for integration of social excluded citizens,
- 4) limits the negative influences of transport to environment by supporting the integrated transport systems,
- 5) influences the thinking of citizens in relation to free and safe moving of people with limited

4. Types of services and vehicles

There is a wide spectrum of vehicle services including intercity transport, haulage, express and private services or services intended for excursions, domestic or abroad holiday. It is supposed that there is the corresponding infrastructure for this spectrum which is formed not only by terminals and stations but also by infrastructure for tourists [5]. There are also many variation of vehicles. Most of vehicles for tourists or for haulage are highbed. But many of intercity services use lowbed vehicles. The access of highbed buses for people on wheelchairs

is difficult, only with elevator, the new design has been created and the people on wheelchairs have the places near the bus driver on the relatively low position. Where the using of elevator is possible, it is placed on the side of vehicle in the front of back axle, or in the back of vehicle. Also the conditions for entry/exit in the terminal or station have to be considered.

Bus stations and railway stations are located in the city centre or close to it or in the multimodal changing stations (airports). The factors which should be considered include:

- sidewalks which are enough wide for access of people on wheelchairs, 2 m are recommended,
- cross-fall max. 2,5 %,
- controlled zebra crossings across the highly frequented roads, tactil warming surfaces, suitable acoustic and tactual signals,
- the access of roads and sidewalks to the railway station,
- clear directional marking to the railway station and if it is necessary, the using of tactual surfaces as the assistance for people with impaired vision,
- well-kept sidewalks with good street illumination.

It should be possible to separate the places for entry/exist for highbed and lowbed buses within the station and on many other places including the village and city locations. There is a lot of experiences with providing the infrastructure for lowbed buses. The key parts of design are:

- the area of entry. There are the slight differences in the opinions of the height of entry area. 160 mm is recommended (GB, Norway), 160 – 200 mm (Germany, France), 240 mm in Germany (Euskirchen), but the low access angle is required because the risk of bus damage increases.

Free barrier public transport in Germany features that the optimal maximum of horizontal and vertical gap between the kerb of entry area and the entry to the bus is 50 mm. Maximal values which are suitable for people on wheelchairs without any help are 50 mm vertical and 100 mm horizontal or 100 mm vertical and 50 mm horizontal.

5. The bus stop equipment and location on the street

There are several possibilities for bus stop: on the street side, on the parking space or on the places which enter to the roadway. The first possibility is the simplest and the most used. Sometimes it is criticized for the complication of traffic flow but in fact the traffic delay is minimal. The stop on the parking space does not solve this problem but it has some other disadvantages. For example more space is required and also the access to the traffic flow is more complicated for bus. The passengers waiting on the bus stop can be at risk from the front parts of bus. These parking spaces are not considered as suitable for parking.

The stops as places which enter to the roadway will be also influence the traffic, but there are some possibilities when the design could be suitable. On the roads which have a lot of space for parking on the side the using of this type of bus stop eliminates the parking in the space of the bus stop. In the country areas the parking space is recommended because of less frequented traffic and so the less risk of accidents.

The essentials of bus stop:

- possibility for seating,
- protection from the weather (rain),

- ticket machines,
- service information,
- bins,
- public telephone,
- illumination,
- possibility of call for assistance.

In the country, bus stops do not have all these essentials. We propose they would consist of following components:

- heightened entry area: dimensions should be determined by the type of vehicle, e.g. for one door lowbed intercity buses – 3 m long and 2 m wide, for highbed buses 3 m long a 3 m wide. The entry area is expected to be longer than 3 m for passengers to be able to entry/exit the vehicle from/on paved area, but the length should be less (1,5 m),
- illumination of waiting area,
- timetable, bus column and information,
- possibilities for sitting.

There should be the seats, shelter and the bin on each bus stop in the small cities and suburban areas. The stops in centers should have all the components. The timetable and information about services should comprise the indicators of other bus services in surroundings, and also the map. The seating capacity should be determined by utilization rate of bus stops. The shelter should consist of space for at least one man on the wheelchair.

The people with fragile health, older people and disabled persons feel the extremum of temperature more intensively than the young healthy persons. This is the reason why the waiting zones should be sheltered even in the case of less used bus stops. The sitting is very important too. For many disabled persons every minute of waiting is very uncomfortable, tiring and sometimes painful. There should be the sitting places in the space of bus stations. The seating should be 470-480 mm high, with resting place form hands about 200 mm above the level of

seating. The recommended width is minimally 500 mm. The substandard seating should be 700 mm high and 550 – 600 mm wide. The space for people on the wheelchair is the necessity.

6. Conclusion

Despite of the great progress which has been done in the development of transport technologies, design or in the area of policy and legislation, the transport and environment accessibility is still limited in European Union.

European Union has accepted the legislation and initiatives in the transport area including to understand and meet needs of disabled persons. This is the result of the intensive campaign realized by European Disability Forum which was focused on providing distinguishing problems of disabled persons in all areas of European legislation.

In the area of environment the EU institutions refuse to apply pressure in the form of legal obligations because they reach behind the EU competences. Despite of it the initiatives exist in the European legislation which includes the environment accessibility in relation to the similar treatment in work, standards for elevators, health and safety.

New member states have the duty to implement the European policy and legislation through the changes in their national legislation from 1st May 2004. It is important that the organizations of disabled persons in the new member states and access countries lob at their governments with aim to provide the knowledge and implementation of requirements of EU regulation and direction associated with the accessibility of disabled persons.

This document gives the summary of regulations in the area of transport; environment and sustainable development of policies formed by the EU institutions and includes also the summary of relevant legislation initiatives. It is the help for the change of thinking and culture that separate the disabled persons from everyday life.

7. References

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