Impact of Campaigns on Sustainable Transport Management in Urban Agglomerations

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Abstract—Traffic rate increase results in a number of negative effects- traffic congestion, deterioration of transport service quality, a decrease in traffic safety, air pollution, higher noise exposure and damaging the environment. Over the past twenty years the number of car drivers and traffic levels have increased in all large cities. These factors directly or indirectly affect the quality of life of the inhabitants of large cities. A decision maker and the creator of the urban transport policy are expected to set a strategic framework and an operational model for solving the issues of growing mobility and urban transport policy. The reduction of the use of motor vehicles is realized by taking "soft measures", such as: making use of various forms of communication, announcing, advertising and education aiming at altered attitude and behaviour in traffic. The impact of the campaigns on sustainable transport management in urban agglomerations was presented in this paper.

Keywords— Sustainable development, Sustainable transport, Campaign

I. INTRODUCTION

Environmental sustainability is one of the most important global challenges of the 21st century. The challenge is to incorporate sustainability as the integration of social, environmental and economic dimension, in the business context. Global pressure to increase resource efficiency, and the efforts to improve sustainability could become an important source of innovation and an important asset for industry’s competitiveness (Porter and van der Linde, 1995).

Within scientific research done during the 20th century, it has become obvious that great changes have taken place in the human living environment including, air, water and air pollution. The first, more significant warnings about the possibility of global threat came from the Roman Club experts during 1972. The warnings referred to mutual codependence between the increased number of inhabitants, industrial and energetic activity, energetic raw material consumption and the living environment pollution.

In many countries of the world, the popularity and massive use of motor vehicles are leading to problems of congestion, environmental quality and quality of life in and around towns and cities [2]. Road construction and expansion used to be seen as one of the most promising ways to reduce traffic congestion. However, in the mid-1990s, the issue was reassessed and it was found that building and expanding roads, increased, rather than decreased, congestion, and ultimately induced higher levels of travel demand. The reason for this is that the extra capacity reduces the general cost of travelling and the less expensive the travel, the more it will be demanded. Regarding freight modal shift, road transport is much more polluting than rail per tone-km of goods transported and therefore a shift towards greater use of rail in freight transport is desirable. Inadequate infrastructure is the main obstacle preventing this modal shift taking place [1]. By promoting non-motorized traffic movements like walking, biking as well as public transport, we positively influence the awareness of people in the sense of using sustainable modes of transport.

II. THE NOTION AND CONCEPT OF SUSTAINABLE TRANSPORT

Sustainable development is not a new concept. It is the latest expression of a long-standing ethics that is comprised of people’s relationship with the living environment and the responsibility of present generations towards the future ones. Based on everything mentioned above, there are a few generally accepted explanations of the sustainable development:

“Sustainable development satisfies the needs of the present generation and does not threaten the possibility of the future ones to satisfy their own.”¹¹.

“Sustainable development satisfies the needs of the present and does not question the issue of the future generation’s ability to satisfy their own needs.”²².

The concept of sustainable transport was developed in the early 1990’s as a part of the sustainable development strategy. By modifying Burtland committee on planet sustainability (The United Nations, 1987), it is possible to determine a sustainable transport definition as an ability to respond to the present transport needs, without endangering the potentials of the same for future generations.

It has been generally concluded that transport has fallen a victim of its own success. Traffic congestions are on the constant rise and they are the basic cause of the current problems related to the living environment pollution [4]. A higher number of individual passenger vehicles lead to the extension of the traffic network, which brings about a decrease

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in the number of urban green areas, an increase in the level of air pollution, due to which the living environment becomes degraded. Consequently, the traffic surfaces for non-motorized traffic flows become smaller in size and the possibilities of residents for free movement in traffic network are reduced (walking, bicycle use), which leads to a decrease in the quality of life in urban areas.

Sustainable development and sustainable development for traffic, is based on the integration equality principle. If this principle is betrayed, then the environment damages caused in one generation are passed on to the next one [3]. Based on this, a transport policy as an important segment of sustainable development of the traffic system is being defined. This implies a traffic system which is more environment-friendly, so that it could preserve its resources and make them more sustainable for the future generations [8].

Due to the present general deterioration in the European residents’ quality of life, who have to bear ever so increasing overpopulation in cities, what has been organized within the EU is the growing dedication to the exchange of good practice to the purpose of a better use of public transport resources and the existing infrastructure. It is necessary for local authorities to adjust public services modernization to a more rational use of cars. These measures, vital for development, will be very hard to conduct. This is a price that has to be paid in order to satisfy the international duties, passed in Kyoto, on reducing the level of carbon-dioxide.3

Performing these actions on the local level bears tremendous significance, e.g. local governments could be financially motivated if they consider that by reducing congestion and pollution, they will get more attractive business zones. However, growing traffic problems in European cities have required bringing special strategic documents that represent the framework for sustainable transport development in the cities. Moreover, those documents also provide the guidelines for the sustainable mobility concept operationalization [6, 7].

III. PROMOTING OF THE SUSTAINABLE TRANSPORT THROUGH CAMPAIGNS

Based on determining basic documents related to traffic policy within EU, it may be concluded that basic marketing instruments have been used in order to include broader public. Accordingly, and in a process implying an increased use of sustainable modes of transport, the policy was changed to applying the strategy of “soft measures,” based on using different types of communication, passing information, advertising and education for changing opinion and behaviour of students in the traffic system. This way of influencing and informing people represents an important element in promoting direct measures and motivating residents to accept them sooner and easier. The basic aim of using the represented models implies influencing the citizens’ awareness and increasing the use of the sustainable modes of transport. Most models are based on the application of marketing campaigns, which may be defined as a set of decisive, purposeful attempts to inform, persuade and motivate population (or a specific population group) for the desired changes using organized communication activities in specific ways, most often with the support of local community4.

Prior to a campaign realization, it is important to understand a connection between an attitude regarding a certain problem and ways of behaving, for that is important for the campaign success. A common mistake because of which some of the campaigns have failed is an assumption that habits will be changed quickly. It is unrealistic to expect that people who use only their own car change that habit overnight and start using public transport. Researches in other areas, as e.g. in the case of promoting a healthy way of life, have shown that what has to be changed first is the awareness and opinion about a certain problem, and only then is it realistic to expect changes in behaviour.

The basic purpose of any marketing action is to reach the focus group, send messages and try to influence the change of opinion and behaviour with as many focus group members as possible. Topics may vary, such as education, public transport, promoting tourism, health, etc. Apart from traditional ways of approaching a focus group such as television or radio shows, posters, there is a mass use of new types of communication containing the elements of: traditional campaign, education and training and a “dialogue marketing” technique, a brand forming, social and cultural events. On the example of a local government, a campaign with elements was presented, which can be divided into two categories: strategic and operational campaign management.

As a part of determining what influence campaigns have on the local government residents (City of Niš) and traffic network consumers, a survey of the qualified public has been conducted, together with other participants in the traffic process. Basic criteria of traffic management have been analyzed: safety, affordability, economic aspect, efficiency and of course ecological aspect. Considering the fact that the mentioned campaign is primarily directed towards improving ecological effects, experts have been presented with the following components they have analyzed: air pollution, noise level, vibrations produced by motor vehicles, occupied traffic surfaces, etc.

A sample was taken containing around 100 experts dealing with solving communal problems in the city (traffic engineers, civil engineers, urban planners, planners, etc.) An absolute significance of criteria has been determined and it amounts to 8.2. It represents the average grade of criteria significance. The grade is received based on all the grades of every expert expressed on the scale from 1 to 10. For instance, absolute safety criteria significance is 9.

1 The United Nations World Committee on Living Environment and Development
2 Bergen Declaration, 1990
3 The aim of Kyoto agreement is stabilizing the emission of harmful gases and their impact on climate changes, by which special duties of developed countries were determined in relation to lowering the level of harmful gases emission that is to reducing the rate of warming the atmosphere. Kyoto protocol came into effect on February 16th 2005 and by now 171 countries decided to join, including the countries of the South-Eastern Europe.
Moreover, a survey based on a sample of 2% urban agglomeration inhabitants was done, which represents around 6000 citizens. The survey was about the applied campaign in a local government—“the car free day” which was conducted in a narrow city zone in September 2011. The structure of the surveyed participants in the city traffic system is comprised of the following: 45% of drivers, 40% pedestrians and 15% of cyclists. The research has shown that over 90% of the citizens believe that the campaign is extremely useful and that it may bring visible results in traffic network to the purpose of reducing the use of motor vehicles, primarily in the central city area. The most significant gain, contributed by the above stated action for the surveyed citizens (44%), is reducing the living environment pollution and making a more pleasant living environment.

Analysing the experiences in the region, on the example of the city of Walford in Austria, by applying adequate measures for managing sustainable transport in the period from 1993-1996 the rate of the employees who travelled by bicycle to work rose from 18% to 35%, whereas the car travel rate dropped from 34% to 22%. Moreover, on the example of the city of Novi Sad, there was a survey in which 433 citizens participated, of which 41% were drivers, 19% cyclists and 40% walkers. The survey results showed that 85% of the citizens believed that a large number of cars was a problem, whereas 11% was of the opinion that there were no serious problems related to the number of cars in the central city area [9].

### IV. CONCLUSION

Increasing the traffic rate leads to air pollution and an increased level of noise exposure. Moreover, significant surfaces are occupied for both dynamic and stationary traffic, in both city agglomerations and rural surroundings.

Modern approaches in solving the above stated problems may be found in the principles of sustainable transport. By promoting non-motorized traffic movements such as walking, cycling and using public transport, the awareness of the people is positively affected to the purpose of using sustainable modes of transport. Any strategy that is being formulated can be successful only if a decisive action is taken on the local level and if concrete activities implement local authorities. In order to improve the urban living conditions, as well as to provide traffic system functioning of higher quality, both “hard and soft strategies” are used. Hard strategies refer to infrastructure such as road construction, taxes, etc. Soft strategies, i.e. “campaigns,” imply simply informing the people who use cars about the most of their movement activities.

If use of new services or infrastructural measures is planned, people should first be informed about the existence of the same on a local level. Such information campaigns are grouped together into soft strategies- initiatives using communications, publicity or education for changing attitudes or behaviour when it comes to the way of behaving in a traffic process. This is partly the answer to the belief that planning in traffic alone is insufficient to bring about changes in behaviour.
and that infrastructural changes must be complemented by strategies for persuading people to change their behaviour.

It has been determined that drivers have very little knowledge on public transport usage or they have inadequate images about cycling and walking. Because of this, it is necessary to fill this void by aimed information and services. This is particularly the case with public transport, where the lack of information about where, when and how these services function may represent the major barrier in their use. Apart from the fact that it could provide the information on the justified types of taxes, the campaign may also help with accepting the need for reducing the number of cars. Limiting measures and initiatives in the sense of ecologically adequate modes of transport are more readily and efficiently accepted when there is an understanding among the public opinion about the reasons standing behind them. In addition, a combination of measures binding hard and soft traffic strategies into a coordinated strategy has the biggest chance for success.

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