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**INTERNATIONAL CONFERENCE ON TRAFFIC AND
TRANSPORT ENGINEERING**

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**November 27-28, 2014
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- ICTTE Belgrade 2014 -
Proceedings of the Second International Conference on Traffic and Transport Engineering

ICTTE Belgrade 2014 has been jointly organized by the City Net Scientific Research Center Ltd. Belgrade, University of Belgrade, Faculty of Transport and Traffic Engineering and "Kirilo Savić" Institute. ICTTE Belgrade 2014 is co-hosted by the AIIT (Associazione Italiana per l'Ingegneria del Traffico e dei Trasporti) Research Center, Rome, Italy. The conference is supported by the EA SEA WAY project (Adriatic IPA, Cross Border Cooperation 2007-2013), and is held in Belgrade, Serbia, from 27th to 28th November 2014.

The conference covers a wide range of topics related to traffic and transport engineering, with the aim of representing the importance of all modes of traffic and transport, especially the importance of improving these industries, and their compliance to one of the most significant principles nowadays, sustainable development. ICTTE Belgrade 2014 gathers researchers, scientists and engineers whose fields of interest are traffic and transport engineering, and should provide them a good platform for discussion, interactions and exchange of information and ideas. ICTTE Proceedings have been indexed within Thomson Reuters's CPCI – Conference Proceedings Citation Index accessed via Web of Science.

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PREFACE - ICTTE Belgrade 2014

Why do we need a new transportation philosophy of history?



Ladies and gentlemen, distinguished guests and speakers, dear colleagues and readers,

I am delighted to welcome you to Belgrade and to the International Conference on Traffic and Transport Engineering (ICTTE Belgrade 2014).

ICTTE Belgrade 2014 presents state of art in the field of traffic and transport engineering. The conference is major conference in the region with the participation of researchers from more than 50 countries worldwide. Our research comprehensive network of people, research institutions and industry rapidly enlarge within ICTTE community.

The contributions to ICTTE 2014 have been high, with more than 120 papers divided into 18 sessions. Proceedings will be indexed within Thomson Reuters's CPCI – Conference Proceedings Citation Index accessed via Web of Science. After the conference, I have truly hope, that new research groups will find opportunities in some of Horizon 2020 perspectives, Danube Transnational Programme 2014-2020 strategic partnerships, Adriatic and Ionian Initiative, etc.

After the conference, a selection of papers will be edited to make a series of thematic volumes, covering broad topics of interest for the scientific community and end users. These volumes will be published by International Journal for Traffic and Transport Engineering (IJTTE) special edition by the end of 2015.

I am delighted to welcome you to Belgrade, the hart of Serbia, and I hope you will enjoy your work as much as social networking activities organized by our team. I hope old participants and new comers will join us in 2016 and fill history with their cooperation.

ICTTE 2014 Director

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URBAN MANAGEMENT & MOBILITY IN STRATEGIC PROJECTS IN EASTERN SERBIA

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Abstract: Climate change in general and recent floods in particular in Serbia urges for creative, efficient and effective adaptation and mitigation measures to be implemented in urban and rural areas, especially in the field of transport and urban and rural tourism development. The experience show that 'hard' measures in the field of transport are costly and take time to implement, and that they have to be followed with 'soft' measures which cover the issues of management and organization in transportation sector and raising travel awareness towards more sustainable modes of transport among citizens and decision makers. This shift calls for complex conception of new adaptive planning, governance and management approaches and instruments to sustainable urban and rural development and mobility in an integrated way that is context sensitive. This paper will present contemporary theoretical and practical European approaches in the field of sustainable urban and rural development and mobility management and their applicability in Serbia aiming to identify possible directions for improvement and use specific management instruments that might work in this context. Our methodology is based on the case study framed in the elaboration of strategic project '*Integral Plan for the Sustainable Development of Rural Tourism in Eastern Serbia*' in Golubac, Kladovo, Majdanpek and Negotin done within the umbrella of larger GIZ project '*Municipal economic development in the Danube Region*'. We argue that it is possible to work within the community, with ordinary people, households, vine producers, and with local government representatives, incrementally, through site visits talking with people, participative interactive workshops and formal presentations in order to build trust, raise awareness and recommend sustainable measures and projects in the field of mobility and travel awareness for urban and rural tourism development aiming at identifying possible improvement directions in Serbian context.

Keywords: urban management, mobility management, strategic projects, community.

1. INTRODUCTION

Climate change represents potentially catastrophic risks to the economy and society around the planet (IPCC, 2007a). Attention has recently started to turn towards adaptation measures that climate change impacts carry, since the changes that have happened are inevitable in the future, even if the measures for reducing the effects of climate change are realized (IPCC, 2007b). While the national governments will have to take a leading role in the creation of comprehensive policies for climate change mitigation, strategies and measures will have to be developed at the local and regional level, where the impact will be felt at most.

Lalović, Živković & Radosavljević (2011) argues that the paradigm of sustainability puts people and human actions more than ever in focus within the context of climate change. The question of urban governance, management and planning of sustainable development is aimed towards adaptation and mitigation measures of climate change. The subject of discussion is narrowing to the questions of effectiveness of the decision making process which will result in future in real human behavior change in accordance with desired global and local effects.

Policies to mitigate climate changes in the field of urban and rural tourism development will have to find a balance between potentially conflicting objectives, such as objectives related to local and national economic entrepreneurial development on one hand, and the protection of natural environment and tourist destinations on the other. Also, there are direct and indirect effects and impacts of certain economic and transport activities on tourist destinations vulnerable to climate change. On the other hand, it is important to emphasize that the decisions that are made about the impacts of tourism on climate change have important implications for local, national, global, and values for the generations that come after us. All these aspects and impacts must be taken into account to arrive at balanced and effective policies that do not violate any of the above-mentioned common sectors.

These challenges of climate change and impacts it has on human and natural settlements and life including economic and technological transformation calls for strategic responses and different approach in sustainable development.

The transport sector plays an important role in enabling processes of urban development by facilitating movement of goods and people and improving accessibility to them. It is the case worldwide within urban areas and especially in rural areas, where transport and dispersed land allocation with low density development have enormous direct impact on land resources and consumption of energy, both for transport needs in terms of distances traveled, mainly done with the high usage of the private car and with high costs for infrastructure and energy needed for maintenance of desired quality of life (Radosavljević, Lalović & Đorđević 2013). Low density development has also high economic, environmental, and social impacts and costs in terms of traffic congestion and time spent commuting; air, land, and water pollution; health conditions and even obesity among population; decreased or no accessibility for particular social groups, namely the poor and low income.

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In such a context, urban growth possesses represent considerable planning, governance, and management challenges for the variety of urban sectors, such as housing, sanitation, water, and transportation. Previous urban planning experience in many countries has proved that the common practice and urban design solutions have a negative impact on overall energy consumption, and existing planning methodology make it difficult to identify and locate resources and capacity for sustainable urban development, climate change mitigation and adaptation measures, and sustainable transport within it. At the same time, many cities around the world and increasing number of citizens and government officials began advocating a smarter approach to land use planning, which should include: a compact community development and urban groups, more transportation choices through increased accessibility and inter-modality in cities, mixed land use, and the preservation and expansion of green and agricultural land (Lalović, Živković and Radosavljević, 2011). This approach achieves a more ecological, economic, and social benefits that contribute to the quality of life in cities and rural areas, and at the same time serves for the reduction of energy consumption and greenhouse gas emissions.

2. Context – Sustainable Development of Rural Tourism Project

German International Cooperation (GIZ) wanted to empower and foster individual municipalities of Eastern Serbia to apply jointly for local economic development programs in the project Municipal economic development in the Danube Region, which lasted from 2010-2012. With the project's support, capacity building activities were carried out at the national and regional level in Serbia with Ministry of Economy and Regional Development, Ministry of Agriculture, and the Regional Development Agency of Eastern Serbia (RARIS). In this way, GIZ intention was to initiate strategic networking among bordering municipalities in Eastern Serbia. Four bordering municipalities in the Lower Danube Region, namely Negotin, Golubac, Kladovo, and Donji Milanovac participated with the Project Authentic ethno from Eastern Serbia for the sustainable rural tourism development. Faculty of Architecture was selected as a consultant agency in order to facilitate the process in the project and produce Integrated Plan for Sustainable Development of Rural Tourism (Radosavljević et al. 2012a). We will present and discuss main critical aspects of the process of project formulation that have led to sustainable measures and projects in the field of mobility management and travel awareness in the context of urban and rural tourism development.

2.1. Collaborative approach for the mobilization and inclusion of key stakeholders

First problems and constrains that have appeared in the process of the project drafting were related to previous relations of municipal representatives and low level of communication including conflicting attitudes how rural tourism and mobility should be developed in a sustainable way. This problem was mostly evident between Negotin municipality on one side and Kladovo, Donji Milanovac and Golubac municipalities on the other.

We found actors who barely communicated with each other, although formally supposed to cooperate on the basis of the signed Memorandum of Understanding. We realized soon that the cause of poor relations is a consequence of the process of goals formulation and the structure of the project, and the other one is tender for hiring expert planning team, which was conducted by the municipality Negotin. The other three partner municipalities in the project were not engaged enough nor consulted in the process of the formulation of the project goals and about the terms of the reference for consulting agency. All these aspects led to the situation that they felt having secondary role towards the leading role of the Negotin municipality.

In addition, we noted that the diversity of their individual knowledge and vision of the approach to the rural tourism development and sustainable transport within it was based on the conflicting views and interests of attracting investment and tourists to their respective municipality. Additionally, these obstacles were based on low personal and political relationships which created an atmosphere full of antagonism and rhetorical speech, which even questioned the semantic meaning of concepts, such as discussion about the interpretation of the concept of rural tourism, distrust towards planning team, and doubts about mobility issues. This situation is typical in the Serbian context of planning and management of urban development due to our experience since there is rarely a simple situation in which actors agree from the beginning of the planning process.

The specific approach for trust building that the expert team from the Faculty of Architecture have chosen for the establishment of dialogue and communication between the opposing actors and institutions from four municipalities was to shift the focus from the traditional problem solving of poor relations, towards mutual agreement that is in the interests of all partners to find ways to implement the project in cooperation with each other. The argument we have used was that the traditional spatial and urban plans, state incentives and a number of strategies from the national level were not sufficient as simulative and operational framework for the sustainable development of rural tourism and mobility in Eastern Serbia and that there are no clear mechanisms for the implementation of the above mentioned plans. In that respect, the first step that followed was to bring up issues to the representatives of the municipalities and their tourism organizations their own interdependence and the need for efficient collaborative management and promotion of their territory at the regional level. We presented them the advantages and benefits available, as well as disadvantages and losses that arise unless they cooperate on a competitive market.

We started from the premises that if we want to have real governance by the people and integrated plan that builds from the bottom to the top and from the community towards government, we have to include different groups of relevant stakeholders, as well as to ensure their participation, attention and commitment in the various stages of the planning process.

There were several goals of involvement of various relevant individual and group local stakeholders and organizations in the process. We wanted to directly collect data and information about their values, interests and needs, as well as specific knowledge they individually possess. It was also important to establish personal contact with stakeholders in order to gain the necessary confidence. The confidence has worked as a channel through which we firstly expanded awareness about the need for cooperation. Secondly, later on in the process, we have eventually expanded the idea about individual measures related to the climate change mitigation and adaptation measures.

After we have established communication between actors of the public sector in the network, the following step we have made together with them was to map, mobilize and involve private sector and vilagers using several key elements and methods in the process. We have used several different methods and techniques, such as information, consultation, and inclusion of key stakeholders in order to gain feedback and suggestions from them on solutions in the desicion making process throughout diferent stages of the strategy formulating process.

We have recognized leadership qualities of individual municipal representatives and their enthusiasm related to the project, thanks to which they have mobilized stakeholders. It has been one of the channels for the dissemination of information and further involvement of local stakeholders during the site visits, workshops and informal meetings that have been organized. The second channel of communication was local media. Intensive field visits of different villages and households including wine cellars in villages Rogljevo and Rajac, in the period from October 2011 till Jun 2012 had multiple roles. Beside ordinary data collection process, talking with individual local entrepreneurs, farmers and rural householders to determine the values that the vilagers have individually was essential. In this way, stakeholders were engaged in the planning process.

A series of workshops were held in four municipalities and in Rogljevo and Rajac wine cellars villages in the period from October 2011 till Jun 2012. Stakeholders had the chance to react and express their ideas, suggestions and remarks on proposed preliminary proposals done by the expert team from the Faculty of Architecture. They have also influenced design guidelines and final project during workshops, regular meetings and voting for best solutions during exhibitions.

2.2 Management mobility measures for increased accessibility and tourist's comfort

We will present main outcomes of the project and formulated management mobility measures.

Depending on the different types of tourists and their needs, and of specific and typical forms of rural tourism that already exist or could be formed, we have recognized the potential for increasing mobility in four main groups of management mobility measures:

- Connectivity, both external and internal;
- Signalization, mainly as signposts;
- Modes of transport, mainly as non motorized transport like increasing the use of bicycles and horse transportation, and pedestrian movement; and,
- Services, both direct in transport and information and indirect, such as tourist facilities.

The potential of improved mobility and connectivity for all four groups of management mobility measures has been recognized by relevant stakeholders as a key instrument that can support integrated approach of urban management and fulfill goals of sustainable development in four municipalities, as follows:

- Supports the access to urban and rural economic centers and individual villages in tourist cluster of four destinations in Eastern Serbia;
- Improves the quality of life, health and safety of residents and tourists;
- Contributes to mitigation of climate change, flooding and impacts caused by road transportation onto the living environment;
- Optimizes the use of expensive infrastructure and significantly reduces the need of high infrastructure investments.

This means that the potential benefits have been identified both for tourists and local residents. It also mean that with minimal investments, a general increase can be expected for the use of existing transport networks and modes of transport in order to achieve a safe and comfortable transportation, accessibility and mobility for municipal inhabitants and goods on one hand, and various types of tourists on the other hand.

In order that tourists fully experience everyday rural and natural way of life, some of the integrated rural tourism and mobility measures were developed. Experts from the Faculty of Architecture proposed measures that were integrating existing habits of local villagers both in terms of their tourist offer and mobility issues. In such a way, residents and local authorities suggested urban management and mobility measures, such as tourism packages and products like a typical day going to the harvest in a field by foot or tractor; a tractor ride with rural hosts to another village, town or cultural monument; or pedestrian tour by forest guards in national parks and protected nature reservations.

On the other hand, the potential use of existing village roads and trails, beside their primary function for vehicle transportation, has been identified for other tourist purposes and activities in accordance with specific tourist's requirements. Some of the proposed and accepted measures were mapping, signposts, and the use of gravel country roads and forest trails for country biking and other recreational purposes, such as pedestrian thematic routes.

In the context of tourist's visits and tours of cultural and historic heritage and natural environment in the region and throughout the area, where accommodation in the village is the base center where a tourist comes back after the tour, a good information system is needed for the quality of tourist's stay and effective and efficient use of both tourist's and municipal resources and time. In this sense, the potential for improving the information that tourists might use are recognized for a variety of basic services, such as information on nearby banks, post offices, shops or the nearest health facility, as well as services related to the ease of easily navigate in space, arriving to the destination by car, bicycle, water and pedestrian transportation.

Such an information system is not only a database available on the Web site of municipalities and local tourism organizations. It can additionally include printed maps with various types of tourist information and combined tourist packages for different tours depending on the time available; travel awareness activities that include educated rural hosts to help domestic and foreign tourists and provide quality information in general and even provide local transport in particular; basic traffic signals and system in the form of info-boards for pedestrian and bicycle paths.

Specific mobility measures such as thematic hiking and biking trails are planned for realization in few phases and could be further arranged at the local level by involving local residents and owners of individual parcels, experts in specific areas depending on the topic route, tourist experts, etc. Basic information on the maps should include, except the basic data about the natural, cultural, and tourist info centers and basic service, data that contain information about the distance, slope, time of movement from the bottom to the top of the destination and vice versa on the hilly areas such as eastern Serbia, and so on.

When it comes to signage, it has been agreed on the level of four municipalities that tourist information signs for the pedestrian and bicycle paths and larger boards with description of specific places of interest and destinations should be placed the theme trails and places of interest. They are supposed to be placed either in terms of individual ambient sites as well as the cultural, historical and environmental or natural systems; sometimes as a individual plant species along the trail, on other occasions signs for track-passing between fenced plots etc. The aim of signage is done in order to facilitate tourists for their better orientation in space and provision of complete comfort on one side, but it is meant also for increasing accessibility for local residents and villagers in their everyday activities.

Alternative modes of transportation, such as vehicles with alternative energy source, bicycles and walking, village carts, horse riding, as well as mobility measures which restrict access of cars to protected and unprotected rural environmental entity, protected natural reservation areas, represent, together with the regulation of parking for buses and cars, not only the potential but also the commitment to environmentally clean development of rural tourism, the protection of nature and the complete experience of tourists.

Another important aspect of mobility measures was seen in the provision of services for individual tourists in terms of bicycle repair shops, pit stops, refreshment and resting areas, especially for cyclists in the spring and autumn period. This measure is gaining importance, especially since it is associated to the expected increase in the number of bikers or cycle tourists, how they are called, which cycle along the Danube bike trail, that is a part of the Eurovelo 6 route from the Atlantic Ocean to the Black Sea. In that respect, it has been agreed among municipal representatives and villagers that these specific bicycle oriented places should be located next to the corridor along the Danube. Another level is that they can be located in villages in the Danube's hinterland. It does not mean that each time a new facility has to be erected, but that soft urban management and mobility measures might be implemented. Stakeholders accepted that existing rural accommodation could be used as a first phase and that the villagers themselves could be further trained to repair bikes.

Residents, municipal representatives and experts from the Faculty of Architecture placed full attention for the Rajac and Rogljevo wine cellars due to it's huge national heritage value. It has been acknowledged that it was of extreme importance to make a mobility plan and movement independently and further incorporated into a formal plan, such as a plan of detailed regulation or plan of designated tourist area. Mobility plan should include possibilities of alternative modes of transportation, pedestrian paths with a suitable slope for walking all on one hand. On the other hand, plan should also as agreed contain restrictive measures, such as bus restrictions and individual cars access for tourists coming from neighboring villages of Rajac and Rogljevo the vine cellars.

This mobility management measures would significantly reduce unfavorable effects to the surrounding protected ambient of vine cellars. Such measures are high on the priority agenda of local villagers in the vine cellars. This approach involves the use of the urban management and mobility scheme, in which, on one hand, the owners and tenants of vine cellars and emergency vehicles have constant daily access; and on the other hand, maintenance services, subcontractors and suppliers have time managed limited access, and tourists-visitors have partly prohibited or restricted access with their own car. This means that a provision of a designated area for bus parking and individual tourist's cars in the neighboring villages is needed. It also means that with such a restricted access, a provision of additional modes of transport to the vine cellars is a must. Measures includes activities that already exist, but need additional further support from the municipality of Negotin; and activities that are going to be realized in future, that are costly, but achievable. As we mentioned before, such activities might include driving on a villagers tractor, small electric vehicle, or even if the opportunity occurs in the future, physical elements like a sloping elevator. Vine cellars of Smedovac could also have above mentioned restrictions and possibilities.

3. Conclusion

We have argued in this paper that it is possible to work within the community, with ordinary people, households, vine producers, and with local government representatives, incrementally, through site visits talking with people, participative interactive workshops and formal presentations in order to build trust, raise awareness and recommend sustainable measures and projects in the field of mobility and travel awareness for urban and rural tourism development aiming at identifying possible improvement directions in Serbian context.

Due to the inclusion of all relevant stakeholders and joint dialogue between them, we have raised the awareness of the importance of climate change among them and adaptation and mitigation measures which included mobility management measures and sustainable development of rural tourism.

As a consequence, all stakeholders agreed that the proposed measures and guidelines in the Integrated Plan for Sustainable Development of Rural Tourism in Eastern Serbia (Radosavljevic et al. 2012a) and the Guide for the regulation of rural tourism households (Radosavljevic et al. 2012b) incorporate recommendations based on the principles of rational use of land and the use of renewable energy. Those principles included measures on: 1) alternative forms of transportation for residents and tourists, especially using non-motorized transportation modes and reduction of air pollution; 2) use of traditional ways of building in harmony with nature and the environment at the village level and use of environmentally friendly materials; 3) establishment of ecological networks and biodiversity for ecotourism development; and, 4) travel awareness and training activities for quality tourism offer and sustainable development.

We conclude from our research that planners and urban designers can support local communities in the process of adapting to climate change through mapping and involvement of relevant actors and stakeholders from the very beginning, and identify and overcome regulatory and institutional barriers in the process of collaborative goals definition and integrated measures.

We have also found that in order for the collaborative action on the dissemination of knowledge on climate change and adaptation and mitigation measures to work in Serbian context, several conditions have to be met. First, prior to developing awareness of climate change, a necessary prerequisite in Serbia at the regional and local level is the collaboration between often conflicting stakeholders, primarily the public sector. Collaboration is essential, since only through the establishment of a dialogue and raising awareness process, dissemination of information and knowledge can enhance transformative ideas about the importance and impact of climate change. That leads to the next step, in which methods, measures, and tools for mitigation and adaptation to climate change are discussed and formulated.

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