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## **SCOPE AND AIMS**

The review is concerned with a multi-disciplinary approach to spatial, regional and urban planning and architecture, as well as with various aspects of land use, including housing, environment and related themes and topics. It attempts to contribute to better theoretical understanding of a new spatial development processes and to improve the practice in the field.

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# SOCIO-CULTURAL MODELS AS AN IMPORTANT ELEMENT OF THE SITE SELECTION PROCESS IN RURAL WASTE MANAGEMENT

**Marina Nenковиć-Riznić<sup>1</sup>**, Institute of Architecture and Urban & Spatial Planning of Serbia, Belgrade, Serbia

*The problem of waste management in rural areas has not been the subject of detailed specific researches since most of the research has been directed towards the study of means, mechanisms and procedures of waste elimination in urban settlements. The reason for the reduced scope of research in this field lies in the fact that rural settlements cannot be considered as "grateful" subjects due to usual deficiency of specific data (population number, fluctuations, amount of waste, waste composition, methods of waste elimination, etc.). In addition, for several decades the villages have primarily eliminated waste spontaneously. This has proven difficult to research because of the variations of methods applied to each specific locale, as well as different environmental variables. These criteria are based on patterns of behavior, customs and habits of the local population, but they also insist on absolute participation of local stakeholders in waste management. On the other hand, although Serbia has a legislative frame which is fully harmonized with European laws, there is a problem within unclearly defined waste management system which is oriented mainly on rural areas. The reason for this is the fact that waste management in rural areas is the part of regional waste management, and does not operate independently from the system in "urban" areas. However, since rural areas require the construction of recycling yards, this paper will present a new methodology, which equally values techno-economic criteria and social criteria in determining waste elimination locations.*

*This paper will also point out varieties of actors in the process of waste elimination in rural areas, as well as the possibility of their participation.*

**Key words:** waste management, rural settlements, multi-criteria analysis, participation, landfill location.

## INTRODUCTION

The waste management problem as a part of environmental management system is one of the most important environmental parameters. This has necessitated the development of a particular scientific discipline – theory of waste management, through studies of the most prominent researchers in this field – (Tchobanoglous et al., 1993), (McDougall et al., 2003), (Mazzanti, Zoboli, 2008), (Aivaliotis et al., 2004), (Brunner, 1986), (Zamorano et al., 2008), (Redfearn, Roberts, 2002), (Rogoff, Williams, 1994), (Christensen et al., 1999) (Geneletti, 2010) etc. This theoretical discipline has been developed with the aim to define principles which would help prevent effects of irrational waste management on human health,

as well as promote reuse of waste material. It has been developed on paradigms of industrial ecology which considers the industrial (manufacturing) processes and their perspectives through product compatibility and environmental interactions (Pongracz et al., 2004). The reason for separating the theory of management into a separate scientific discipline lies in the fact that this aspect of ecological sciences, due to growing problems of waste management, also requires specific methodological and research frameworks derived from other scientific disciplines (Tchobanoglous et al., 1993) (location theory, ecological planning, ecological economics, etc.). Precisely because of the abovementioned fact, the theory of waste management uses instruments of different sciences and scientific disciplines adapting them to its own research framework (Pongracz, et al, 2004). However, the problem which occurs at the level of theory of waste

management lies in the fact that research is directed exclusively towards urban areas, without elaborating in more detail the determination of methods and selection of sites for waste management in rural areas (Nenковиć-Riznić et al., 2009).

## SPECIFIC THEORETICAL RESEARCH

Recent theory and practice define new concepts of landfill location based on multidisciplinary and interdisciplinary research, analysis and definition of multi-criteria model approaches to site selection, based on previously established location

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criteria and parameters. However, these new concepts do not incorporate the local characteristics of individual settlements, as well as the social/cultural component, which is reflected through the habits and behavior of local population in rural waste management.

The researchers, who are in the world theoretical thought considered as theoreticians of waste management, deal only to a lesser extent with issues associated with the methods and sites for waste elimination in rural areas. The reason for such state of affairs lies in the fact that, on the one hand, theoretical assumptions associated with waste management in urban areas may also be directly used in researching this problem in rural areas and, on the other hand, in the fact that due to deficiency of statistical data, there are no good grounds for research in rural areas (Christensen et al., 1999). On the other hand, in smaller communities, such as rural areas, research on municipal waste disposal is much smaller in scope, or, like in Serbia, practically neglected. However, some research results associated with this problem in urban areas may be directly applied to rural areas (e.g. in the domain of determining certain criteria for selection of waste elimination site), but considering the theoretical and methodological grounds (as well as results of various world and European studies), it has been observed that there are also many specificities associated only with rural areas due to which the mentioned theoretical and methodological frameworks should necessarily be separated and improved.

Considering analyses of recent research activities in the field of waste management (Calvo et al., 2005), (Geneletti, 2010) (Kontos et al., 2005) etc., the impression is that in determining the manner of waste elimination, as well as in selecting the landfill sites, the criteria are mainly techno-economically oriented, i.e. they do not take into account a social aspect of waste management. Namely, for the purpose of obtaining a higher level of community participation in waste management, it is necessary to also take into account the affinities, behavioral patterns and interests of local population as highly ranked criteria for determining the methods for waste elimination, as well as criteria for the selection of waste elimination sites (recycling yards) in rural settlements, which are actually normally used as criteria for location of existing dumps.

Structural differences in demographic and economic features, behavioral model (behavioral models of local population/ villagers), as well as ecological premises in cities and rural areas, also require different parameters (inputs) in determining the methods and selecting

recycling yards sites. Due to long lasting and non-cost-effective quantitative and qualitative analyses of the total amount of waste in rural settlements (versus significant databases formed for cities), qualitatively much less data required for the formation of models for defining the methods and sites for waste evacuation are collected in these areas. Precisely out of this reason, it is more difficult for researchers to apply the previously defined model approaches realized for urban centers to rural areas. (Nenković-Riznić, 2007).

The composition of municipal waste significantly varies in rural and urban settlements, this being yet another reasons why it is has become necessary to define different methods of waste management relative to those determined for cities (landfills, big recycling centers, waste processing facilities), as well as to determine specific methods for waste elimination by locating the centers for waste evacuation (smaller transfer stations, smaller recycling yards and compost heaps if it is economically feasible) in rural areas. Above mentioned waste management approaches in rural areas vary depending on local conditions and local legislative framework of different countries (Kontos et al., 2005), (Hermann, 1999), (Parisakis et al., 1991), (Zamorano et al., 2008).

Methods of waste management do not depend solely on the settlement type, but are also directly conditioned by the number of inhabitants, age structure, employment structure, amount of generated waste, waste composition, but also by social circumstances, local economic conditions, as well as, to the greatest extent, by geographic features of the area (McDougall et al., 2003). Therefore, while determining and checking justifiability of the selection of a method or site for waste management (recycling yards), all previously mentioned parameters should be taken into consideration.

Checking justifiability imposes itself as a logical step because such type of investment might be unnecessary, particularly in villages where less amount of waste is generated which could be treated in some other manner (composting, on-site incineration, etc.).

Theoretical knowledge on methods of waste management and waste management sites has been used for the purpose of examining the specific problems of rural waste management (Tchobanoglous et al., 1993). In their study, these authors gave an integral overview of waste management, from determination of amount and percentage share of certain components in the total waste flows, definition of options for waste elimination in settlements, through the definition

of waste deposal sites, transfer stations, recycling facilities, etc., to the formation of specific organizational framework for implementation of waste management projects. What imposes itself as a major criticism of these research assumptions, and is the results of research on standpoints of other authors (Brunner, 1986), is the fact that they have addressed the problem of locating the facilities for waste management in a techno-economic way, disregarding the social factor (stakeholder participation in decision-making process) in the hierarchy of important criteria for selecting the methods and sites for waste evacuation.

Through a series of research activities<sup>2</sup>, it has been concluded that it is also possible to check all mentioned theoretical assumptions on parcel polygons in rural areas in Serbia (locations of recycling yards in area that is inadequate in the social context) and European countries where wrong estimations may be found in waste management planning, primarily due to over-dimensioned capacities, but also in generating greater environmental and health repercussions for local population. All this leads to the conclusion that, in an economic and social sense, there was no need for their realization (Christensen et al., 1999). Namely, planning the waste elimination sites of greater capacity than required necessarily causes an increase in economic costs which could not be compensated in the period considered to be paid off. On the other hand, economic costs may also be increased due to pollution and environmental charges.

On the other hand, in Serbia, waste management in rural areas is regulated through legislative framework (Law on waste management and other similar regulations) and Waste management strategy 2010-2019. In Serbian rural areas, the existing waste management option is usually illegal dumping, since these settlements are not included in waste collection system. According to the Waste management Strategy, waste collection system will be expanded to cover rural areas as well. Also, Waste management Strategy provides that until 2019 waste management in rural areas will be the matter of Local waste management plans. In accordance with the regional orientation of waste management, rural areas will be covered with the system of recycling yards (extremely transfer stations) and subsequent waste evacuation from these sites to the regional landfill. Therefore, this paper will give methodological guidelines for determination of waste elimination locations.

<sup>2</sup> carried out by the author since 2003 through the reserach carried out for the needs of regional and municipal plans, but also urban plans

## ELABORATION OF CURRENT METHODS

Recent methodology in spatial and urban planning suggests a contemporary concept of approach in researching the community-based waste management (in the domain of defining methods and sites for elimination of municipal waste) in urban and rural areas. This concept is based on multi- and inter-disciplinary research (versus previously one-sided deterministic concept), analysis and definition of multi-criteria model approach to waste elimination locations location, based on the previously determined location criteria and parameters.

Determination of waste management system directly depends on how much the local population is interested in participating in waste collection and separation processes, but also in generating the amount of waste sufficient for its cost-effective treatment. Therefore, in recent approaches to researching the methods and locations for waste disposal in rural areas, the accent, in addition to geographical, hydrological, climatic and other parameters, should also be placed on social factors, i.e. degree of acceptance of a new recycling yard site by local population (i.e. degree of harmonization of local population affinities with the site determined by developers). In this connection, previously applied methodology for determining sites for waste evacuation, which may be characterized as techno-economic and deterministic one, cannot be considered adequate so that it has been necessary to also form new approaches to selecting the locations for temporary waste storage (transfer/recycling yards if it is economically feasible) in villages.

Considering the analyses of recent research activities in the field of waste management (mentioned above in the present paper), the issue of including social aspect in this problem area has also been actualized taking into account affinities, behavioral patterns and interests of local population as a highly ranked criterion for the selection of methods and sites for waste elimination. Considering that the composition of municipal waste differs diametrically between rural and urban areas, this is yet another reason because of which a need has manifested itself for defining different waste management methods relative to those determined for urban areas (landfills, big recycling centers, waste processing plants), as well as for determining specific manners of waste elimination by locating the centers for waste evacuation in rural areas (smaller transfer stations, smaller recycling yards and compost heaps if it is economically feasible).

It is, after all, irrational to speak of defining the waste management system in a community if the local population is not interested in it, but also if

there is no sufficient amount of waste which could be treated.

The techno-economic methods previously used in multi-criteria analyses have mainly been based on determining a series of criteria associated with geological, hydro-geological, seismic, and climatic features of the site. However, new methodologies of multi-criteria analysis: AHP (Analytic Hierarchy Process) and the SAW (Simple Additive Weighting) methods combined with the GeoSpatial Analysis (GSA) within the GIS represent a new method in modeling and analyzing potential sites for recycling yards. They, in addition to the previously mentioned standard criteria, also incorporate social parameters in modeling, whose importance ranking depends on the degree of acceptance of the site by villagers.

Besides, for several decades, with the development of the GIS tools as a decision support system, many researchers (Kontos et al., 2002), (Komilis et al., 2005), (Parisakis et al., 2005) have used, in a single-sided and theory-based way, the GIS instruments as a main site selection tool. Criticism (Malczewski, 2004) addressed to this methodology is based on the fact that geospatial systems can only be used as an instrument in the analysis, but not as the only methodological framework in location analysis (Malczewski, 2004).

Analyzing the assumptions of contemporary theoreticians in the field of waste management, it may be observed that there are no studies (or they are not available) examining the effects of stakeholder participation in the site selection process. However, there are indications that certain authors (Guiquin et al., 2009) have carried out such research, which has partly been supported by the fact that they have used AHP methodology and methodological framework of the social multi-criteria analysis, but their studies have not shown a clear distinction between location models based on techno-economic analysis and those based on the additional social criterion (participation). Furthermore, none of the authors has included unplanned landfills (visual criterion, free place criterion, etc.) in equal site evaluation criteria.<sup>3</sup>

In addition, analyses of all available research studies in the field of rural waste management have shown that they have not provided a clear model of waste management organization which could be applicable only to rural areas. Certain organizational models consider this problem from a wider aspect so that they can also be

indirectly used for research in rural areas (Guiquin et al., 2009).

Further analysis of the existing theoretical and empirical considerations in the domain of waste management shows that there are no relevant sources that provide an overview of legislative framework in the area of rural waste management exclusively, either in the European Union or in Serbia. Although these normative documents are found in the EU database, more detailed considerations and explanations, particularly associated with rural areas, have not been found in the available literature.

In Serbian theoretical thought, certain authors have dealt with the issue of waste management in rural areas only through pilot research activities (Malobabić et al., 2004), (Josimović et al., 2009), strategic guidelines for local legislation changes, or through studying the rural waste management (Čanak, 1990). Although problems in rural areas could also be described or clarified based on these studies, there is a need to form a single methodological and research framework which would take into account only characteristics of rural areas. In addition, research on recycling yards placement, as well as adequate methodological recommendations and models, have not been elaborated so far in the local literature.<sup>4</sup>

Through further analysis of available studies for the needs of site determination, particularly determination of the method of waste evacuation, it has been found that there is a significant shortcoming of mathematically-based and empirically checkable methodology associated with determination of the capacity of facilities or containers for waste disposal. Some authors give the mentioned mathematical guidelines rather generally (Everett, 1998) and, based on preliminary research carried out for the needs of this paper, there is no impression that they are applicable to rural settlements. Namely, certain parameters (specific transportation costs, distances between blocks) used within this mathematical method can only be applied to urban areas, while it is not possible to adapt them to rural areas.

Based on all mentioned elaboration of contemporary theory of waste management and methodology of site selection for waste disposal, certain shortcomings can be observed, the so-called research niches, as well as certain inconsistencies in methodology, but also in specific research studies.

<sup>3</sup> the mentioned criteria have been formulated based on year-long research by the author of this paper on different planning documents, as well as on the results of numerous surveys carried out in Serbia.

<sup>4</sup> it is presumed that researchers have not had relevant statistical framework or access to data required for their research.

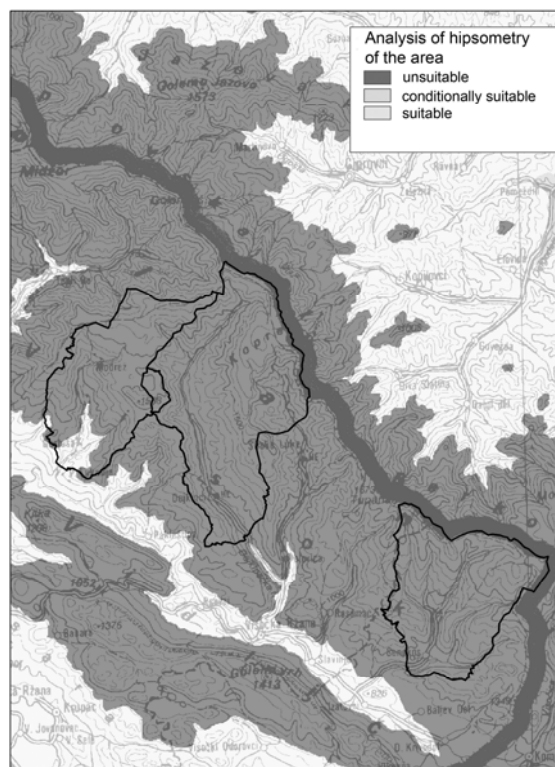


Figure 1. Analysis of hypsometry of the area

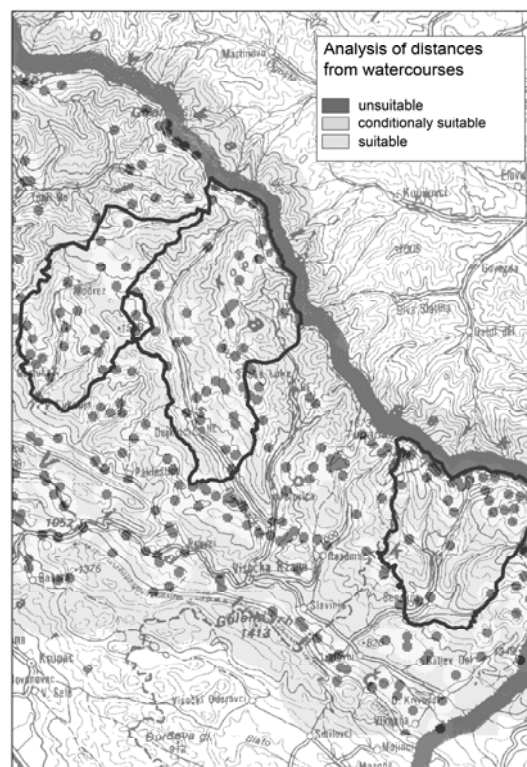


Figure 2. Analysis of distances from watercourses

## NEW METHODS FOR SELECTING THE SITES FOR TEMPORARY WASTE STORAGE (RECYCLING YARDS, TRANSFER STATIONS) IN RURAL SETTLEMENTS IN SERBIA

For the purpose of defining the detailed method and system of municipal waste elimination in rural settlements in Serbia<sup>5</sup>, it is necessary to determine major input parameters made up of data on spatial coverage of rural areas (topographic characteristics, development of infrastructure, water resources and energy infrastructure, current waste management system, existing regional landfills nearest to the selected location, regional landfill planning), data on population (demographic structure and forecasts of population number, disposition of settlements), as well as the data on the existing methods of treating household waste and wastewater.

After forming a database on the mentioned parameters, it is also necessary to carry out their mapping through determining accurate locations of settlements, existing landfill spaces, existing and planned purpose of areas, possible existing and planned zones of

protected natural and cultural values, as well as possible geomorphologic/hydro-geological barriers (zones of protected water accumulations, infrastructure corridors, etc.) and spatial distribution of users of space (based on projected number of inhabitants/ tourists/users of space). All mentioned multi-criteria analyses are carried out using ARGIS (Spatial analyst) software package and based on previously mentioned methodologies, as well as studies (Kontos et al., 2002), (Komilis et al., 2005), (Parisakis et al., 2005) (Guiquin et al., 2009) (Josimović et al., 2008) (Herman, Osinski, 1999).

All mentioned parameters are needed primarily for defining the method for collecting waste in certain territory, but for the framework determination of sites and outlines of recycling yards/transfer stations and their capacities.

The research must include techno-economic, deterministic criteria which are used in waste disposal site selection (such as geological, hydro-geological, geomorphologic, seismic, and climatic criteria, the existing and planned ways of land use, ecological criteria, criteria for the protection of natural and cultural-historical values, the existing utility infrastructure, etc.). Based on all mentioned criteria, suitability classification of territories is carried out. In addition, each individual criterion is ranked differently relative to its importance in overall

valuation (as shown in figures 1 and 2).<sup>6</sup> Eighteen different criteria have been determined for which, through the social cost-benefit analysis and by applying AHP (Analytic Hierarchy Process) methodology, the most suitable sites for the newly planned recycling yards in rural settlements have been determined, which have additionally been reevaluated using geospatial database, and then graphically represented (Nenković-Riznić, 2011).

The most suitable sites have been denoted by the lightest grey, the conditionally suitable ones by medium grey color, while unsuitable sites according to these criteria have been denoted by the grey color. Figures 1, 2, 3, 4 show analyses carried out for certain rural settlements situated in the pilot area of the Old Mountain Nature Park (which has three regimes for the protection of natural and cultural values).

Figure 1 shows suitability zones defined for the construction of recycling yards from the aspect of hypsometry of the area. Figure 2 shows sites evaluated relative to their distance from watercourses. These are, however, only some of the analyses (out of 18). The remaining analyses have comprised the suitability analyses relative to locations of the existing

<sup>5</sup> harmonized with the adopted strategic guidelines given in the Waste Management Strategy, and here is further elaborated for the purposes of the polygon of three villages of Stara Planina.

<sup>6</sup> the mentioned graphic representations are a part of more comprehensive research of the territory of three villages situated in the Stara Planina Nature Park, carried out for the needs of author's PhD thesis.

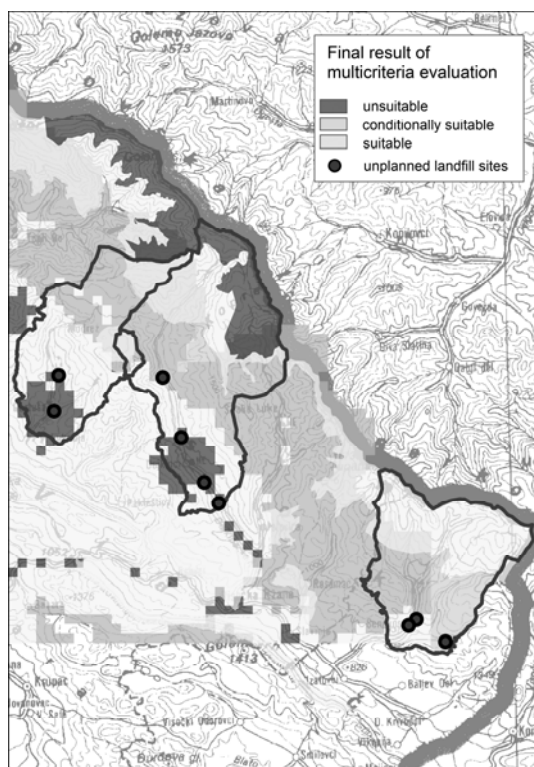


Figure 3. Final results of evaluation according to the techno-economic criteria using the ARCGIS software package

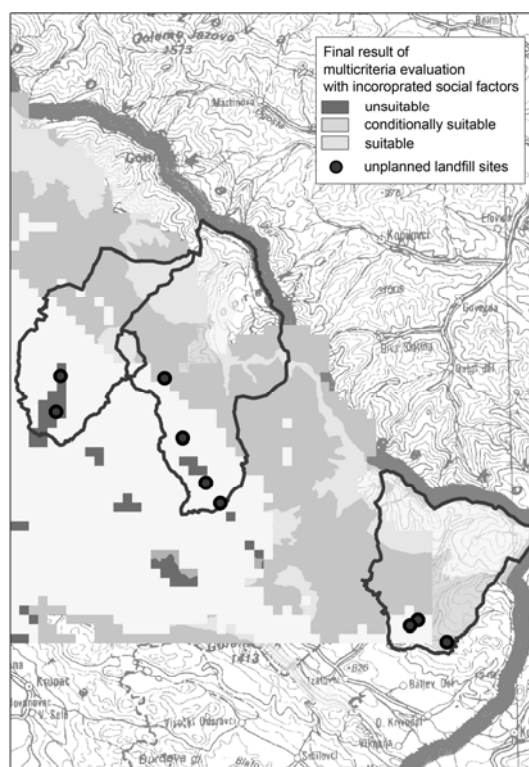


Figure 4. Results of multi-criteria analysis with added rank of social acceptance criteria for the site (with existing landfill sites entered)

rural settlements, climatic parameters, distance from the first and second category state roads, etc.

Sites obtained through analyses are a direct reflection of the previously defined techno-economic criteria, which can be determined with a high degree of accuracy through further detailed analysis (Figure 3).

Analysis results change depending on the inclusion and promotion of social criterion in overall criterion rank (as shown in Figure 4).

In order to prove initial assumptions on the importance of social criteria for the selection of recycling yards in rural settlements, an additional criterion, the social acceptance, has been incorporated into the originally realized techno-economic model, and a new set of sites considerably closer to sites of unplanned landfills has been determined through additional analyses (Figure 4).

Based on comparative representation of the existing unplanned landfill sites, as well as sites for recycling yards obtained through model approach, it could be concluded that level of waste management performance through building the smaller transfer stations/recycling yards in rural settlements depends primarily on the level of inclusion of local population/tourists/users of space in decision-making process in the sense of taking into account their attitudes in decision-making

and, what is even more important, on the level of taking into account habits and behavioral patterns of local population in multi-criteria analysis. Although these parameters have not been analyzed in more detail, but have been taken into consideration as results of population surveys, they should be perceived as implications for planning and forming the model for locating any activities in space.

On the other hand, the selection of adequate waste treatment method also depends on local and regional waste management strategy for certain territory, provided that waste collection system (as the first phase in management process) is not directly conditioned by the method of waste elimination, but is carried out according to certain standards.

New combined methodology applied in this paper with some changes can also be used for determining the sites for other, potentially ecologically hazardous purposes. The research can achieve an even higher level of detail by changing the number of criteria and their ranks within the model.

## CONCLUSIONS

Waste management in rural areas has not been considered in more detail either theoretically or methodologically by world researchers. Different situation is in Serbia, where main reason for this is the fact that rural areas are a

part of a bigger, regional point of view, since Serbia has a regional system of waste management. Although rural areas with their specificities have smaller requirements regarding municipal waste elimination, on the other hand, the system of municipal waste management is less complex and does not require greater technical interventions. However, regardless of this fact, and in accordance with Serbian strategies and legislation, it is necessary to establish a clear site selection methodology, for recycling yards in rural areas which would comply with behavioral habits, affinities and interests of local population (Nenković-Riznić, Pucar, 2010).

Through elaboration of basic theoretical and methodological assumptions and identification of their drawbacks, a new methodology has been established and presented in this paper which can be used to determine recycling yard sites in rural areas. Multi-criteria analyses have been carried out using AHP methods and GIS data processing. Thereby, the manner in which inclusion of local population can, through social parameters, influence a more accurate selection of sites for waste disposal, has been shown. It has been concluded that using only techno-economic criteria, i.e. spatial planning criteria, cannot produce valid results regarding the site suitability. Therefore, it is necessary to also take into account the site acceptance by local population.



Thus, it may be concluded that it is not sufficient only to meet all conditions associated with techno-economic criteria for recycling yards site unless there is an initial social approval (compatibility with people's views), considering that it is easier to change negative ecological, economic and natural circumstances than people's views. Thereby, general conclusion that can be drawn lies in the fact that there are significant differences between unplanned landfills and recycling yard sites selected through techno-economically generated approach. In this way, a specific methodological enhancement of location theory has been achieved, which has been used in current research in the field of location theory, as well as theory of waste management.

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# THE RIGHT OF SERVITUDE BETWEEN PUBLIC INTEREST AND UNDISTURBED USE OF PRIVATE PROPERTY

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*For obtaining the land in order to build the magistral pipeline a specific form of land expropriation is applied, namely the Right of servitude. The Right of servitude can be realized on the basis of established public interest, which can be defined according to the spatial plan of the relevant area. The Right of servitude is analysed from the point of its influence on the respect of basic human rights of property owners to enjoy their property in safety and without disturbance. Current legal framework in Serbia that regulates procedures for acquiring land for the purpose of public interest allows for breach of private property rights. There is a mutual inconsistency between a number of decrees that regulate property rights for large infrastructural development projects. A specific, and possibly a greater problem, is the status of the local population, the land owner and other real estate. It concerns their awareness of their private and individual rights, as well as technical and other legal standards, which must be applied during the preparation, construction and working stages of an energy facility. Applying the Right of servitude as a way to acquire land for construction of the Pipeline, there is direct breach of the basic human right as stated in the first Protocol of the European Convention on Human Rights, namely that 'every natural or legal person is entitled to the peaceful enjoyment of his possessions' (Article 1, Protocol 1). The Right of servitude allows the investor to use 'public interest' as a way of gaining access to another's land, and under better financial conditions than if he were to apply permanent expropriation. While the owner retains his/her ownership of the land, inconvenienced by numerous limitations of its use, usability and market value of the land becomes substantially reduced.*

**Key words:** magistral pipeline; right of servitude/easement; public interest; human rights.

## INTRODUCTORY REMARKS

In the Republic of Serbia, development of infrastructure for a gas pipeline has gathered pace during the last decade, amongst other reasons, due to its environmental properties. In order to build the pipeline it was necessary to obtain land by purchasing it from the land owners, or by announcing public interests that the pipeline would bring. For the latter a specific form of expropriation is applied, namely the right of servitude. The right of servitude can be realised on the basis of established public interest, which can be defined according to the spatial plan for the relevant area. The subject of this article is the analysis of the right of servitude and its influence on the respect of basic human rights of property owners to enjoy their property in safety and without disturbance<sup>1</sup>.

## LAND OWNERSHIP AND LAND USE STATUS

Public interest is defined through notions such as common benefit, common wellbeing, general welfare and other. In the middle of the 20<sup>th</sup> century, at the beginning of the welfare state, this notion served as the key legitimate basis for planning in both political entities in European states (Petovar, Vujošević, 2008, p.24). Public interest was facilitated through various activities which had different forms of protection, such as financial subventions, tax reductions, legal support and other. Public interest was an umbrella, under which welfare states created and implemented social programs. As a consequence, some property rights were limited in order to allow more efficient and economical realisation of those programs. In former (real) socialist states public interest was an instrument for enabling various activities, and carriers of those rights were clearly defined – only actors from the

state/common sector could be the beneficiaries of public interest. Moreover, in some traditional democratic European states the concept of public interest had such a strong influence that it endangers the right to property as the basic human right, as defined by the European Convention on Human Rights in 1950 (Dimitrijević, Paunović, 1997, p. 298). This was the main reason why this right was established only in the First protocol of the ECHR, which states that 'every natural or legal person is entitled to the peaceful enjoyment of his possessions' (Article 1, Protocol 1). The same Article states that 'No one shall be deprived of his possessions except in the public interest and subject to the conditions provided for by law and by the general principles of

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international law'. For the future discussion of this analysis, it is crucial to consider the right to peaceful enjoyment of one's property while the land is in owner's possession<sup>2</sup>.

At the beginning of the 1980s the self-explanatory concept of public interest has been seriously shaken in its contents, as well as in the view of those actors who use it and those who reap its benefits (Petovar, Vujošević, 2008). During the post transition period in Serbia this concept remained the basis for gathering property and acquitting the owner of other real estate, which greatly resembles the socialist period (Vujošević, 2004). The greatest difference from the past is that the responsible parties can proclaim public interest for state, private or cooperative property. This interpretation is derived from gaps in the legal framework, which omit to define property rights of the owner of the public interest. In addition, a wide spectrum of activities can be defined as public interest, from those that contain some aspects of public wellbeing and public good, to those that are exclusively commercial<sup>3</sup>.

Public interest is the basis for expropriation. Several types of ownership could be established through expropriation. For the purpose of this paper, the following are relevant:

**Permanent expropriation** is seizing of the land from the current owner with compensation as regulated by law. Residential and other facilities are also subject to expropriation. The owner of the property has the right to request expropriation on the remaining land, if that part has lowered value. Permanent expropriation deprives the owner of his/her property, in return for compensation in market value of the expropriated property.

**Temporary occupation of the land** is the right of the Beneficiary to use the land during the preparation work and construction of the Pipeline without change in ownership. According to regulations, during the construction of the Pipeline, the area used is 6 + 12m in width from the axis of the Pipeline. Temporary occupation of the land provides for adequate compensation for the land owner. This is where a serious problem appears, namely, devastation of the top layer of humus as a consequence of construction works of the Pipeline. This is due to lack of safety measures and re-cultivation of the top soil.

**The partial expropriation or the right of servitude** (also called right-of-easement or right-of-way) allows the Beneficiary permanent access to the facility (Pipeline) which is situated on the peace of land that remains in ownership

of another subject, with adequate compensation which is paid to the land owner by one-off payment (according to data gathered from JP Srbijagas, the amount of compensation is 30% of market value of land over which the route passes). The right of servitude could be established during the expropriation process in order to have the water pipes installed, electrical and telephone cables, including gas pipelines. The user of expropriation creates a type of credit over another's private ownership. According to current legislation the owner does not have the right to ask for permanent expropriation of the land where the right of servitude has been established.

Along the route of the main Pipeline, the following type of land use can be identified along the route: (1) Village borough agricultural land that will keep its use for agricultural production and will not be converted into land for construction (building land); (2) Agricultural land in villages near the city that may potentially be changed into land for construction; and (3) Agricultural land which has become informal building land where buildings have already been built (with no building permits, but which are in the process of legalisation), although it is still officially registered as agricultural land, and its value is determined as such for the purpose of expropriation. We should also add category (4) – namely, agricultural land that will not change purpose in accordance with the established proposition in the Spatial Plan of corridor Niš – Bulgarian border, which states that 'alongside belts that are meant for the construction of the Pipeline corridor there are no changes in the use of agricultural land' (Spatial Plan of the infrastructure corridor Niš – Bulgarian border, Official Gazette 86/2009, p.11).

## LAND VALUE

Along the route of the Pipeline, as in other parts of Serbia, there are significant differences in value of agricultural compared to building land used for building where development is allowed. Value of the latter is several times higher, because land use is regulated and construction of residential, industrial and other facilities is permitted. A separate category consists of agricultural land near urban settlements, which has already been (illegally) built on, but is still formally registered as agricultural land. As such it is valued accordingly (as agricultural land) when assessing compensation for current owners.

Value of agricultural land, which is not suitable for urban development, along the highway and the Pipeline of Corridor X is extremely low. According to expropriations carried out along the Corridor X Highway, the price ranged from

4 to 6 euro per 1m<sup>2</sup>. Such price exceeds a fair market price in the area. In an interview with an owner of expropriated land in Crvena Reka settlement, along Corridor X, the respondents could not recall the last time a plot of agricultural land has been sold on the market. According to thousands of completed acquisitions along Corridor X Highway, there were only a few complaints regarding the fee. In other words, most of owners are keen to accept the offered compensation for the expropriated land, as well as for expropriated residential and commercial buildings. Such findings indicate that the price given for the expropriation of the land is acceptable to owners.

The sale of agricultural land took place only in areas close to urban settlements, which is why this land was sold in fragments and for the purpose of building for housing. New owners used to build their houses without building permits and then settled with their families. The largest number of residential and commercial buildings in city peripheries in Serbia was built on agricultural land or pseudo-building land. Through expansion of planning of this zone (through the Master Plan) these land plots have been formally converted into construction sites. It has now become possible to legalise already built housing, commercial buildings and other built environment, or even get a building permit to build a new facility. By changing the use of agricultural land into land for construction, the price has been formally settled.

For example, the price of land meant for construction in the suburbs of Niš municipality reaches up to 200 000 euro per 1 hectare (see – The case of Trupale). Only villages in the peripheral zones of municipal centers can change land usage from agricultural to construction land, as set by the planning regulations that have included those areas into the Master Plan. Consequently, land use of a certain piece of land changes and becomes available for construction of housing and/or other objects (industrial zones, etc.). Changing land use from agricultural to construction results in significant increase in land prices on the market.

## POSITION AND RIGHTS OF OWNERS WITHIN PROTECTED AREAS/SAFETY ZONES OF PIPELINE

Under current legislation that regulates the construction of the Main Pipeline, the scope of expropriation of land is significantly low, while most of the route is to be used for by right of servitude.

The Law on Pipeline Transportation of Gaseous

and Liquid Hydrocarbons and Distribution of Gas Hydrocarbons (*Official Gazette of the Republic of Serbia, No. 104/09*) defines preconditions for constructing gas pipeline and includes norms related to projecting and construction, testing, use and serving, minimum of professional knowledge of employees, general protection conditions and addressing issues related to internal gas installations. Although this Law sets some basic standards, in order to understand the position of local citizens it is more relevant to consider the *Regulation on technical conditions and standards for safe transport of liquid and gas hydrocarbons, for major oil and gas pipelines, and gas pipelines for international transport - RTS* (Official Gazette of the SFRY, 26/85 from 24.05.1985).

RTS covers various technical questions, from the phase of defining route to the testing phase. This by-law defines the following safety zones of the pipelines.

*Priority safety zone 5 meters from each side of the pipeline axis.* It's forbidden to plant plants with roots longer than 1 meter, or plants that are cultivated by digging more than 0,5 meters

*Protected area 30 meters from each side of the pipeline axis.* It is forbidden to build housing objects in the future. Regulation doesn't mention situation when we have a building in a distance less than 30 meters from the axis. According to the interpretation of technical experts, the previously built structures are to be kept, but it is forbidden to build the new ones. In the case that the owner of the land wants to build some structures in this protected zone, he/she has to ask for permission from the Beneficiary who obtained the right of servitude. The right of servitude is imposed on the whole protected area of 30 m from each side of the pipeline axis.

*Wider safety zone, i.e. protected area 200 meters from each side of the pipeline axis.* Based on the level of population density, additional protection measures should be undertaken.

Provisions that are relevant for the position of the local population and land ownership are related to the mode of use of agricultural land in the protection area of 30 m. Article 20 of the Law on Pipeline Transportation of Gaseous and Liquid Hydrocarbons ... states that 'in the Protected Area of the Pipeline one must not carry out works and other activities other than agricultural work no deeper than 0.5 meters, unless there is written permission for the legal entity responsible for transport and for distribution along the pipelines'. Approval for works in the

protection zone of the pipeline, referred to in paragraph 1, must be issued by an energy authority carrying out transportation (i.e., the Beneficiary, a term used in the Law on Expropriation). Beneficiary may issue a permit which determines that the protection zone of the pipeline is technically feasible for work and other activities specified in paragraph 1 of this article. "Legal or natural subject who has obtained approval under paragraph 1 of this article must during construction or other activities in the protection area of pipeline implement protection measures under the instruction of the Energy Entity (Beneficiary) carrying out transport and distribution along the pipeline".

In the newly adopted (although similar to the previous one) *Law on Energy* (Official Gazette RS, 57/2011) states that Beneficiary has a right of servitude on a property of other owners for the purpose of undertaking works for maintenance, control of objects, installations and equipment and other works and use of those. Beneficiary is responsible for compensation in case of damage and the amount of compensation shall be determined mutually, if not, Court will intervene. Same Law defines limitation for the owners of the land that is subject of right of servitude. Anyone that has right to the real estates that are under, above or beside energy object is forbidden to commence works that could threat or endanger an energy object without previous approval of Beneficiary. Approval could be given on request by owner and contain technical conditions to be implemented.

## ACQUISITION OF LAND BY THE RIGHT OF SERVITUDE

Acquisition of land by the right of servitude could impact the commercial and utility value of the land:

1. The right of servitude imposes certain limits with regard to the use of the land, especially the right to use his/her land without disturbance. This is the case in particular regarding the fact that 'in the safety zone one is not allowed to undertake any works except agricultural works up to 0.5m depth, without a permit from the energy authority in charge of transport and distribution along the Pipeline'. It is certain that such restrictions devalue one's land and prospects to sell it; especially due to the fact that once the right of servitude has been imposed, the property is put under mortgage. Therefore, the land owner is required to ask the Beneficiary for permission to build on his own property.

2. It is possible, for example, that the owner of a property where the right of servitude has

been established might ask for consent from the Beneficiary to lay a new passing road over the Pipeline route in order to access another part of his parcel/plot. However, it is also possible that the land owner will not get permission from the Beneficiary to pass through to the other piece of his/her plot of land.

3. The Beneficiary is required to compensate the land owner for the devaluation of the property. However, neither the amount, nor the way in which the amount is agreed upon, has been regulated, particularly having in mind fluctuations in value. Regarding human rights and the right of the owner to use his/her property safely and without disturbance, one can argue that the owner should be given an opportunity to choose the form of land acquisition (permanent expropriation of land or right of servitude).

4. A certain number of interviewed citizens, as well as a number of professionals, regard that offering permanent expropriation is more just and rational for the property owner than applying the right of servitude.

5. One should not disregard psychological effects that can be caused by the proximity of the Pipeline to housing objects, which can, also, affect the value of the property. We can assume that for depopulated villages and those with low population where land is used mainly for agriculture, the effect would be minimal. However, in populated areas the above mentioned psychological effect could be more severe. Therefore, it is crucial to raise such questions during meetings with local citizens. During the discussion in Piroć, an interviewee was asked about her feelings about security if the Main Pipeline passed ten meters from her house. She replied with a question: 'Would you be happy if your children were to play close to a gas pipeline?'.

6. Another problem was noted regarding an owner whose land has been given the right of servitude. Namely, in the case when agricultural land is changed to land where construction is permitted. At that point the owner of the later will have to seek a permit to build in PA 30m radius from the axis of the Pipeline. In practice this will prohibit construction on land which previously had a building permit.

7. It is of particular importance to precisely describe and interpret legal obligations in respect to the requirement to protect and maintain the quality of agricultural land on the stretch where construction and earth-moving works shall be executed during the construction of the Pipeline (12 + 6 m), i.e. of all agricultural land areas where works shall be



executed and which shall not be converted to other uses, i.e. shall remain agricultural land. The protection and preservation of the humus layer of arable areas and forest soil as a non-renewable resource has been laid down under several laws in the Republic of Serbia<sup>4)</sup>. From the legal provisions the obligation of recultivation and topsoil protection exists irrespective of the ownership status of the land. Even if the land were to become the property of the Beneficiary, the obligation to abide by the foregoing and other regulations would stand. Strict compliance with these obligations is particularly important in respect to the use of land which shall continue to be the private property of another citizen/household, with the Beneficiary acquiring the right of servitude on the land in question according to the law. For many households along the Pipeline route, agricultural land is a major source of income (for their own needs and to a lesser extent for sale to neighbors or at the local market). That fact is yet another important argument in favor of preserving the fertility of agricultural land.

In order to better understand the possible impacts and rationale for the establishment of an adequate control framework and the preclusion of any undesirable and adverse impacts of the construction of the Pipeline on local communities, the following needs to be pointed out:

- In the course of field research we established that in practice there exist different assessments of the value of the land, both of agricultural and building land. There is an evident mismatch between judicial practice and land evaluation, both in terms of the expropriation price and of assessments of compensation for the right of servitude made by municipality tax administration. Several judges that we spoke to were of the view that tax administrators made blanket assessments of plot values and that previously established and harmonised criteria for assessing the value of individual plots were not being applied in the assessment process.

- A comparison of the institute of permanent expropriation to the right of servitude shows that the right of servitude *de facto* restricts the right of disposal of property to a greater extent than the institute of permanent expropriation. In circumstances when the price of agricultural land is low, the expropriation price for agricultural land is as a rule higher than the actual price (an exceptionally low one, as already underlined), so that the owner of expropriated land can buy new agricultural land with the proceeds of the permanent expropriation. The newly purchased land shall not be mortgaged in contrast to the plot on which the right of servitude has been

established. Owners of agricultural land in the peripheral zones which might be converted to building land in the near future will be particularly affected because they will have to apply to the Beneficiary for approval/permits for any construction within the 30 m PA.

- Similarly, there is no solution for the problem created when agricultural land is converted to be used as building land, or already *de facto* has the status of building land making it certain that in the near future it will indeed be declared building land. In view of the marked differences in the market prices of agricultural vs. building land, on the one hand, and the restrictions imposed by the right of servitude on future construction on a plot which has become a building site, we feel it justified to make it possible for the owners of plots which are in the building zone, or shall become building lots, to demand permanent expropriation at the actual market price. During field research and talks in municipal land registry services, courts and other institutions, our collocutors were overwhelmingly in agreement that it was justified to offer the possibility of permanent expropriation as an alternative to the establishment of the right of servitude if so requested by the owner of the plot.

## **INFORMING CITIZENS OF THEIR RIGHTS**

According to propositions in the Environmental and Social Policy Performance Requirements by European bank for Reconstruction and Development (ESP PR EBRD), as well as other International Financial Institutions, the client will consult with affected persons and communities and facilitate their early and informed participation in decision-making processes related to resettlement. Affected persons shall be given the opportunity to participate in the negotiation of the compensation packages, eligibility requirements, resettlements assistance, suitability of proposed resettlement sites and proposed timing, and special provisions shall apply to consultations which involve individuals belonging to vulnerable groups, that should be identified through the process of environmental and social appraisal.

In Serbia public consultation is marginalized both as a legal requirement, and even more so during the planning, development and implementation of spatial and urban planning documents. The Law on Planning and Construction (Official Gazette RS, 72/2009) requires that a Draft plan be submitted for so-called Public insight (Article 50). The Public insight takes place ex-post, when almost all

basic propositions and planning solutions have been defined. The role of the public insight is to allow the civil society to make suggestions and comment on the proposed plan, which a special Commission later adopts or refuses. Information on public insight in the Draft plan shall be published in daily and local newspaper and advertised for 30 days. Government Agency for Spatial Planning and the local government authority in charge of spatial and urban planning are responsible to present the planning document for public approval. The Planning Commission shall prepare a report that contains data gathered during public insight and must include all comments and any decisions taken. The law does not oblige the developer of the Plan to cooperate with the local community and civil society who live in the vicinity, not even in projects which demand expropriation of land or pose other forms of restrictions on property, as is the case of the Pipeline.

Informing citizens and the accessibility of information are at a very low point, in particular in rural settlements far away from urban centers. On the one hand, a large percentage of the citizens in the settlements along the Pipeline route have not completed elementary school or only have a compulsory elementary education background. Among the older segments of population the share of this group is frequently as high as 60-70%, especially in rural areas. On the other hand, information provided to citizens on important issues affecting their interests is not adapted to the target group. As evident from the example of informing citizens of the plan charting the MG-11 gas pipeline route in the village of Trupale, the existing practice of informing citizens is not even appropriate for urban communities having a better educational structure and more efficient mutual communication modalities. For that reason it is necessary to prepare a detailed brochure about all relevant information on the planned activities. A separate chapter in the brochure should deal with the technical standards which must be observed during the preliminary works and construction, such as: the permissible noise and dust levels, the working hours, the regimen of local roads use, the boundaries of the work corridor (12m + 6m), the regulations for the construction of temporary access roads and structures and their obligatory removal, i.e. restoration of these areas to their original state following the completion of construction, a mining management plan requiring the mandatory inspection of buildings and other built-up structures which might be affected by mining, community security measures – route

enclosure, secure passes across the route, heavy vehicle traffic hours, the functioning and control of activities at temporary construction yards and other. It is of particular importance to ensure the functioning of settlements in cases where the Pipeline route intersects them, especially to ensure accessibility to public services.

A particularly important aspect of cooperation with local communities is **providing advice, legal and other assistance to property owners and other interested citizens**. Civil society in Serbia, particularly in rural settlements is poorly informed about their rights and relevant legal frameworks. An additional difficulty in the information sector is the poor organisation of the citizens, the low social capital, and the poor network and quality of civil society organisations. Social capital reflects the capacity of citizens to associate in pursuit of common, and, *ipso facto*, individual welfare. Among the indicators of the level of social capital in a community are organisations of the civil society. Independent and autonomous civil society organisations have developed in Serbia only over the past two decades, principally in larger urban settlements. Searching the Internet we found just one village through whose territory the Pipeline route passes in which there were some forms of civic association. That is the village of Krupac, which has adopted an Action Plan of this local community/settlement. Therefore, organizing this type of assistance for citizen along the Pipeline route is of crucial importance. Citizens in these settlements are poorly educated, with a large number of elderly, disabled and poor households which cannot afford to pay a lawyer or another professional to ensure they receive adequate and relevant information. They do not have access to any type of independent and professional legal assistance, while their interests are often not protected even by the responsible officials at the local government. Rural settlements are situated far away from the local power structures. Considering the above described circumstances those inhabitants will not receive adequate, reliable and independent legal assistance about their rights and ways to protect themselves and their property. It is therefore crucial to oblige all parties involved in the construction of the Pipeline to provide relevant and timely information about the project, expropriation of land, application of the right of servitude and all other legal information, to all affected stakeholders and the civil society. This should be compulsory with regard to all projects that entail changes in the use of land.

In order to have an efficient and effective communication with the civil society and adequately inform them of all relevant questions, it is necessary to form an **Independent body** (a Committee, a Board...) **that will regulate all activities during the preconstruction, construction, operation and maintenance, to ensure implementation of all commitments and protect the rights of citizens**. The Committee should be formed of community representatives (elected by the community), representatives of independent bodies (protector of civil rights/ombudsman, human rights non-governmental organisations and other), local government representatives and representatives of the Beneficiary. The inefficient functioning of institutions and the poor coordination between the citizens, local administrations and their services, is yet another argument in favor of setting up an independent body that citizens can turn to and which will wield sufficient influence and authority to ensure that the set conditions and terms are satisfied. Municipalities in Serbia have legal assistance services with jurists on the staff offering free legal advice. Given the complexity of the activities in the construction of the Pipeline and the specific nature of the legal regulations governing this subject matter, additional training needs to be organised for the staff of free legal assistance services, which the citizens can apply to for advice. Such additional training can be implemented as part of community-based programs for promoting the quality of life in local communities.

## THE CASE OF TRUPALE

The case of Trupale can be useful for understanding the position of the local population and the consequences of a practice where local communities have been marginalised as a factor in space planning and development activities. Trupale is a settlement in the peripheral area of the city of Niš. In the 1948/2002 period, the population growth index was 126.5, and in the 1991/2002 period, 94.9. At the same time, the growth index of the number of households was 189.3 and 102.0 respectively. At the last census, there were 2.109 inhabitants in 625 households in Trupale. Under the 2011 Master Plan of the city of Niš, the land use in Trupale was converted to construction.

According to information **received from the Town Planning Office in Niš**, the Assembly of the city of Niš adopted in 1993, "Conditions for Area Configuration for the Construction of the MG-11 Gas Pipeline and Optical Cable for PTT Traffic on the Territory of the City of Niš".

The MG-11 Pipeline route was confirmed by every municipality through the territory on which the route has been planned. The project investor was Energo-gas. The right of servitude was established and decisions were issued to the landowners for the right of servitude in an area 30 m wide on both sides of the Pipeline axis. The total width of the work corridor was established at 18 m. The ban on construction on a thus defined route was mainly respected. When the Yugoros-gas company was set up, it took over the complete documentation and decisions on the right of servitude were issued to the landowners. Yugoros-gas was granted a building permit.

According to the former (previous) Master Plan, Trupale was within the agricultural land category. When the Pipeline Detailed Regulation Plan was adopted, the citizens did not react. A few years ago a buyer appeared interested in buying land in Trupale. He concluded contracts with the locals in which it was stated that the land was unencumbered (not mortgaged). When the buyer found out that the plots he had bought and had made down payments for were mortgaged, he terminated the contracts and is demanding that the owners give him back the advance payments they received.

In the meanwhile, a new Master Plan of the city of Niš (2011) was brought, and the land in Trupale was categorized as building land, namely some of the areas were converted from agricultural to building land, intended for a business/ industrial zone. As a result of the changed purpose of the land, its price increased, as building was permitted. Regardless of the fact that the land has been categorized as building land, it is still on the books as agricultural land. Landowners in Trupale are now counting on a price of 200,000 €/ha, for such is the price featuring in sales/transactions agreements on the free market, but on condition that the land is not encumbered/mortgaged. Yugoros-gas is offering and in the relevant decisions paying compensation for the right of servitude on account of decreased value (temporary expropriation) in an amount corresponding to the building land category, but not according to land value of 200,000 €/ha.

Along the MG-11 route, there were no structures within the 30 m PA. In the interpretation of our collocutor from the Town Planning Office, the owner is entitled to demand that a structure be expropriated with the plot, if the structure is within the 30m PA band, and if it has been built on the basis of a building permit. If the plot is in a building zone

and the protective belt passes through the major part of the plot, the owner is entitled to seek the expropriation of the entire plot. If the structure is in the 30 m PA, and has no building permit, enhanced Pipeline protection measures are applied, and the Investor usually pays compensation for the part of the structure which is in the protected area or pays for it in full. The right of servitude is a one-off payment. Once paid, the compensation cannot be revised, regardless of any changes (increases) in land prices.

According to information obtained **while talking with the citizens of Trupale**, the MG-11 Pipeline route was charted in 2007. Contracts on the right of servitude were concluded with the owners of land in the 30 m PA. The contracts were signed with Yugorogas. The amount of compensation for the right of servitude was not publicly communicated but was fixed in the individual contracts. In 2010, they were offered new contracts to sign in order to extend the old ones, as the works had not started in the three years since the signing of the previous contracts. A number of villagers signed the new contracts, while others refused to do so. There is a discrepancy between the dates when the contracts on the right of servitude were signed with the landowners (2007) and the date when the Government of the Republic of Serbia established the existence of public interest (pursuant to a Certificate of the Property Administration of the City of Niš, No. 463-113-08-04 of 5 June 2008).

The MG-11 Pipeline route in the borough of the settlement of Trupale was changed in 2010. The new route is about 1.5 km longer and requires the establishment of the right of servitude on a much larger area relative to the 2007 route. The new route has entered a complex of about 33 hectares. The owners of land within that complex sold their land to a buyer from Belgrade in 2008. Reportedly IKEA was planned to be erected on that complex. The owners received 3% of the agreed sum as earnest-money. The sales contracts stipulated that the land was not mortgaged. Because the Pipeline route was changed, the buyer abandoned the purchase and the owners are under the obligation to pay back the down payment.

According to our collocutors from the settlement of Trupale, it was common knowledge long ago that the complex through which the new route from 2010 was planned would be converted from agricultural to building land, which indeed was done by the new 2011 Master Plan of Niš.

Our collocutors are invoking a decision of the Appellate Court in Niš ruling that a lady owner

of a plot on which the right of servitude was established be paid 30% of the value of the plot on account of its decreased value due to the Pipeline route. That refers not only to the plot area which is within the 30m PA, but to the total area of the plot.

As regards the manner of determining the market value of the land, our collocutors indicated that the prices defined by the Tax Administration of the City of Niš were below those achieved in relevant individual contracts for plots in the immediate vicinity sold on the open market.

The present method of establishing the right of servitude and assessing the market value of land is particularly detrimental to owners whose plots are in the peripheral zones and which have been categorised as agricultural land, with practically certain prospects of conversion to building land, as well as owners of land that has already been declared building land.

According to our collocutors from Trupale, the public insight is organised in such a way that the owners are actually denied basic information about planned intentions. To illustrate their claim, they gave us the document: "Rationale for the Plan of Detailed Regulation of the MG-11 Niš-Leskovac-Vranje Gas Pipeline, on the territory of the City of Niš", which says: "Specialist control of the Draft Plan was undertaken at a session of the Planning Commission of the City of Niš on 23 January 2008. Notice of invitation for public insight was published in the 'Narodne novine' on 31 January 2008, and it was open for public insight from 1 February 2008 to 20 February 2008. During the public insight there were no objections to the Plan, and the Planning Commission, at their session of 27 February 2008, endorsed the Draft Plan and referred it to the Assembly of the City of Niš for adoption".

In June 2011, Yugorogas submitted an offer for the establishment of the right of servitude for the purpose of the construction of the MG-11 gas pipeline on a plot of an **area of 1,170 m<sup>2</sup>** in the village of Trupale (we recall that, according to the provisions of the Master Plan of the city of Niš, the land has the status of building land): "as compensation we offer as follows:

- for decreased land value, compensation amounting to 585,000.00 RSD (around 5800 euros);
- for lost maize crop profit, compensation amounting to 9,009.00 RSD (around 90 euros);
- for land recultivation, compensation amounting to 6,224.00 RSD" (around 62 euros).

The reply to our question what paragraph 3 – land cultivation referred to, was that during the

construction of the MG-11, the humus stripping carried out in the village of Trupale had not been selective and that it was compensation for the destroyed humus layer.

Without going into the details of the technical solutions and criteria applied when the MG-11 Pipeline route was charted and changed, from talks with the local community we learned the following:

- None of the citizens of Trupale is against the construction of MG-11. The groups of citizens who have organised themselves and are demanding different conditions for the construction of the Pipeline, primarily a reversion to the old route through the settlement of Trupale, are opposing the manner in which this job was done. They are of the view that there exist variants of the route which would affect the fields, the forest soil and the green belt to a lesser extent and which would not cut across the village borough in the way the 2010 route does.
- Not a single meeting was held in the local community on this topic, not even an initial meeting to inform the citizens of the start of the construction of the Pipeline.
- Public consultations in respect to the MG-11 project, namely of the town planning scheme which defines the route and the conditions of construction, were carried out more to satisfy formal regulations than to inform citizens in an objective and timely manner of planned intentions.
- When signing the contracts in 2007 and in 2010, the villagers were not given even basic information about the conditions of the taking the land for the purpose of the construction of the pipeline, the price that would be offered, the institute of the right of servitude, nor of the status of their property after they signed contracts on the right of servitude.
- No contacts or cooperation whatsoever were established with the local authorities in Niš.
- The Law on Expropriation at the time did not contain a provision providing for the obligation of the municipal administration to schedule and hold without delay a discussion for the negotiated determination of compensation for expropriated real estate (Article 56 of The Law on Expropriation in force). According to the present Law, the expropriation Beneficiary is to submit to the relevant municipal administration body a written offer specifying the form and amount of compensation, and the municipal administration body is to submit a copy of the offer to the (former) proprietor of the real estate. According to our collocutors, the contracts were signed at individual meetings between landowners and a Yugorogas lawyer, without

any public notice about the amount of compensation for expropriated land having been given in advance.

- Compensations for the right of servitude were neither standardized nor publicly announced. According to our collocutor, the compensation amount varied from 20 to over 100 Euros/1 a.

- No committee or any other forum was set up in the village to negotiate with Yugoros-gas.

- The villagers agreed to sign the contracts without any opposition or requests for additional information. Our collocutors from Trupale say that the citizens still perceive expropriation (permanent and/or right of servitude) as the right of the state to seize their property in the public interest, analogously to the practice of 30 or more years ago when land was expropriated for a highway route passing through this settlement.

- The collocutors say that there existed an informal pressure group, namely several villagers who sought to persuade the landowners to accept and sign the offered contracts.

- Our collocutors assess that other owners whose plots are not on the Pipeline route and whose property is unaffected by the Pipeline exhibit no solidarity with those who are affected.

## CONCLUSION

Current legal framework in Serbia that regulates procedures for acquiring land for the purpose of public interest allows for breach of private property rights. There is a mutual inconsistency among a number of decrees that regulate property rights for large infrastructural development projects. A specific, and possibly greater problem, is the status of the local population, the land owner and other real estate. It concerns their awareness about their private and individual rights, as well as regarding technical and other legal standards, which must be applied during the preparation, construction and working stages of an energy facility. Applying the Right of servitude as a way to acquire land for construction of the Pipeline, there is direct breach of the basic human right as stated in the first Protocol of the European Convention on Human Rights, namely that 'every natural or legal person is entitled to the peaceful enjoyment of his possessions' (Article 1, Protocol 1). The Right of servitude allows the investor to use 'public interest' as a way of gaining access to another's land, and under better financial conditions than if he was to apply permanent expropriation. While the owner retains his/her ownership of the land, inconvenienced by numerous limitations for its use, usability and market value of the land becomes substantially reduced.

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- 1) Route MG is set in spatial plans used as references (*Spatial Plan of the Republic of Serbia 2010 -2020* (Belgrade, Official Gazette, 2011); *Spatial Plan of the infrastructure corridor Niš - Bulgarian border* (Official Gazette, 86/2009); *Spatial Plan of the administrative area of Niš 2021*, The Plan outline (J.P. Zavod za urbanizam Niš, 2011); *Spatial Plan of Bela Palanka municipality 2009 – 2024*. Concept (J.P. Zavod za urbanizam, Niš, 2011); *Regional Spatial Plan for Niš, Toplice and Pirot County*. The Plan outline (J.P. Zavod za urbanizam, Niš, 2010); *Spatial Plan of Pirot municipality 2011-2021* (Zavod za urbanizam, Pirot, 2011); *Spatial Plan of Dimitrovgrad municipality*. The Plan outline (JP Zavod za urbanizam Niš, 2011). Strategic projects for the development of the economy of natural gas in the Spatial Plan of the Republic of Serbia (SPRS) are based on the National action plan for gasification on the territory of Serbia, adopted by the Serbian Government in 2007. Magistral Pipeline Niš – Dimitrovgrad has been listed under the 1st category of strategic projects of the gas supply up until 2014 (p.219). *The Spatial Plan of the corridor Niš -Bulgarian border* identifies infrastructure systems including the Magistral Pipeline.
- 2) Decision of the European Court in the case *Sporring i Lonnroth v. Sweden*, confirmed that in circumstances where 'the property wasn't confiscated' the right of the owner to 'use the property' was limited. It can be concluded that Swedish legal practice limits the right of the owner, and in that way breaks the right to peaceful enjoyment of one's property. The court underlined that the European Convention on the whole requires a fair balance to be kept between the interests of the property owner and the general interest of society as a whole. Having in mind the 'complexity and difficulty of development of cities', as well as the fact that state contracts 'enjoy a wider meaning than just land and property interests', the court cannot allow the use of property to be left unsupervised, and must determine whether the balance has been achieved with regard to the applicant's right to peacefully enjoy his/her property (court case of 23<sup>rd</sup> September 1982, cited from V.Dimitrijević i M.Paunović (1997), *Human Rights*, Belgrade: Belgrade centre for human rights, p. 289-302).
- 3) Protection of property rights is an open question in the similar projects which include conversion of land use such as planning of the water storage reservoirs (Đorđević, Dašić, 2011; Krishne, Ravishankar, 2011).
- 4) The **Law on the Protection of Nature** ("Official Gazette of the RS", Nos. 36/2009, 88/2010, 91/2010) stipulates the preservation of the humus topsoil as obligatory. The **Law on Agricultural Land**, (Official Gazette 41/2009); Chapter 4.2 Recultivation of Agricultural Land Used for the Exploitation of Mineral Resources and Other Materials. The **Law on Environmental Protection** (Official Gazette, 43/2001).

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# STRATEGIC ENVIRONMENTAL ASSESSMENT AND CLIMATE CHANGE IN THE REPUBLIC OF SERBIA – SUPPORT TO DEVELOPMENT AND ADJUSTMENT PROCESS

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*The paper analyzes the SEA status in the Republic of Serbia in the context of climate change problem. In addition to an overview of current legal framework, status and relationship towards the planning process, special attention has also been dedicated to the analysis of current practice - the SEA of plans of different hierarchical levels - for the purpose of giving insight into the current state.*

*The paper stress that the development of the SEA in Serbia has stagnated since the introduction of the Law on Strategic Environmental Impact Assessment („Official Gazette of the Republic of Serbia“, no.135/2004 and 88/2010) in the sense that there are no special activities in innovating methodological and procedural framework, nor public participation initiatives. Further, results of research that has been carried out indicate that climate change problems have not been systematically treated in the SEA, i.e. in plans, and that the existing legal framework is not fully supportive of this problem area. Based on the results, the recommendations have also been formulated which, amongst other things, include the formulation of special guidelines for carrying out the SEA which would, in particular, treat climate change in the sense of instructions related to phases of planning, level and coverage of plans including also examples of good practice, as well as strengthening of institutional framework and permanent education.*

**Key words:** Strategic Environmental Assessment, climate change, planning.

## INTRODUCTION

The role of Strategic Environmental Assessment (SEA) in planning is today primarily oriented towards the promotion of sustainable development policy. Independently of planning system and taking into account basic principles, methodological and procedural framework, the SEA advocates a sustainable development through the promotion of ecological, economic and social aspects. This statement is supported by the results of research on achieving sustainability in plans where it has been indicated that two different planning systems and the SEA experiences have given similar results in achieving sustainability - slight promotion of sustainability in plans is common for both England and Serbia (Crnčević, Therivel,

2009). Over many years of the development of this planning instrument – from initiatives to legal basis – the results of continual analysis, that have also been integral elements of the development, have indicated a series of its advantages, but limitation as well. Thus, amongst other, the following major advantages of the instrument have been singled out: the SEA considers cumulative and synergistic effects, as well as high-intensity and spatial-dispersion effects, and it also strengthens environmental impact assessment (EIA) in that topics and problems that may occur in elaboration of project documentation are singled out at the strategic level. In this way, the priority is given to solving/identification of problems. It also provides adequate inputs for EIA and, in the elaboration process of plan documentation, it serves as a system for early warning and cumulative impact management, also including global problems such as, today particularly

current, problem of climate change. According to the latest research results of SEA implementation, i.e. implementation of Directive 2001/42/EC of the European Parliament and the Council of 27 June 2001 on the assessment of the effects of certain plans and programs on the environment, it has been indicated that the SEA makes the planning process more structured and effective, integrating new procedural stages (scoping, the preparation of environmental report, public consultation) and ensuring integration of environmental considerations into the decision-making process (European Commission, 2009).

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Today, after many years of its implementation practice, when the SEA is recognized as an integral part of the planning process, the issue of its further development in the context of new policies has been raised.

The actuality of the climate change problem is also supported by the fact that we are increasingly exposed to climate change, i.e. changes in the sense of climate extremes such as droughts, floods, landslides, land erosion, hail storms, blizzards and avalanches, extreme heat waves, frosts, short heavy rains, forest fires. Since 1750, human activities have greatly contributed to climate change by causing changes in earth-atmosphere energy balance. Namely, the effect of greenhouse has been increased by 2.9W/m<sup>2</sup> out of which only 0.12 W/m<sup>2</sup> due to natural factors (Republic Hydrometeorological Service of Serbia). The last decade of the 19th century, i.e. the year of 1998, was the warmest one in the last millennium, as also recorded in the Republic of Serbia, while with respect to precipitation, annual precipitation over Northern Europe has increased by between 10 and 40% in the last century, and in the region of Southern Europe, where Serbia belongs, the precipitation has decreased even by 20%.

The present paper investigates the SEA status in the Republic of Serbia in the context of climate change problem. The purpose of this paper is to point out the current SEA status through an overview of the present SEA implementation framework and analysis of approach to this problem within the chosen SEA case studies for plan documents at various hierarchical levels. Based on the achieved results, recommendations regarding the development of the SEA, as an instrument promoting the climate change problem, have been formulated.

## CLIMATE CHANGE AND STRATEGIC ENVIRONMENTAL ASSESSMENT IN THE REPUBLIC OF SERBIA – OVERVIEW OF THE CURRENT STATUS

Based on the results of observation of climate change in Serbia, an increase of annual mean temperatures up to 0.4 °C has been recorded, while different assessments indicate that further increase in temperature at annual level may be expected (First Report of the Republic of Serbia to the UN Framework Convention on Climate Change, 2011). Increase in temperature, reduction in precipitation, as well as other changes in climate system may produce a series of effects such as, amongst other things, an increase in fire frequency, increase in pests and diseases, genetic changes, etc. Since 2001, the Republic of Serbia has been a

member of the United Nations Framework Convention on Climate Change, as well as a member of the Kyoto Protocol since 2008. Having a status of a developing country (non-Annex I country), Serbia is not obliged to reduce greenhouse gas emissions (GHG) in the first, obliging period of time, but it does have an obligation to “determine and implement actions which contribute to the achievement of its goals” (First Report of the Republic of Serbia to the UN Framework Convention on Climate Change, 2011).

By adopting the Spatial Plan of the Republic of Serbia (SPRS) 2010, the theme of climate change has become a current issue by establishing the obligation to include it in the planning process. In addition, the SEA for the SPRS has also treated climate change considering the effects of the planning solutions related to the waste management, rational use of non-renewable natural sources of energy, as well as greater use of renewable energy.

The existing legal framework should also be mentioned. Thus, the Law on Planning and Construction („Official Gazette of the Republic of Serbia“, no.79/09, 81/09 – correction, 64/10-US and 24/11) particularly promotes the climate change problem area. One of the principles implies „...securing of conditions for rational use of non-renewable natural resources and renewable sources of energy...“ (Art.3), as well as energy efficiency, by introducing the obligation to issue „certificates of the facility energy properties“, while the SEA is an integral part of the planning documents.

The current Law on Strategic Environmental Impact Assessment („Official Gazette of the Republic of Serbia“, no.135/2004 and 88/2010) specifies the obligation to consider the climate change problem (Art.15, paragraph 4), but without giving further instructions. Besides, it should be mentioned that this problem has not been adequately treated by any of the laws promoting environmental protection (Environmental Protection Law, Law on Environmental Impact Assessment, etc.). Therefore, as already emphasized, what generally characterizes the current legal framework is actually the „absence of the theme of climate change (mitigation and adaptation)“ (Maruna et al., 2011).

On the other hand, however, there are documents which represent an important basis for the process of planning, and are actually activities of Serbia oriented towards the establishment of conditions for the adaptation to climate change such as, amongst other things, the First Report of the Republic of Serbia to the UN Framework Convention on Climate Change.

As emphasized in the First Report of the Republic of Serbia to the UN Framework Convention on Climate Change, there are no greater possibilities for reducing the GHG emissions from industrial processes in the period up to 2015. On the other hand, there are realistic indicators showing that there is a possibility to limit the GHG emissions in the field of waste management by building the planned regional landfills where gases produced by landfills could be used, but also introducing the recycling process and the process of co-combustion of coal-containing waste in thermoelectric power plants up to 2015. Furthermore, it has been emphasized that, in case funds for afforestation of another 9,000 ha are provided, there is a possibility to increase CO<sub>2</sub> elimination by 69,5% in 2012, and by 74,5% in 2015.

The document also contains adaptation measures proposed in the fields of hydrology and water resources, forestry, agriculture, biological diversity and natural inland systems, and health, as well as possible challenges and obstacles for their implementation. The adaptation measures imply actions which represent the response to the current or expected climate change, while, on the other hand, climate change mitigation measures are actions and interventions mitigating the impact of human activity on climate system by reducing greenhouse gas emissions (energy efficiency improvement, the use of renewable sources of energy, etc.) (Environmental Agency, 2011).

Thus, amongst other things, the proposed adaptation measures for the field of forestry comprise detailed forest maps, afforestation intensification, strengthening the role of local communities in sustainable forest management, then for the field of agriculture: improvement of irrigation and drainage systems, development of agroclimatic indicators in agroclimatic, agroecological zoning, and for biological diversity and natural inland systems: the development of system indicators, creation of corridors allowing the species to migrate, etc. Insufficient funds, as well as insufficiently developed awareness and inadequate technical and technological capacities have been quoted as major challenges and obstacles in implementation of these measures.

Taking into account the climate change problem, the role of the planning process has been emphasized. It is understood that planning comprises proactive (through plans, strategies) and legal interventions, as well as those actions which include strategic coordination (consultations and cooperation) (Davoudi, 2009), while the key fields for which

interventions are carried out are those encompassing the energy supply, energy demand and adaptation.

Today, the contemporary frameworks of planning imply the implementation of SEA as its integral part, supporting the development of SEA as an instrument in the planning process. Taking into account the fact that planning in Serbia tends to be a „pro-active“ planning that „corresponds to the model which advocates planning as one of the key management mechanisms for directing and realizing complex social changes: social, cultural, economic, as well as spatially-settlement-ecological ones, etc.“ (Vujošević, 2002), it should be pointed out that operationalization of pro-active role of planning is also carried out through the SEA as an pro-active instrument aiming at controlling and directing the development, thereby initiating certain actions.

In Serbia, we have 20 years of EIA implementation practice, while the SEA implementation practice is much shorter, i.e. from 2004 when the Law on Strategic Environmental Assessment was introduced. Introduction of legal basis has greatly contributed to the acceleration of the SEA implementation process in Serbia, so that today the problems which occurred in the first few years of its implementation, such as, that „decision-making for conducting SEA was usually brought by default“ (Josimović, Crnčević, 2006), the lack of staff educated for carrying out the SEA process, lack of guidelines, as well as the fact that the SEA is included only in final stages of the process of planning, are overcome. However, as indicated, the „SEA is still not seen as a process“ (Crnčević, Therivel, 2009) although the Law on Planning and Construction (Official Gazette of RS, no.72/2009) places the SEA within the content of the Spatial Plan of the Republic of Serbia (Art.15), Regional Spatial Plan (Art.18), spatial plans for local government units (Art.20), and within the content of urban plans (Art.30).

The legal basis and guidelines have primarily influenced the establishment of methodological and procedural basis for the SEA. Furthermore, the SEA is getting the contour by formulating adequate thematic frame and aims, using qualitative methods for assessment, while main problems still remain with indicators while the practice shows that there has been no activities for making information base for SEA. Thus, the SEA has relied on information base of the planning process and current conditions within the planning system, while environmental management has not

supported the monitoring system needed for the SEA (Crnčević, Therivel 2009). The development of the SEA in Serbia has stagnated in the sense that there are no special activities in innovating methodological and procedural framework, nor public participation initiatives or initiatives in establishing obligation to form an information base in the sense of the SEA, as well as documents and information base generating, for the needs of SEA, the data for identifying indicators of sustainable development for the needs of planning process. Furthermore, taking also into account the existing system, there are no specially formulated systematized presentations of methods and techniques with relation to the SEA strategic coverage. This is supported by the conclusion that implementing the SEA in planning is one of the exceptional, complex forms of this instrument in terms of current planning, methodological and procedural tradition, time required for plan documentation elaboration, communication between planners and others who carry out the SEA or IA, as well as institutional and legal content which is sometimes completely separated from or integrated into planning, so that difference between planning and SEA may be overseen or forgotten (Partidario, 2004).

The SEA coverage is conditioned by legal basis, i.e. by coverage of the very plans and hierarchical series. Thus, at the level of spatial planning referring to the climate change, the SEA considers impacts and harmonization of formulated solutions with plan goals at national and regional level, while at the level of urban planning – variant solutions relative to spatial coverage in the sense of the most favorable locations and capacity of the subject environment for further development.

Taking into account the time coverage of plan documentation, the experiences show that for adaptation needs there are two approaches to planning (Lazarević-Bajec, 2011). The first one is based on dangers, treating the risks as giving up the expected and it starts from the fact that the existing risks may be controlled, thus also formulated as scenarios for anticipating the climate change effects. Consequently, this approach is suitable for long-term planning because it has a positive impact on awareness on climate change and, thereby, facilitates the process of priority identification. On the other hand, the approach based on vulnerability which implies the degree of sensitivity to danger, damages or losses, is based on the comprehension of the main context and is suitable for short-term planning. Here, measures for vulnerability mitigation are formulated when the existing risks

are not treated adequately, which brings about a certain level of uncertainty with relation to climate change. The characteristic of this approach is that stakeholders, i.e. their activities, are included since the very beginning.

Taking into account the above mentioned, the SEA as a planning instrument supports both approaches. Therefore, the SEA may (www.rspb.org.uk/Images/seareport-tcm9-153343.pdf):

- help in securing that the climate change goals are included in the plan;
- identify and evaluate alternative proposals which may be more favorable regarding climate change; and
- formulate recommendations to avoid and reduce identified impacts.

Taking into consideration that „consequences of policy failure are far-reaching, leading to the devaluation of values, both existing and future, and reducing spatial capital“ (Crnčević et al., 2010), the SEA therefore can ensure the improvement of the process of formulation of these policies, directing them towards these which promotes the process of adjustment to climate change.

In the process of carrying out the SEA, the task of planners is to anticipate and formulate measures and solutions for the action to be taken by the plan in order to reduce negative impacts and be adapted to climate change. The SEA role will also depend on the level of decision-making taking into account the fact that „planners work with different degree of knowledge and conflicts“ where, at the level of the plan having spatial dimensions, and where the main focus is primarily on sustainable land use, as well as where the SEA considers the spatial solutions, the role of planners would be representative in the sense that planners take into consideration the established values and norms (Fischer, 2003). Regarding the SEA in Serbia, according to the results of a survey, majority of interviewed planners (five out of six) suggested that „.....SEA does not direct the plan solutions in all stages of the planning process“ and that „planner's resistance to the SEA exists from the start of the SEA application“ (Crnčević, Therivel, 2009).

Climate change, as a synergistic effect, requires multiple activities and actions. As emphasized by (Fussler, 2007) the „diversity of adaptation context (climate –sensitive domains, types of climate hazard, timing, form, actors, etc...)“ implies that there is no one-size-fits-it-all approach for assessing, planning and implementing adaptation measures“. The author indicates that adaptation to climate

change requires adaptation according to content coverage and depends on climatic, ecological, social and political conditions relative to the subject plan or sector.

Consequently, the major principles in the process of identifying adequate mitigation and adaptation measures in carrying out the SEA are the following (Environmental Agency, 2011):

- keep options open and flexible,
- avoid decisions that will make it more difficult to manage climate risks in the future,
- implement „no regret“ options that deliver net benefits whatever the extent of climate change, where these exist.

- find win-win options that contribute to climate change mitigation and adaptation, as well as to wider plan objectives.

### Presentation of results of case study analysis and discussions

The analysis of SEAs for plans of different hierarchical levels has been carried out for the purpose of insight into the current state. The following criteria have been used for selecting the case study: that the SEAs have been adopted; that they are of different hierarchical level, i.e. spatial coverage; and that they have been carried out in different periods of time so as to consider how climate change problem has been treated in

different (institutional, legal, etc.) circumstances.

The Table 1. shows how the climate change problem has been treated in SEA's carried out for the selected planning documents. This has been considered through the analysis of planning concepts (fields of development) which, in a direct or indirect way, to a lesser or greater extent, imply positive effects on the reduction of the climate change intensity. Besides, the goals and indicators associated with climate change have been identified for each of the SEAs with a view to identifying the climate change mitigation and adaptation measures.

Table 1. Inclusion of climate change problems into the SEA process in Serbia for different hierarchical levels of planning

Plan document	Area of the SEA	SEA Goals	Indicators	Adaptation and Mitigation Measures
SEA FOR SPATIAL PLAN OF THE REPUBLIC OF SERBIA	<ul style="list-style-type: none"> <li>- air,</li> <li>- nature,</li> <li>- waste,</li> <li>- non-renewable and renewable resources</li> </ul>	<ul style="list-style-type: none"> <li>- air quality,</li> <li>- protection,</li> <li>- forest protection,</li> <li>- improvement of waste management,</li> <li>- rational use of non-renewable resources and greater use of renewable energy resources</li> </ul>	<ul style="list-style-type: none"> <li>- concentrations of air pollution including ozone, CO<sub>2</sub> suspended particulates, SO<sub>2</sub>, NO<sub>x</sub>, then particulate, organic and inorganic matters (µg/m<sup>3</sup>, ppm, ppb; or number (%)) of days with exceeded emission limit values)</li> <li>- annual amount of industrial and community-based solid waste generated from production and consumption (t/capita, t/1000\$ of GDP),</li> <li>- total annual amount of hazardous waste generated by industrial and other activities, according to the definition of hazardous waste (t/unit of GDP),</li> <li>- share of waste considered in (%),</li> <li>- amount of energy (petroleum, coal, gas and electric energy) available to a given year (GJ/capita or tons of equivalent petroleum/capita),</li> <li>- amount of exploited mineral raw materials relative to the total balance reserves of the given raw material (t/year or %),</li> <li>- share of energy obtained from renewable sources of energy in the total energy consumption and increase in renewable energy share (%).</li> </ul>	<ul style="list-style-type: none"> <li>- increase in forest cover areas,</li> <li>- increase of share of renewable energy sources in the total energy balance of Serbia,</li> <li>- disposal of sanitary waste and landfill gas utilization,</li> <li>- including the climate change in sectorial strategies (also including adoption of national programs of measures and actions for cutting and limiting the greenhouse gas emission after 2012) and developing the sustainable climate change risk management system in Serbia; by improving the monitoring and forecasting, making the natural disasters risk maps, strengthening the adaptation of economic entities and vulnerable groups to new climatic conditions,</li> <li>- integral management of natural disasters and technological accidents,</li> <li>- reindustrialization of cities which takes into account technological, ecological and economic effects on spatial development,</li> <li>- development of transport and energy infrastructure and implementation of renewable energy sources and increasing the energy efficiency</li> <li>- implementation of planned protection measures</li> </ul>
SEA FOR SPATIAL PLAN OF THE AREA OF SPECIAL PURPOSE OF THE KOPAONIK "NATIONAL PARK"	<ul style="list-style-type: none"> <li>- forests,</li> <li>- air,</li> <li>- strengthening of institutional competence in environmental protection</li> </ul>	<ul style="list-style-type: none"> <li>- increasing the forest cover areas by 25% through afforestation and natural renewal of forests,</li> <li>- increasing the forest increment, extending the rotation period and increasing the volume of wood,</li> <li>- adequate and timely forest fire, pest and air quality protection,</li> <li>- defining the educative programs for local administration and citizen,</li> <li>- enabling the access to data on environmental parameters</li> </ul>	<ul style="list-style-type: none"> <li>- % of area under forest cover,</li> <li>- overgrown conditions,</li> <li>- structure of diameter classes,</li> <li>- structure of cultivated species,</li> <li>- forest health conditions,</li> <li>- forest increment,</li> <li>- volume and quality of wood,</li> <li>- emissions of SO<sub>2</sub> and NO<sub>x</sub>, soot, heavy metal, particles, CO<sub>2</sub> etc.</li> <li>- (%) of consumption of electric energy and gas, as well as the use of alternative sources of energy,</li> <li>- number of environmental protection development programs,</li> <li>- number of people in charge of the environment in the National Park territory,</li> <li>- number of measuring points in monitoring systems,</li> <li>- amount of information on the environment in media</li> </ul>	<ul style="list-style-type: none"> <li>- rational use of resources,</li> <li>- NP forest management focusing on biodiversity conservation using minimal interventions,</li> <li>- sustainable management and use of forests and forest cover areas,</li> <li>- improving the current state of forests and increasing the forest cover areas,</li> <li>- reconstruction of the existing and construction of new access and internal roads in the function of NP, tourism, villages, etc.,</li> <li>- heating of buildings based on ecologically and economically acceptable fuels (gas, renewable sources),</li> <li>- reducing the level of air pollution from furnaces up to 2010,</li> <li>- reducing the levels of traffic-related air pollution,</li> <li>- forming a circular ring road around the NP area, introducing an electric rail traffic system and gondolas, as well as organizing the public transportation system for the purpose of reducing the number of individual passenger cars in the NP</li> </ul>



Plan document	Area of the SEA	SEA Goals	Indicators	Adaptation and Mitigation Measures
SEA FOR SPATIAL PLAN OF THE VALJEVO MUNICIPALITY	<ul style="list-style-type: none"> <li>- air quality management,</li> <li>- land protection and use,</li> <li>- waste management,</li> <li>- climate change,</li> <li>- strengthening of institutional competence in environmental protection</li> </ul>	<ul style="list-style-type: none"> <li>- reduce the emissions of damaging matters to air,</li> <li>- increase areas under forest cover,</li> <li>- Improve the system of collecting, treating and disposal of solid waste,</li> <li>- reduce the greenhouse gas emissions,</li> <li>- Improve energy efficiency,</li> <li>- reduce consumption of non-renewable sources of energy,</li> <li>- improve the environmental protection and monitoring service</li> </ul>	<ul style="list-style-type: none"> <li>- SO<sub>2</sub> and NO<sub>2</sub> emissions,</li> <li>- % of increase of areas under forest cover,</li> <li>- % of households included in the system,</li> <li>- % of waste to be treated,</li> <li>- % of waste to be disposed of in sanitary landfills,</li> <li>- SO<sub>2</sub> emissions,</li> <li>- % of reduction of energy products consumption,</li> <li>- % of reduction of coal and petroleum derivative, consumption</li> <li>- number of environmental protection development programs,</li> <li>- number of people in charge of the environment in the Municipality,</li> <li>- number of measuring points in monitoring systems</li> </ul>	<ul style="list-style-type: none"> <li>- lower quality land will be afforested,</li> <li>- increasing the forest cover areas by 4180 ha,</li> <li>- improving the waste management system and safe disposal of waste,</li> <li>- reducing the damaging emissions to air,</li> <li>- safe methods for industrial waste management,</li> <li>- rational consumption of energy resources,</li> <li>- setting up an environmental management system and providing information,</li> <li>- intensifying the use of public passenger transportation,</li> <li>- building the new heating plant will reduce air pollution in Valjevo and improve the energy efficiency of heating system,</li> <li>- reducing the coal consumption to reduce air pollution in winter periods,</li> <li>- building the micro hydroelectric power plants to reduce fossil fuels consumption,</li> <li>- improving the waste management system to mitigate problems of waste collection, recycling and treatment, as well as problems of community-based waste disposal,</li> <li>- reducing the problems of air, land, ground water and surface water pollution through new approach to the waste management,</li> <li>- setting up the environmental management system and improving the system of providing information for the public</li> </ul>
SEA FOR PDR WIND FARM "BAVANIŠTE"	<ul style="list-style-type: none"> <li>- reducing climate change</li> </ul>	<ul style="list-style-type: none"> <li>- increase the use of renewable sources of energy</li> </ul>	<ul style="list-style-type: none"> <li>- % of reduction of renewable energy sources consumption</li> </ul>	<ul style="list-style-type: none"> <li>- building 57 wind turbines with the total of 114 MW,</li> <li>- building the auxiliary infrastructure (transformer stations, overhead power transmission lines, connection to electricity network)</li> </ul>

The results of analysis indicate that, with relation to the fields, i.e. thematic coverage of the SEA, the following themes have been covered: air quality management, waste management, non-renewable and renewable sources of energy, environmental protection, land protection, forests, climate change, as well as strengthening of institutional competence. What can be observed is a thematic nonuniformity. Thus, the terms *waste and air* have been used for the SEA carried out for the SPRS, terms *forests and air* for the SEA carried out for the Spatial Plan of the Area of Special Purpose of the "Kopaonik" National Park, while the terms used for the SEA carried out for Spatial Plan of Valjevo Municipality are *air quality management, waste management*. Regarding the thematic coverage, it may be generally concluded that the SEA has treated basic fields, i.e. the fields such as forestry, agriculture, biological diversity and natural inland systems, for which it has been noted that certain measures can have positive effects, taking into account energy supply, energy demand and adaptation for the subject

area. However, it should be mentioned that the SEA has not treated impacts on human health. These problems have gained in actuality during the last decade after the periods of high air temperature occurrence causing an increased frequency of heat waves, but also periods of extremely low temperatures. Besides, mention should also be made of the problem of spreading of vector and exotic diseases transmitted from tropical areas, where one of the recent cases, recorded in 2009, was African virus transmitted by the Asian tiger mosquito (First Report of the Republic of Serbia to the UN Framework Convention on Climate Change, 2011).

The SEA goals and indicators have been chosen according to the SEA coverage. They imply the future climate change reduction through the waste management system improvements, reduction of greenhouse gas emissions, as well as improvement of energy efficiency, also including the mitigation measures, as well as vulnerability to climate change impacts such as increase of forest cover areas, including the

adaptation measures as well.

When we speak about mitigation and adaptation, as emphasized, "... it is no longer a question of whether to mitigate climate change or to adapt it. Both the adaptation and the mitigation are now essential in reducing the expected impacts of climate change on humans and their environment" (IPCC, 2007). Furthermore, taking into account the fact that planning, like the SEA, tends to promote and advocate sustainable development, it can in turn "enhance both mitigative and adaptive capacities, and reduce emissions and vulnerability to climate change" (IPCC, 2007).

While dealing with these problems in selected SEAs, these measures have not been specially singled out, i.e. not separated, as shown in Table 1.

Several planning documents have been taken as an example for the purpose of considering from different hierarchical levels of planning to what extent the climate change problem area has been included. The result of this segment is

satisfactory because the climate change problem area has been included in all case study analyses. Therefore, it can also be concluded that climate change problem has been treated independently of the year in which the document was adopted, which is actually the result of the adopted Law on Strategic Environmental Impact Assessment which introduces the obligation to take into account the climate change problem.

Results of this analysis indicate that climate change problem area has not been systematically treated in the SEA, i.e. plans. The current legal framework, as already emphasized, is not fully supportive of this theme so that it can be concluded that, although the practice only reflects the current legal framework, the results indicate that no greater efforts have been made to improve it.

## CONCLUSIVE CONSIDERATIONS

Climate change is one of the key challenges not only in Serbia, but also in the whole world, because of which the system of planning must be adapted to new requirements. In this connection, inclusion into contemporary frameworks for the development and European integrations imply the necessity to redirect the development and take into account climate change problem, as well as to build adequate capacities for its implementation. Therefore, it is necessary for environmental protection and management systems, as well as planning system, to tend towards an appropriate political framework which advocates climate change problem, as well as to promote the SEA and its harmonization with the EIA, but also the monitoring system development. Weaknesses of the existing planning system in the Republic of Serbia are also reflected, in addition to incomplete legal framework, in the absence of information resources, knowledge and practice.

Taking into account the current state, by applying the SEA, it is possible to strengthen the proactive role of planning in the sense that, by implementing the SEA, the control is possible through initiating actions and projects which would enable the promotion of the climate change problem. By implementing the SEA, it is possible to achieve consistency and compatibility with regard to the inclusion of this problem into planning, because by harmonizing the interests of various segments, the integrity of the very process is promoted.

It is understood that there are certain differences in legal and procedural basis of planning and SEA in the world and in Serbia, but it is, generally, possible to provide approximately similar results as has been the case in achieving sustainability in plans both in Serbia and England. Therefore, the planning system in Serbia should tend towards

further SEA development by formulating special guidelines for carrying out the SEA which would, in particular, treat climate change in the sense of giving instructions relative to phases of planning, level and coverage of plans with examples of good practice, as well as strengthening institutional framework and permanent education.

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# CULTURAL BASED PRECONCEPTIONS IN AESTHETIC EXPERIENCE OF ARCHITECTURE

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*On a broader scale, the aim of this paper is to examine theoretically the effects a cultural context has on the aesthetic experience of images existing in perceived reality. Minimalism in architecture, as direct subject of research, is a field of particularities in which we observe functioning of this correlation. Through the experiment with the similarity phenomenon, the paper follows specific manifestations of general formal principles and variability of meaning of minimalism in architecture in limited areas of cultural backgrounds of Serbia and Japan. The goal of the comparative analysis of the examples presented is to indicate the conditions that may lead to a possibly different aesthetic experience in two different cultural contexts. Attribution of different meanings to similar formal visual language of architecture raises questions concerning the system of values, which produces these meanings in their cultural and historical perspectives. The establishment of values can also be affected by preconceptions resulting from association of perceived similarities. Are the preconceptions in aesthetic reception of architecture conditionally affected by pragmatic needs, symbolic archetypes, cultural metaphors based on tradition or ideologically constructed dogmas? Confronting philosophical postulates of the Western and Eastern traditions with the transculturality theory of Wolfgang Iser, the answers may become more available.*

**Key words:** similarity, minimalism, aesthetic experience, preconceptions, emptiness, transculturality.

## INTRODUCTION

The starting point of this study is a conducted experiment - spatial installation in an underground passage underneath an overpass in Belgrade. The concept of the installation was developed on the basis of the idea of visual and material analogy to the existing apartment in the Japanese city of Oita. Transposition of physical spatial elements of the Japanese apartment is done by altering wall plastics and furniture disposition (pictures and chair designed by Arne Jacobsen) in the underground passage. The experiment produces a compositional identification of the Belgrade and Japanese sequences and for a short time simulates the change in function of the underground passage, virtually placing the apartment in it. Two represented images, two photographic sequences of interior space architecture make possible comparative analysis of perceptive qualities and aesthetic experience, based on similar formal visual aspects.

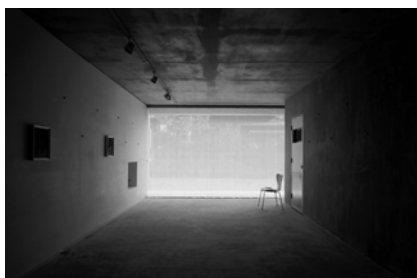


Fig. 1. Private home - gallery, Oita City, 2002., [http://www.shio-atl.com/work\\_06\\_ss.html](http://www.shio-atl.com/work_06_ss.html)



Fig. 2. Underground passage, Belgrade, 2010.,

Using elementary logical operations, the starting findings determine hypothetical postures:

(i) Rational dogmatism, assumption that our senses accurately inform us of reality and that what we see is what it really is, indicates similarity of the two sequences. If we treat architectural space as physical space, or pure represented space/ideal linear formation, according to Goldstein and Gelb (Cassirer, 1985: 213), similarity is shown through geometrical conceptualization of volumes.

(ii) If we concentrate on formal visual aspects, the sequences can be hypothetically classified within the concept of minimalism in architecture. The interior of the apartment is a specific architectural piece of *Takao Shiotaka Atelier* authors, typical representatives of minimalism in Japanese architecture. Taking risk and arbitrariness of generalisation, the example of the underground passage interior can be, by means of analogy<sup>2</sup> with the Japanese example,

<sup>2</sup> When observing a work of art, we often do not know the name of the author and tendency or style it belongs to. In order to comprehend it, we can compare that work with some known work, similar to it. Probability of the right conclusion will be higher if the comparison is made with a typical representative of a certain tendency.

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unambiguously visually connected to the paradigm of minimalist architectural production. Japanese sequence represents a visual prototype<sup>3</sup> of characteristic type of minimalist form in architecture. Consciously separating ontological properties from the meaning carried, the notion of minimalism is for now exclusively treated as *aesthetic approach* (Vasiliski, 2010), accompanied by ideas of asceticism in architecture, simplicity, and formal reduction.

(iii) Having the knowledge of what the sequences represent, we can ascertain a different pragmatic manifestation (architectural function, practical value in use) of similar formal visual aspects existing in represented spaces, in two different cultures.

(iv) Common features and degree of similarity make the sequences interchangeable. They can be observed and treated as a single image, unique visual content, producing polysemous aesthetic experience in different cultural contexts.

## SIMILARITY

Michael Foucault notes constructive role of similarity predominant in the knowledge of the Western culture until the end of the 16<sup>th</sup> century, following Aristotle who considered similarity a property which creates mental associations, a memory condition which connects the past with the present. According to Aristotle, every type of perception can cause grouping in terms of similarity. Foucault (1971) distinguishes between four types of similarity: *convinientia*, *aemulatio*, *analogia*, *antipatia*. In addition to the fact that it was a scientific condition for comparison, association, disassociation and classification, similarity was desirable in the Arts, as well. In mimetic painting, pieces looking more like what they represented were declared beautiful.

Noticing the existence of visual formations that can be perceived as two completely different objects, Joseph Jastrow indicated a special nature of the problem which is the subject of this text. It is an ambiguous shape, a drawing, which, depending on the side from which one observes it, represents either a duck or a rabbit. The occurrence of different interpretations of similar formal language, can also be called polysemy, transnotation, evocation, multiple reference, seeing as, etc. Elementary spatial context was attributed to the studied

phenomenon by Robert Morris by means of the sculpture *Untitled-L beams*. Morris represented three identical objects, which, taking different positions in space, provoked different perceptual values.

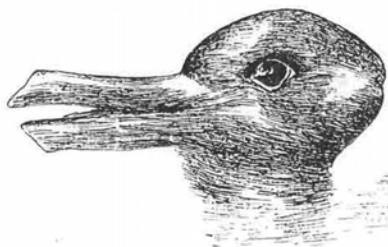


Fig. 3. Duck rabbit ambiguous shape from Jastrow, J. (1899) *The mind's eye*. Popular Science Monthly, No 54, pp. 299-312.

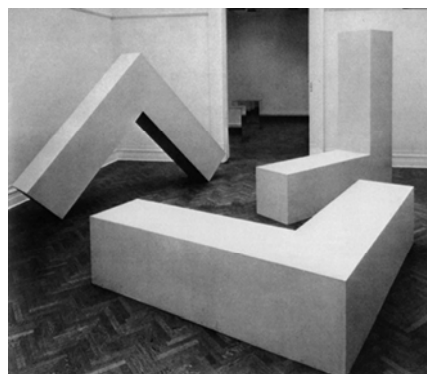


Fig. 4. Morris R. *Untitled- L beams* at the exhibition "Primary Structures: Younger American and British Sculpture" (April 27 - June 12, 1966), <http://rsataiwan.blogspot.com/2010/04/3-l-beams-robert-morris-1965.html>

When we are in a position to perceive two or more similar phenomena, it questions not only our visual distinguishing, but aesthetic experience as well. Conflicting interpretations and evaluations expand their focus from ontological to gnoseological, semiotic and axiological aspects of relativism in aesthetics.

Aestheticians such as Nicolai Hartmann, Gerard Genette and Ivan Focht believe the act of reception directed towards an aesthetic object must correspond to the act of creation. However, it is clear that initial intentions by which the authors of the apartment and the underground passage installations communicate are totally opposite. Also, an intentional creative act of an author cannot be available to a recipient in every situation.

Considering similarity through the prism of originals and copies, attempting to determine authenticity and identity of a piece of art, Nelson Goodman introduces categories of autographic and alographic works. Autography comprises works that cannot be replicated, for

every difference between the original and the copy produces difference in identity, whilst when it comes to alographic works, this difference is irrelevant. In arts such as music and literature, performances and hard copies can be replicated in terms of scores or literary texts on the basis of Richard Wollheim's *type-token* logic model, while in painting that is not the case. The installation in the underground passage neither pretends to be a copy, nor to stand out as independent work of art, but to emphasise similarity with Japanese apartment, as the basis for further research.

Arthur C. Danto in ready-made context examines transforming factors which separate a work of art from an everyday object, when visually they cannot be distinguished one from another. He explains transfiguration as relocation of the product from one context to another, whereupon the act of dislocation leads towards the new meaning and sensory appearance of the product. On the example of Marcel Duchamp *Fontain* from the year 1917, Danto indicates that objects become different works, depending on their interpretation. Introducing the concept of *World of Art*, he distinguishes between the status and aesthetic value of a single object. That induced George Dickie's *Institutional Theory of Art*, in which he leaves the decision of whether something is a work of art to the institutions of the artistic world (critics, historians, curators).



Fig. 5. Andy Warhol in New York, 1964 with "Brillo Boxes", <http://www.guardian.co.uk/artanddesign/2010/aug/21/warhol-brillo-boxes-scandal-fraud>

For example, Andy Warhol's Brillo Box was created in 1964 with a different intention from the one of its original author – James Harvey three years earlier. In addition to the context of creation, these two objects of same physiognomy took on different status in the art world. Here Danto's thesis can establish a relation: specific living space/artistic installation similar to it, with no pretense of defining what is artistic in them or declaring the installation in the underground passage a ready-made work of art.

<sup>3</sup> Prototype as mental image, cognitive reference point, which allows, in comparison to itself in different contexts, recognizing what is typical or atypical for a determined category.



## MINIMALISM

To begin, we need to formulate a unique concept connecting architecture and minimalism. Historically speaking, the term minimalism in the context of arts was used for the first time by the critic David Burlyuk in the exhibition catalogue of John Graham in 1929. There he defined minimalism as reduction of image to a minimum of components in order to discover ultimate, logical outcome in the process of its abstraction. This notion reappears in the end of the 1950's and 1960's, in the texts of Wollheim<sup>4</sup> and Barbara Rose<sup>5</sup> and it refers to criticism of the then ongoing American post avant-garde abstract art. Beside the term *minimal art*, in this period the critics actualize the denominations: *primary structures*, *ABC art*, *negative art*, *literalism* and *nihilist art*.

In the early 1990's the notion *minimalism* often appears in architectural publications and exhibitions. In foreign literature we can find several terms which differ one from another both syntactically and in the word order. Those are the neologisms: *architecture of minimum* (Pawson, 1996), *architecture of minimalism*, (Cerver, 1997), *architectural minimalism* (Zabalbeascoa and Marcos, 2000) and *minimalist architecture* (Bertoni, 2002). Dragana Vasiliski is one of the few authors who are thoroughly engaged in these issues in our country. Therefore, in further course of this paper we will use the term *minimalism in architecture* (Vasiliski, 2008), established in her theoretical debates. We believe the original notion of *minimalism* in that way remains unaltered, whilst disciplinary identity of architecture is respected and prominent. The phenomenon of minimalism in architecture in Serbia is discussed by Slobodan Maldini. Maldini finds that it is not possible to follow minimalism in Serbia in its development form, rather only partially in certain authors' works. He alleges that this tendency has never been subject of research in Serbia, nor was it accepted by any establishment or group of architects. His observations are significant for the examination of the meaning and status this aesthetic approach adopts in Serbia.

All efforts to integrate the concept of minimalism in architecture into one theoretical frame have been based on analyses of common formal qualities of observed works. Within the catalogue of the exhibition *Less is More*, which took place in Barcelona in 1996,

curators Vittorio E Savi and Josep Maria Montaner gave a list of eight characteristics that can be found in the buildings pertaining to this trend. Those are: a taste for pared down, simple and traditional forms; geometric rigour; the ethics of repetition; technical precision combined with a love of matter; the search for unity and simplicity; a leap in scale; the formal predominance of structure; a pure expression that renounces historical expressive allusions (Prestinenya, 2008: 86). Zabalbeascoa and Marcos (2000: 18) also state general characteristics related to the concept of minimalism: geometric purity, technical precision, structural essentiality, repetition of elements and materials, abstraction and ornamental purification. These are the identical positions of various contemporary authors in the context of defining this phenomenon.

It seems that sober and pure forms ongoing nowadays and unified within the concept of minimalism in architecture do not derive directly from the concept of American minimal art whose name they share. In the works of architects, followers of the minimalist concept, one can notice the influence of architectural modern movement from the beginnings of the 20th century. Even though the modern movement is a complex phenomenon in its origins and development, a repertoire of its forms unambiguously corresponds to the minimalism which appeared afterwards. Many procedures, proposed and put in practice by the architects of the modern movement (Adolf Loss, Mies van der Rohe and Le Corbusier) were also adopted by the minimalist artists from the 1960's and architects from the 1990's. This relation is based on architectural abstraction<sup>6</sup>, techniques of industrial production, literal use of materials and ornamental purity, which are the key features of the modern movement, as well. Common characteristics in ideology of modern architecture and American minimal art are not only of formal visual nature. In both cases renunciation of references denoting whichever notion outside of the work alone is emphasized. In the modern movement this is manifested through renunciation of historical references, as deviation from historic styles and establishment of a new – modern course. The difference somewhat making a gap between disciplinary concepts of minimalism is associated with the relation of form and

function. One piece – a sculpture, aspires to absolute abstraction and pure form, negating symbols and function. On the other hand, architectural work is defined by its function, without stylistic compromise.

## SELECTION AND ASSOCIATION, AND INFLUENCE ON TRANSFORMING VISUAL INFORMATION INTO CONCEPTS

The basis of this research is in perceptive analysis (which is an integral part of gnoseologic theories) of represented sequences. Ernst Cassirer studies relations of constitutive moments of cognition, emphasizing impossibility of existence of an isolated sensory conscience which, as independent fact, would keep out of a definition by means of theoretical functions of meaning. Cassirer relies on Johann Wolfgang von Goethe's gradation *looking – observation – reflection – association* which indicates that with each closer look into the world, we are theorizing. Gombrich believes perceiving is interpreting by means of classification (Genette, 1996).

The juncture of intuitive and rational knowledge forms the set general knowledge in relation to which registered empirical data are selected and interpreted when perceived. Since each visual sensation is located in the context of time and space, what we see now is in part what we have seen in the past. Nevertheless, previous knowledge can contain preconceptions, dogmatic assumptions based on generally accepted ideas. Then again, a course of human thought comprehending the reality is selective and associative, and aesthetic experience is inseparable from the process of perception and interpretation.

Rudolf Arnheim links psychological aspect of research in visual arts and phenomenon of visual perception to Gestalt theory. Arnheim (1991) defines the beginning of perception process as the abstraction of prominent structural qualities, which determine the identity of perceived object as complete, integral formation, and common qualities of which concepts are formed. The concepts are equivalent to the model – mental image which reflects basic information on the phenomenon perceived. Mihailo Marković (1996) defines concept as figuration of identical elements of experience of different people under different circumstances, which are constantly related to one term. Therefore, having one concept supposes knowing how to use the term properly in different situations. For these reasons we don't observe and experimentally verify perceptions themselves, but linguistic

<sup>4</sup> Wollheim, R. (1965) *Minimal Art*, Arts Magazine, January 1965, pp 26-32.

<sup>5</sup> Rose, B. (1969) *The Politics of Art*, Artforum, January 1969, pp 44-49.

<sup>6</sup> Although the word minimalism was established later on, the concept comprised by this notion crystallised slowly through aspiration towards abstraction, present in almost all artistic tendencies from the beginning of 20th century (Russian avant-garde, especially suprematism of Kazimir Malevich, Dutch neoplasticism, German Bauhaus). For that reason roots of inspiration for the protagonists of American minimal art are connected to the cited tendencies.

forms expressing and denominating those perceptions, as well.

On the basis of Immanuel Kant's disinterested judgment we can state that judgment is aesthetical if referred to appearance of an object regardless of what the object really is. It is necessary to adopt a disinterested point of view and observe only form, not usefulness. In architecture it is not always easy to separate the aesthetic function from the practical one, because the first often results from the proper fulfillment of the second (Genette, 1996: 26). For aesthetic experience of architecture it's important to know what the work represents. Arnheim claims visual form of certain architectural style cannot be understood unless linked to its function, while Bernard Tschumi defines sensation of space by interaction of spaces and events happening in it. James J. Gibson believes objects are perceived in relation to their *affordance*<sup>7</sup>, what they enable us to do.

Architectural manifestation adopts nominal meaning in relation to the function, pragmatic value of the space it comprises, i.e. event that can happen in it. It is a denotative function expressed through linguistic form. Nevertheless, function of signification, which provides language with contents and character, is not always in compliance with the function of meaning, expressed in concepts. Empirical similarity is not the same as qualitative similarity.

If we analyze the term *underground passage*, it is hard to imagine the first association to be *living apartment*. But if we perceive the image of an *underground passage*, we can easily link it to the image of an *apartment*. The problem arises when one visual content, image, or sequence has two articulations, two meanings, i.e. two linguistic forms – terms denoting perception: *apartment* and *underground passage*. Perceived content of the Belgrade sequence can be linked to the form *underground passage*. Then, later, possibility of connection with the *apartment* becomes excluded, even though the two forms contain similar empirical content. Conceptual connection with experience in this case results unexpectedly. For someone who formulated certain aspects of the underground passage perception through that specific term, reiterated appearance of the same aspects using the term *living space* could be confusing. Both sequences can suddenly change their

form when we are informed of what they really represent, especially if they are represented in photographic medium.

Proper interpretation and sensation of ontic specificity of a work of art by elimination of association is hardly maintainable in case of architectural works. Arnheim (1991) notices that one architectural form looks different depending on whether we believe it can be lived in or not. In that way, material human needs and biological adaptation are first on the list of values forming state of spirit of an individual.

## PRECONCEPTIONS

Result of our logic experiment is the fact that concepts, which define something in one culture, are not the ones used for similar or identical image in another culture. Until now, it has been determined that pragmatic manifestation of certain formal visual aspects in a particular cultural background leads to preconceptions, when we come across them again, which significantly affects aesthetic experience. However, preconceptions are not always of pragmatic nature.

Carl Gustav Jung in his psychological analysis develops a theory of collective unconscious. He not only talks about personal reminiscence, but of manifestations of deeper levels of unconscious, carrying with themselves universally human, primordial images he designated as archetypes. Archetype is a kind of promptitude to always reproduce identical or similar mythical ideas. Tatjana Stratimirović defines experience of space as one of the most complex experiences to which people through history learned to attribute paradigmatic – a priori defined meanings. In her opinion, understanding of images we see is most often in significant degree conditioned by our total cultural experience, i.e. our collective conscience.

It is useful to expose how preconceptions give different meanings to architectural works of modern movement (here significant for representing formal precursor of the works of minimalism in architecture). From the caricature (Fig. 6) emphasising similarity of Adolf Loos building *Goldman and Salatch* built in 1911 and the manhole, we can read social-historical position of Vienna from those days and secessionist tradition as cultural metaphor causing unwillingness to accept achievements of modern movement in architecture. The example (Fig. 7) representing Bedouins and camels put ex post facto into the photograph of residential area *Weissenhoff* in Weimar built in 1927, indicate the way the form of this complex resembles the context of Middle East

rather than Germany. In a particular historical moment and general mobilisation in the quest for German national style in architecture, this preconception can be characterised as ideologically construed.

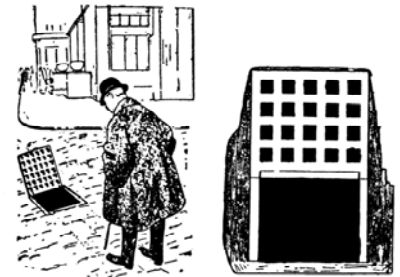


Fig. 6. Frampton K. (2004) *Moderna arhitektura, kritička istorija*. Beograd. OrionArt. p. 91.



Fig. 7. <http://nseuropa.org/English/Art/art0.htm>

Regardless of in which line of meaning preconceptions act (practical value, ideological construction, cultural metaphor, or symbolic archetype), one thing they have in common is functioning by means of association through similarity. This paper emphasises similarity as a catalyst for associative course of mind which can create preconceptions.

Architectural discipline is part of a wider cultural discourse. Positioned that way, it operates as a sign in direct connection with cultural phenomena. Perceiving certain architecture, we can notice its belonging to certain background, tradition and way of thinking. People have a tendency to reject categorically the things they cannot understand. This is stressed in generally recognised, self-explanatory belief reigning our culture, specifically referring to the impossibility to interpret formal visual aspects of an underground passage as identical manifestation as a living space. Preconceptions do not emerge in response to form only, but to the way of its use as well. In Serbia, one would wonder how someone could live in such a space, which in their country manifests itself as an underground passage, since they are used to observe and interpret reality in their own culture in a certain way.

<sup>7</sup> For more information on this notion, see: Krampen, M. (1995): *Semiotics in Architecture and Industrial / Product Design*, in Margolin, V. and Buchanan, R. (eds.) *The Idea of Design - A Design Issues Reader*. London: The MIT Press. pp. 89-103.; Korać, Ž. (1985) *Razvoj psihologije opažanja*. Beograd: Nolit. pp.155-166.

One-sided associations place our experience of an object in confrontation with familiar reality, in accordance with the everyday life experience.



Fig. 8. MVRDV roof housing  
<http://www.reinierdejong.com/2011/05/mvrdv-roof/>



Fig. 9. Roof housing, Beograd from Perović, M. (2003) *Srpska arhitektura XX veka, od istoricizma do drugog modernizma. Beograd. Arhitektonski fakultet Univerziteta u Beogradu. p. 215.*

Personal competence, whether institutional or defined by knowledge and assurance, is not the factor reducing susceptibility to preconceptions. Layman position is no different from the position of an expert – aesthetician if both transcend scientific postulates, entering limitations of their own cultural interpretations. Underlining introductory sentence of Hartmann Aesthetics: “Aesthetics is written neither for the creator, nor beholder of the beauty, but for the thinker to whom actions and behaviour of these two represent an enigma”, Sreten Petrović (1972) emphasises inclusion of the extra-theoretical into the process of thinking even when the thinker is not aware of it. Petrović considers these set of beliefs and standpoints ideology, controlling cognition, which can create preconceptions.

## COMPARATIVE ANALYSIS - SERBIA AND JAPAN/ MANIFESTATION OF PICTORIAL ASPECTS OF MINIMALISM IN ARCHITECTURE

Different qualities of certain forms require for their way of existence and appearance to be studied through the relation of manifestations of minimalism in architecture in Serbia and Japan. In Belgrade, there are places and buildings belonging to the minimalism in architecture according to their formal visual aspects. However, these phenomena in our background are not recognised, accepted, and defined as such. For the most part it is friable, neglected and inconspicuous architecture represented by hovel facades, underground passages, and passages within the city blocks. On the other hand, similar sequences can be identified in Japan, where they represent typical examples of aesthetic figuration of formal characteristics of minimalism in architecture. Dualism in manifestation produces a situation in which a certain type of architectural form is ignored in one cultural background, while in another it is highly aesthetically appreciated.



Fig. 10. Rectangular shaped house with one opening, AH architects, Japan 2005  
<http://www.a-h-architects.com/photo/akb/akb.html>



Fig. 11. Rectangular shaped house with one opening, Hercegovačka street, Belgrade

If we comprehend tradition in architecture through the form and not the idea, considered formal visual aspects of minimalism in architecture can become symbols for the things expressing them (underground passages, ruins, hovels). There is an interchange of symbolic and pragmatic meaning. Formal visual aspects remain unexpressed, because of predominance of function, status, physical state and materialisation quality, which significantly influence aesthetic experience. Perhaps these are the reasons for minimalism not being used enough as approach to architectural articulation of living space in Serbia.

Because of that, selection of architecture in cultural backgrounds of Serbia and Japan represents potential for comparative analysis. They are backgrounds for which one could say they don't have common values. They are untouchable – limit points, not only in a sense of collective visual conscience, but in a sense of mentality, life philosophy and tradition, as well. Through the cultural spheres of Serbia and Japan we will examine two conceptual systems. The first is the Western (Europe and North America) thought formed on the basis of Greek rationalism and Judeo-Christian tradition. The second are original Japanese standpoints defined in relation to Chinese and Buddhist origins. Anthropological definitions of culture are not the subject of this study. The concept of culture is applied in terms of defining relatively autonomous and complex social entities and symbol, sign and signification systems, which are the same for one or more communities in their historical dimensions.

## EMPTINESS

Apart from simplicity and formal reduction, as aspects stylistically and typologically classified as starting sequences within the conceptual frame of minimalism in architecture, it's important to notice emptiness as constitutive potential of these sequences. After examining the way architectural forms manifest themselves, attitude towards emptiness is another significant criteria in comparative analysis of minimalism in Serbia and Japan. The notion of emptiness does not have universal character and, as value, it takes different places in philosophical postulates of Western and Eastern tradition.

Features of Japanese architecture that evoked most admiration are its aesthetic qualities, harmonious beauty, pure lines and simplicity (Bronen-Bauer, 2001) related to metaphysical Buddhist idea of emptiness. Japanese home traditionally includes a small number of furniture pieces. Visual silence is saturated with a sense of simplicity and emptiness. Empty space and the ideal of emptiness are of key importance in designing a Japanese home and its minimalist interior.

Pasqualotto (2007) states that in linguistic and Western philosophy codes, words and concepts *essence* and *empty* could not stand together, except as opposites. In ontological traditions from Aristotle onwards, essence always stood for the smallest and realest core of an entity, whilst emptiness in Western metaphysical tradition always pointed to something non-existent and contradictory (Pasqualotto, 2007). Pythagoreans used emptiness to refer to darkness in which souls of the dead reside, assimilating it with the term nothingness. In contemporary psychological analysis of influence of environment on development of children, Žarko Korać studies adequacy of uniformly white walls in rooms. He stresses that visual restriction in spatial ambience poor in stimuli is harmful to the development.

On the other hand, Pasqualotto notices strong connection between essence and emptiness in Eastern Buddhism, reaching the level of identification. Eastern dialectical thought treats emptiness as something impossible to imagine without connection to its complementary opposite – fullness. Emptiness cannot be manifested and cannot act without medium of the full. In order to experience fullness it is necessary that we understand emptiness as its integral part.

Attitude towards emptiness illustrates value-defined and culturally conditioned selective nature of perception – the subject of this essay. Ability to comprehend the necessity of emptiness in order to create anything represents supreme ideal according to Japanese understanding. Materialistically oriented Western culture interprets the ideal of emptiness as absence, or even poverty, of expression. The emptiness is treated as something the presence of which is easily noticeable, and overlooked.

Analogous to Wollheim's claim that all could not exist in every point in time (Danto, 1997), one could say that all could not exist in every place. The same as Duchamp's *Fontain* could not be accepted as art prior to 1917, perhaps formal visual aspects forming one minimalist architectural composition cannot be adequately used in every culture.

## TRANSCULTURALITY

Being accustomed to manifestation of certain architectural forms constitutes identity as the resource for psychological, social and ideological inclusion in cognition, while philosophical systems integrate relations of symbolic archetypes, tradition and dogmas in cultural frames.

In the aesthetic evaluation of reality the terms and meanings related to culture from which we come from and belong to were always used. Cultural identity determined by belonging, gained by birth,

was founded on traditional structures. The system of cultural values not finding references outside the local raises questions regarding ethics of this system.

Introducing the term transculturality, Welsch opposes former cultural frame in which the origin and belonging are the key elements of evaluating perceived reality. Application of transculturality liberates individuals from the obligation to develop cultural identity in local milieu thus increasing the possibility of choice between different identities, comprised of different values, behaviours and lifestyles. Affinity towards other cultures annuls selection between one's own and foreign culture.

## CONCLUSION

If we apply transculturality, a possibility opens to recognise aesthetic values in architectural work originating from another culture. This study does not treat foreign architecture specifically, but the existent one, similar to typical Japanese examples of formal conceptualisation of minimalism in architecture.

Recognising minimalism in architecture as different architectural concept can restructure our idea of world and affect overall mentality transformation, used to approach achievements of other cultures as incomprehensible and irrational. Inclination for the pragmatic use of different way of thinking allows common understanding and establishes communication.

Through the contact with different lifestyles arise not only differences, but possibilities for connection as well, and they can be developed and extended in order to form a lifestyle, including even reserves whose adoption never before could have been imagined (Welsch, 2001:82). Overcoming the incomprehensible from the point of our adopted habits creates potential to prevail over limited, defining monocultural positions.

Transcultural approach can liberate understanding of architecture from associative constraints. What we can learn from other cultures is not only the way certain things are done in architecture, rather we can conceive different possibilities of understanding the meaning of human life.

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# AN EVALUATION OF THE INTEGRATED POVERTY ALLEVIATION AND HOUSING SCHEME IN BOTSWANA, CASE OF RAMOTSWA VILLAGE

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*This article evaluates the effectiveness of the Integrated Poverty Alleviation and Housing Scheme (IPAHS) in Ramotswa; an urban village located 32 km south-east of the capital city of Botswana, Gaborone. This study emanates from the fact that low income urban and rural residents with no formal employment were left out of the Self Help Housing Scheme (SHHA). The SHHA was mandated to facilitate the acquisition of subsidised land and loan to purchase building materials. One of the major conditions to qualify for SHHA is that applicants should have formal employment.; the IPAHS was specifically introduced to facilitate economic empowerment to poor households who do not qualify under the SHHA scheme. The IPAHS scheme is a two-thronged approach mandated to equip the residents with skills to build/improve houses for themselves and create employment for themselves through molding of bricks for sale in an effort to alleviate poverty. This paper is based on documentary and field research. The field research has a participatory component involving discussion and open ended interviews with relevant government departments. It also involves the administration of structured questionnaire survey to 30 beneficiaries of the scheme. Results show that despite high uptake of the scheme within the country, there are several challenges such as insufficient income to build or improve their houses, signs of poverty in living environments of beneficiaries, uncoordinated roles of various institutions which are major stakeholders in the implementation of the scheme. The scheme requires pragmatic policies geared to meet the needs and aspirations of the poor. There is a need for policy interventions through Government commitment to principles such as the right to housing by every citizen, coordination of roles played by different stakeholders to support the sustainability of the scheme.*

**Key words:** self-help housing scheme, integrated poverty alleviation, Botswana.

## INTRODUCTION

The international development policy agenda is currently dominated by the theme of "poverty reduction". The World Bank has been very supportive in poverty reduction initiatives ensuring that its lending policies are informed by pro-poor policy framework. Around the 1980's there was a shift in policy which focused on social safety nets, sound macroeconomic management and austere fiscal policies.

In the wake of these initiatives there was still

evidence of deteriorating living conditions in urban areas of most developing countries. Thus emerged a profound policy consensus about the importance of meeting the basic needs of the poor. Adequate housing was identified as one of the effective means to alleviate poverty. Housing was viewed as a source of income, pre-requisite for better health and the place for income generating activities.

The literature by most housing advocates spelt out that urbanisation is the root cause of housing problems in urban areas of the developing countries (Ikgopoleng & Cavrić, 2009). The current speed of urbanisation is probably not excessive, but the numbers

involved are enormous. The United Nations projects that by 2025 over 4 billion people (86%) of the global population will be living in urban areas of the developing countries and there will be 486 mega-cities in the developing world with at least one million inhabitants (Choguill, 1994). Poverty and housing are interconnected and multidimensional. They relate to economic issues such as income, labor market; social issues like public infrastructure, urbanisation etc (Vander-schueren et al., 1996).

## Definition of Poverty

The definition of poverty has evolved over the past decade since the World Development Report 1990 (World Bank, 1990) expanded the

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traditional, income-based definition of poverty to include lack of access to adequate health services, education, and nutrition. Numerous scholars have added to this framework, and the 2000/2001 World Development Report (World Bank, 2001) further extends its framework to include the dimensions of vulnerability, voicelessness and powerlessness.

The World Development Report 2000/2001 observes that poor people consistently emphasise the centrality of opportunities for jobs, credits, roads, electricity and markets for their products as well as for schools, clean water, sanitation services, and health services (World Bank, 2001). The four dominant approaches to poverty analysis that have featured in the development literature are:

1. The **poverty line approach**, which measures the economic 'means' that households and individuals have to meet their basic needs (determined generally by their income – also nutrition poverty);
2. The **capabilities approach**, which explores a broader range of means (endowments and entitlements) as well as ends (functioning achievements);
3. The **participatory poverty assessments** (PPA), which explore the causes and outcomes of poverty in more context-specific ways and aim to include the ideas and values of the poor;
4. The **vulnerability approach** (VA) which looks at fluctuations in the well-being of the poor and at movements of household into – and out of – poverty over time. Vulnerability has now become an integral aspect of poverty analysis, and is both objective, that is, the exposure to risks, shocks and stress and the inability to deal with them without sustaining damaging loss (e.g. becoming less healthy, selling off productive assets or withdrawing children from school), and subjective, that is, the sense of powerlessness in the face of threats (Carman, 2003).

Tipple (1994) argues that there is a growing recognition that housing development has the potential to provide employment for large numbers of people both directly and indirectly. He suggests that the activity required to provide millions of dwellings has the potential to produce large numbers of jobs directly in the construction work, and at least many would gain through backwards linkages. Therefore the effort to fulfill housing needs could be seen as the generator of considerable employment, which contributes to dealing with poverty. In addition, through working from home the housing produces are likely to form the physical infrastructure for more productive employment.

According to Chen et al. (1991), the proportion of

home based enterprises ranges from 54–77% in 5 sub-Saharan African countries, namely Botswana, Kenya, Lesotho, Malawi and Swaziland. In Lesotho, 88% of women's manufacturing enterprises are home-based (compared with 37% of men's and 57% of women's services enterprises are home based (compared with 30% of men's) (Chen et. al.1999).

Tipple (2005) notes that HBEs are important in times when formal wages diminish or cease, and enterprises are started at the only place available, such as the home. This has been regarded as undesirable in planning orthodoxy because it introduces commercial and industrial uses into areas zoned as residential. But the reality is that otherwise many low-income households would be unable to meet the survival needs; food could not be purchased conveniently and carrying out simple tasks, such as having a haircut, would require a major expedition.

In Botswana, economic empowerment through housing can be achieved by enabling plot holders to engage in a home based enterprise. This kind of activity would be ideal for the female headed plot holders who happen to be in majority in Botswana urban centers (e.g. capital city, towns, urban villages). Not only would this reduce travel cost, but it would also introduce commercial and industrial uses into areas zoned as residential hence providing a work space without paying any rent for working space.

In comparison with other countries, the levels of poverty in Botswana are high in relation to the overall per capita GDP, and to the sustained rate of economic growth. The Millennium Development Goals (UNDP, 2011) states that despite the macroeconomic success, Botswana has a serious problem of poverty compared to countries of similar economic stature. In Botswana poverty is fundamentally a structural problem. It is a consequence of a narrow economic base, which limits opportunities for gainful employment; a poor endowment of agro resources; a small and sparsely distributed population of 2.1 million in 2011, and as a result of population size and distribution, a small and fragmented internal market.

Collectively, these attributes translate into limited capacity for the creation of sustainable employment and poverty reduction. The more immediate causes of vulnerability to poverty in Botswana are: Unemployment and under-employment, which are primarily determined by lack of education and skills, ill health, in particular HIV/AIDS, which takes people out of work, destroys accumulated wealth and creates new groups of vulnerable people, lack of

access to productive assets such as land, water and finance and also lack of access to markets (UNDP, 2011).

Poverty remains an issue of concern to the government of Botswana, as it is a multifaceted problem. The eradication of poverty and hunger, greater equity in income distribution, and human resources development remain major challenges for the government. This is evident in that since the inception of the first National Development Plan, measures have been taken and policies formulated in order to curb poverty, yet it still remains an issue of concern (Kepaletswe, Moremi, 2001).

## CONCEPTUAL/THEORETICAL FRAMEWORK

### The sustainable livelihood framework

The sustainable livelihood framework identifies the key elements, factors and relationships that affect the lives of poor communities, urban, and the various feedback loops between them. The basic concept is that the quality and sustainability of livelihoods depend on the strategies communities develop to manage their 'capital assets', which are by and large under their control, within an environmental and institutional context, over which they may have little control. Development projects operate within, and can contribute to these assets and to the institutional context. A deeper understanding of the factors and the relationships and feedback loops between them should improve project design, implementation and impact.

The frame work is one way of organizing the complex issues surrounding poverty and it needs to be modified, adapted, and made appropriate to local communities and local priorities. In order to address the problems of poverty the relationship between poverty and its immediate courses should be established so that poverty can be fully addressed from different angles. The basic framework is shown in Fig. 1.

The sustainable livelihood approach is a way of thinking about the objectives, scope and priorities for the development in order to enhance progress in poverty elimination. It is a holistic approach that tries to capture and provide a means of understanding the vital causes and dimensions of poverty without focusing onto just a few factors. It also tries to sketch out the relationship between different aspects (causes, manifestations) of poverty, allowing for more effective prioritization of action at an operational level.

Sustainable livelihood approaches are being

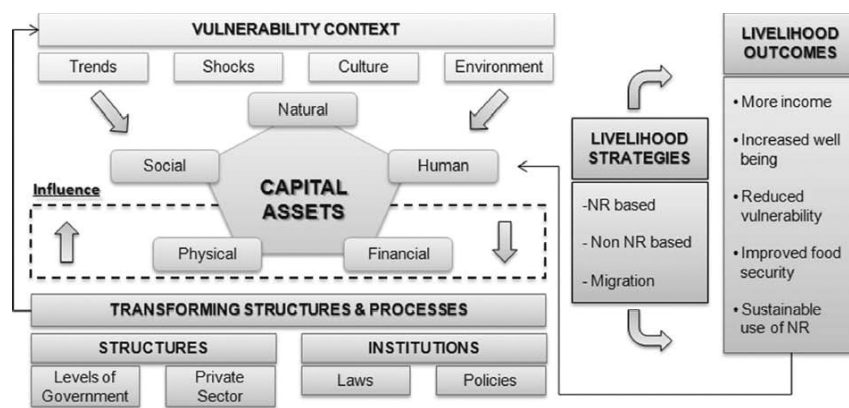


Fig. 1. Sustainable Livelihood Framework,  
Source: compiled by Authors based on Moser et al (1996)

used as an 'optic lense' through which poverty can be better understood, and development options prioritized. A livelihood is defined as 'the capabilities, assets (including both material and social resources), and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base.

## Poverty and housing issues in Botswana

### Poverty

There have been several attempts to understand and reduce poverty in Botswana. Concerns have often centered on poverty alleviation policies, the appropriate strategies that should be adopted for poverty alleviation, and the targeting mechanisms in this regard. However, little attention has been paid towards the service delivery process for poverty alleviation. Poverty is multi-faceted and can be manifested in hunger, lack of habitable housing, unemployment, lack of access to clean water, sanitation, health-care and education amongst other things.

The Government of Botswana has put in place many policies and programmes aimed at poverty alleviation, which are implemented by the different sectors at the national and district levels. Specific programmes aimed at enabling the poor to achieve sustainable livelihoods by improving access to productive resources include targeted schemes, such as: Financial Assistance Policy for income generating projects which create employment; the Integrated Support Programme for Arable Agricultural Development (ISPAAD) and Livestock Management and Infrastructure Development (LIMID), which assists resource-poor farmers to produce at subsistence levels and raise income; the Labour Intensive Public

Works programmes (*Ipelegeng*) to reduce unemployment, social protection and emergency related schemes, such as the Drought Relief Programme, the Old Age Pension Scheme, destitute programmes are implemented to complement efforts ensuring sustainable livelihoods, (*Ipelegeng* and the new back garden initiative.)

The Government has a number of policy interventions which are used to expand employment creation and stimulate growth in the private sector. These include reduction in tax rates, liberalisation of exchange controls, provision of serviced plots and industrial units.

Despite all these initiatives, the unemployment rate in Botswana has recorded a slight increase; it was estimated at 17.8% in 2011 compared to 17.6% in 2002/2003 (UNDP). The number of people living below the poverty datum line has decreased from 30.6% in 2002/2003 to 20.7% in 2011. The household income and expenditure survey of 2002/03 recorded 499,467 people living below the poverty datum line.

### Housing

Building on its urban development policy, the government has had a commitment to provide adequate shelter for all, the objective being to provide or enable access to shelter for the rapidly growing populations of the urban areas and for the currently deprived urban and rural poor, through shelter development and improvement that is environmentally sound. The National Housing Policy of 1982, which was revised in 1990, concretises Botswana's overall political strategy, the '*Vision 2016*': the aim of the 'provision of adequate shelter for all' calls for good quality basic houses within a safe and sanitary environment in both urban and rural areas from here to 2016.

The Government has come up with different interventions to realise the aspirations of the National Housing Policy and the ideals of the

Vision 2016. There have been several programmes targeted to low income albeit with little impact on improving the housing conditions of the poorer sections of the community. There have been several programmes such as Self help Housing Scheme, accelerated land servicing programme and squatter upgrading. The State President has appealed to the private sector to assist in providing habitable houses for the poor through "The Presidential housing appeal". The private sector is currently playing an active role in building houses for the poor through their social responsibility policies.

### Self-help Housing Scheme (SHHA)

The empirical studies of Turner and Mangin have highly influenced Botswana's housing policy. The government has adopted the policy of upgrading and provision of site and service schemes under the SHHA scheme and it also calls for cost recovery mechanisms. The site and service schemes involve the servicing of land and its subsequent allocation to low-income families to develop over time using materials provided by the government. The scheme was first introduced in 1978. The scheme was established to provide effective means of allowing access to affordable housing for low-income households. With the assistance of international bodies such as the International Bank for Reconstruction and Development (World Bank) and United States Agency for International Development (USAID). Appropriate strategies were examined and the scheme was accepted as a viable strategy for urban development.

Given that the Batswana (people of Botswana) have always built adequate housing for themselves in rural areas, self-help was seen as the most cost-effective way of providing housing for urban dwellers, particularly the poor. The SHHA scheme sought to emphasise self-reliance (one of Botswana's four national principles) and the spirit of self-help.

Under this scheme, administered by the urban and rural councils, the plots are allocated at a subsidised rate. The eligibility criteria for these plots are that the applicant should be a citizen of Botswana, formally employed and having stayed in town for a minimum period of six month. The question of an applicant's formal employment is of particular importance to the income criteria. In principle it means that the income criteria discriminate against the low-income households with irregular or informal income, especially against the poorest of the poor like single mothers. The income criteria for building materials loan has been increased from BWP30,000 to BWP45,000.00.

An evaluation of the programme by Ikgopoleng, Cavrić (2007), revealed that the programme is still confronted with numerous challenges such as the shortage of serviced land, the default in building materials loan and stringent urban development standards.

## INTEGRATED POVERTY ALLEVIATION AND HOUSING SCHEME (IPAHS) IN BOTSWANA

### Background

The programme was conceived by the Government in the 1990s to facilitate economic empowerment of poor households that do not qualify for SHHA loans through employment creation, poverty alleviation and home ownership. This idea was crystallised during NDP 8. Chapter 17, (section 17.21) of the plan indicates that *"low income housing development should be pursued within the context of employment creation and income generation"*. Section 17.49 continues that *'housing provision for the very poor rural households will be meaningless unless opportunities to earn some income are equally addressed.'*

The White Paper on the National Housing Policy of 2000, recommended that the scheme has to be implemented in both rural and urban areas. Implementation of this scheme in both settings is meant to address the poverty problems experienced in the country and to give poverty policies and programmes a national focus. The scheme's main thrust is on the integration of skills acquisition, employment creation and income generation with shelter provision.

The first stage of the project involves the identification of beneficiaries through the help of the Social and Community Development Division of the local Council where the project is being implemented. Once they have been identified they are trained in the production and marketing of standard building materials such as stock bricks, blocks, pavement slabs and kerbstones for sale at competitive prices on the local market. An allowance is offered to the beneficiaries dependent on the profit made from the sale of the project's products. Production of building materials runs concurrently with the training of beneficiaries in basic construction skills. Skills acquired are meant to encourage the beneficiaries to build their own houses without having to employ someone to do it for them.

The projects have to repay the Government the initial capital invested so that a revolving fund can be created for replication purposes. Once the project has reached full production, with the needed resources in place, the Government is

expected to pull out and hand the project's management to the beneficiaries. This scheme has since been piloted in three urban areas of Francistown, Mahalapye and Ghanzi. The 'success' of these projects has led the Government into replicating the project in Tsabong, Kanye, Mahalapye, Ramotswa, Mochudi and it has been spread to almost all the villages in Botswana.

### Institutional set-up

The main institutions responsible for implementation of Integrated Poverty Alleviation and Housing Scheme (IPAHS) Ministry of Finance and Development Planning, which is responsible for the capital financing and the Department of Housing under the Ministry of Lands and Housing which provide the advisory role. The Council implements the project on behalf of the Department of Housing. The Council is responsible for the selection of beneficiaries, training and day to day operations of the project for a period of two years. After two years the project is handed over to beneficiaries to run it profitably.

## BACKGROUND TO THE CASE STUDY AREA

Ramotswa urban village is located in the South-East District within the south-east part of Botswana (Fig. 2). The Population and the Housing Census of 2001 indicate that the settlement recorded a total population of 23 232 people (the 2011 Census figures will be provided). Ramotswa lies about 32 km south-east of Gaborone City and it is a headquarter of the South-East District Council administration responsible for primary education, primary health care, tertiary roads, village water and wastewater, solid waste management, social welfare and community development, and remote area development. Due to its close

proximity to Gaborone City, Ramotswa has experienced rapid population growth and market itself as an alternative destination for those seeking rental housing in Botswana capital. The settlement accounts for 99% of the population in the South-East District and experience demographic growth due to the population spillover from Gaborone City. The rapid population growth has put a tremendous pressure on demand for residential plots and rental housing. Therefore, it is necessary to develop innovative ways to encourage more people to increase residential capacities for their own needs and commercial renting. The latest development plan (GoB, 2011) promotes traditional areas redevelopment and high density residential development in new areas to curb urban sprawl and secure application of social and commercial housing schemes.

### Research justification of the study area

Ramotswa was chosen as the case study, mainly because of the following reasons:

- One of the first Botswana villages where the scheme was introduced.
- It has the worst problems of housing due to its close proximity to Gaborone City and increased housing demands as dormitory settlement.
- It is experiencing rapid population growth.

## AIMS AND OBJECTIVES OF THE STUDY

### Broad Aim

The main broad aim of this research is to determine whether the primary objective of integrated poverty alleviation and housing programme has been met in providing the affordable low-cost housing and equipping the beneficiaries with requisite building skills which they can use to seek employment. The objective stated above arises from the concern about the plight of low-income people who do not qualify under the Self-Help Housing Scheme SHHA and mushrooming of squatter settlements, signs of poverty in the low-income areas and overcrowding in living units.

Based on those broad aims, the study met the following objectives as set out below.

### Objectives

1. To examine the structure of houses that were built/improved through the programme

The beneficiaries are trained and equipped with skills to mould bricks, paving slabs, kerbstone etc. They are given allowance from the profits made from the sale of the project's products.

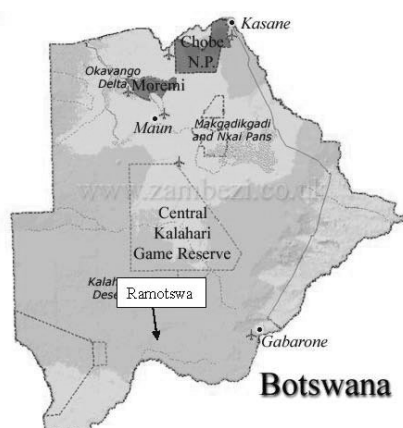


Fig. 2. Geographical setting of Ramotswa in Botswana

They are encouraged to use the allowance to mobilize building material for the construction or improvement of their houses.

2.To examine poverty levels amongst the beneficiaries. The programme is intended to reduce poverty levels amongst the beneficiaries. The poverty levels should be reduced through gainful employment in construction sector.

3.To investigate the level of construction skills acquired by beneficiaries

The beneficiaries are trained in the production and marketing of standard building materials such as stock bricks, blocks, pavement slabs and kerbstones for sale at competitive prices on the local market. An allowance is offered to the beneficiaries dependent on the profit made from the sale of the project's products.

4.To assess the roles and challenges of different institutions in the implementation of the implementation of the Integrated Poverty Alleviation and Housing Scheme (IPAHS).

## Research Methodology

Most informal interviews were conducted at the Department of Housing under the Ministry of Lands and Housing because it is a government based agency for administering the integrated poverty alleviation scheme. This department is central to all housing issues because it has assumed the responsibility for all housing functions (including policy formulation, planning, research, development and management of Government estates) in the country.

Other knowledgeable informants were selected from the South-East District Council. These included Planners and the Coordinator of Integrated Poverty Alleviation Officer at District level. Some other ministries and several other departments responsible for different aspects of human settlement were also contacted, in particular the Department of Town Planning, Department of Lands, Department of Surveys and Mapping and Department of Local Government and Development.

The study also utilises published and unpublished materials as well as sundry informal investigations (i.e. observations) of beneficiaries' houses. A total of 30 questionnaires were administered to the beneficiaries of the scheme. The questionnaires were prepared to seek information on levels of poverty, construction skills, income status and challenges confronted by the beneficiaries. The gender issue has not affected the results of the research because the questionnaire was designed for both sexes. Therefore, our research method and presented results focus on the information retrieved from affected citizens

where their participation and individual capacities in implementing IPHAS have been identified as key factor for improving the scheme (Cavrić et al., 2008).

## Findings

Prior to joining the scheme, almost all the respondents were registered under the Government Destitute programme. According to the respondents they were removed from the destitute programme four years before to join the Poverty Alleviation and Housing Scheme. The majority of respondents were females aged between 40 and 50. Almost 90% of the respondents were single female-headed households with at least 5 children per household. The majority of the respondents have lower levels of education, while 90% of the respondents did not finish primary education. The beneficiaries are paid a standard daily rate of BWP25 (EUR 2,5) per day which translates to BWP550 (EUR 55) per month. According to the beneficiaries the allowance is standard regardless of level of education and performance.

## Housing Structures

Information on housing characteristics was obtained from the beneficiaries. Only 3% of the beneficiaries have improved/built their houses from savings of their allowances. About 80% of the beneficiaries have not improved their houses during the time of survey. They complained that the allowance is too little and

does not even cover basic commodities such as monthly groceries. They indicated that they were expecting to be assisted by profits from project not to use their allowances to improve their houses. They complained that there is no transparency between them and the Council regarding operations of the project.

## Poverty alleviation

The main aim of the programme is to alleviate poverty amongst people who do not qualify for the SHHA scheme, and it anticipates that there will be poverty reduction and eventually elimination. The results of the study, however, show that even though most of the beneficiaries have acquired knowledge of moulding bricks, there are still signs of poverty amongst their households. Close to 85% of the beneficiaries said they were better off under the destitute programme because they were given a basket of food for free by the Government. They said their removal from the destitute programme has exacerbated their living conditions because they are paid a small allowance which can not even buy monthly worth of supplies. The majority of the beneficiaries are still trapped in a cycle of poverty because they still live in uninhabitable houses where basic services are remarkably missing.

## Construction skills

The majority of the residents (94%) have acquired building skills. They were trained in a range of construction related activities, such as

Table 1. Age-Sex cross - tabulation of respondents

Respondents Gender	Respondents Age (years)						Total
	20-29	30-39	40-49	50-59	60-69	+70	
Male	0	0	2	2	1	0	5
Female	1	0	19	5	0	0	25
Total	1	0	21	7	1	0	30

Source: Field Survey April 2011

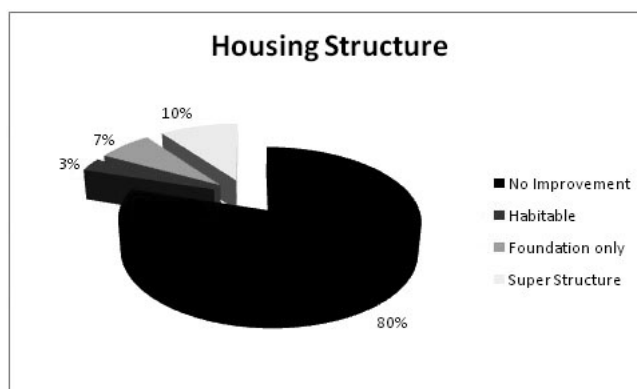


Fig. 3. The structure of houses improved under IPAHS scheme, Source: Field Survey April 2011

brick molding, paving, plastering, and installation of kerbstones. They have also acquired skills on the right quantities of the required material for moulding. Despite the fact that the majority of them have acquired these skills, they still lack basic managerial skills to manage a project on their own. They complained that there is no transparency in operations of the scheme. They said the Council runs the scheme under a cloak of secrecy. They said it will be difficult for them to run the scheme on their own because they lack basic skills such as book-keeping.

### **Roles and challenges of institutions**

The institutional set-up presents constraints in that, the Ministry of Finance and Development Planning is supposed to offer policy direction and synergy in the scheme, besides providing funds for physical development of the infrastructure. But more intriguingly, the policy direction is provided by yet another Ministry of Lands and Housing through the Department of Housing. The Council implements the scheme on behalf of the Department of Housing. The operations of Councils in the country are different and autonomous. This could present a contradiction with the development initiatives of the scheme not fulfilling any specific policy objective. According to the stakeholders, the scheme is confronted with numerous challenges such as bureaucratic procedures within councils during procurement of building materials for the scheme, given that the scheme is competing with other independent brick moulders in the village. The payment structure of beneficiaries is different amongst councils, e.g. in Mahalapye the beneficiaries are paid a higher monthly salary.

There are no clear criteria for beneficiaries to exit the scheme; the beneficiaries exit the scheme at their own time without any intervention by the Council. The beneficiaries are also not able to run the projects on their own after the two years elapses.

Almost all the ministries have poverty alleviation programmes, e.g. the Labour Intensive Public Works programmes (*ipelegeng*) which are geared to reduce unemployment. There is a lot of overlap in most of these poverty alleviation initiatives, and while the unemployed are expected to reap the benefits from all these schemes, they are yet implemented at the same time during the year which creates a lot of confusion amongst the unemployed who are not able to choose the right scheme that will improve their livelihoods.

## **CONCLUSION AND RECOMMENDATIONS**

The scheme has made several positive strides since its inception. The uptake of the scheme is relatively high in most districts of the country. The poverty alleviation and housing scheme model has all the necessary elements for success, as it addresses precisely the relevant social stratum of the poor sections of the community. However, the scheme in its present form is beset with problems, and outside intervention is needed to revitalise the programme. The scheme needs urgent attention in order to coordinate roles of different actors in the scheme. Management issues pertaining to all aspects of the programme: selection criteria, material supply, loan disbursement, building inspections, services, and record keeping need urgent intervention. There should be standard guidelines for management issues, the different districts have different guidelines which are sometimes contradictory.

The scheme requires pragmatic policies geared to meet the needs and aspirations of the beneficiaries. There is a need for policy interventions through government commitment to principles such as the right to housing for every citizen. The poverty alleviation and housing scheme is not geared towards self-dependence. Most beneficiaries still want to rely on the Government hand-outs for their living.

There is also a need to synchronise different poverty eradication programmes in Botswana, and there seems to be a lot of overlapping and contradictions that impact negatively the sustainability of the scheme. The poverty alleviation and housing scheme is not geared towards self-dependence. There is a need to bring them under one roof so as to manage them effectively.

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# CRUCIAL EUROPEAN AND INTERNATIONAL STRATEGIC DOCUMENTS FOR GUIDING THE SPATIAL DEVELOPMENT OF THE DANUBE REGION IN SERBIA

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*Corridor VII, the Danube development belt and the Danube River Basin represent a basis for the development of Serbia's spatial, economic, social and cultural relations with the Danube countries and the implementation of the European strategic documents concerning the management of the sustainable spatial development of the Danube Region. Therefore, this paper analyzes the implementation approaches, priority areas, actions and instruments determined by the relevant European and international strategic documents for the Danube, and the umbrella European document for all Danube countries – European Union Strategy for the Danube Region. The implementation of an integrated approach, strategic framework, obligations and recommendations determined by the analyzed European and international strategic documents and conventions is especially important for improving the management of the spatial development of the Danube Region and Serbia as a whole. From that aspect, the paper recommends the necessary activities and facilities for harmonizing our strategic planning and management system and practice with the analyzed European documents concerning the Danube and Danube Region.*

**Key words:** Danube, Danube Region, European and international strategic documents and conventions, strategic approach and obligations, planning and management of sustainable spatial development.

## INTRODUCTION

The spatial integration of the Republic of Serbia into the European environment is taking place and will be taking place at several levels – at the level of the European Union, transnational level of South East Europe (South East Europe Transnational Cooperation Programme) and cross-border or trans-border level with local and regional territorial units of the neighbouring countries (Cross-Border Cooperation – CBC). The basis for all mentioned levels of linkage will include landscape entities, natural systems (water and mountain systems), infrastructure, natural and cultural heritage, environmental protection, social, economic, cultural and other relations that contribute to the sustainable development of the Republic of Serbia and its integration into the European environment.

The Republic of Serbia will implement and elaborate numerous strategic European

documents within its integration process, whereby especially important for the country's spatial development planning and management are: Europe 2020: A European Strategy for Smart, Sustainable and Inclusive Growth (2010), Treaty of Lisbon (2009), European Union Strategy for Sustainable Development (2006, 2009), EU Cohesion and Regional Policy 2007-2013 (2007), Territorial Agenda of the European Union 2020, Towards an Inclusive, Smart and Sustainable Europe of Diverse Regions (TA2020, 2011), Green Paper on Territorial Cohesion, Turning Territorial Diversity into Strength (2009), Toledo Urban Development Declaration (2010), Leipzig Charter on Sustainable European Cities (2007), Guiding Principles for Sustainable Spatial Development of the European Continent (2000), as well as numerous conventions (international, European, trans-border and cross-border).

A significant role in the process of Serbia's spatial integration into the environment should be played by the Danube, the only waterway among the ten pan-European transport

corridors and the most important water resource and river basin in Serbia. Therefore, this paper provides an overview of the obligations and guidelines determined by the appropriate strategic European documents and conventions related to the Danube.

Corridor VII, the Danube development belt and the Danube River Basin represent a basis for the development of spatial, economic, social and cultural relations with the Danube countries and integrated implementation of European strategic documents, programmes and instruments in managing the sustainable spatial development of the Danube Region. Therefore, the paper analyzes the implementation approaches, priority regions, actions and instruments determined by the umbrella strategic document for all Danube countries (regardless of their status) – European Union Strategy for the Danube Region (2011). The

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starting point of this strategy is an integrated implementation of the existing documents, policies, programmes, funds and facilities for the sustainable and coherent development of the Danube Region.

The implementation of an integrated approach, strategic framework, obligations and recommendations determined by the analyzed documents is especially significant for improving the management of the sustainable spatial development of the Danube Region and Serbia as a whole. From that aspect, the paper recommends the necessary steps to harmonize our strategic planning and management with the umbrella document for the development of the Danube Region.

### **CRUCIAL EUROPEAN AND INTERNATIONAL STRATEGIC DOCUMENTS FOR THE PROTECTION AND USE OF THE DANUBE AND ARRANGEMENT OF CORRIDOR VII**

The interest of the European Union in the Danube corridor represents significant development potential and Serbia's obligation involving the future activities related to its spatial development, arrangement and protection, as well as the improvement of the waterway in the territory of the Republic.

The strategic framework for the policy of inland waterborne transport development in the Republic of Serbia and improvement of the waterway on Corridor VII will be based on the following policies and agreements: White Paper – 'European Transport Policy for 2010: Time to Decide' (2001) and White Paper – 'Roadmap to a Single European Transport Area – Towards a Competitive and Resource Efficient Transport System' (2011), European Agreement on Main Inland Waterways of International Importance (AGN, 1996), European Agreement on Important International Combined Transport Lines and Related Installations (AGTC, 1991) with Protocol on Combined Transport on Inland Waterways to the European Agreement on Important International Combined Transport Lines and Related Installations (AGTC, 1997) and European Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterway (ADN, 2000).

The basic aspirations contained in the White Paper of 2001 are the improvement of overall transport efficiency; cost reduction and greater environmental acceptability of the transport system; achieving greater balance between modes of transport by increasing the participation of rail and inland waterborne transport,

implying the development of intermodal transport and removal of bottlenecks in the systems, etc. The White Paper of 2011 defines ten aims for a competitive and resource efficient transport system (benchmarks for achieving the 60% GHG emission reduction target) and strategy to achieve a Single European Transport Area, which should ease the movements of citizens and freight, reduce costs and enhance the sustainability of European transport. For the purposes of this paper we single out several aims for 2030: (i) 30% of road freight over 300 km should shift to other modes such as rail or waterborne transport; (ii) triple the length of the existing high-speed rail network; (iii) ensure a fully functional and EU-wide multimodal TEN-T core network, etc.

The conditions for the use of the Danube as an international waterway are regulated by the Convention regarding the Regime of Navigation on the Danube (Danube Convention, 1949). This Convention guarantees free navigation and prescribes the obligations of the signatory countries to maintain the waterway at the anticipated technical level and ensure safe navigation. The obligations of the Convention signatory countries are determined by the recommendations of the Danube Commission, which now includes 11 countries of the Danube River Basin. In accordance with the AGN Agreement, the classification of the network of inland waterways was made in the Inventory of Main Standards and Parameters of the E Waterway Network ('Blue Book', UN ECE, 2006), including the Danube in the territory of Serbia. Under the Agreement, the Danube – the stretch of the Danube from the Serbian-Hungarian border (km 1433) at Bezdan to km 1175, approximately in the zone of Belgrade, belongs to waterway class VIc, and the stretch from km 1175 to the Serbian-Bulgarian border (km 845.65) belongs to class VII, which anticipates the provision of the appropriate waterway dimensions. Although Serbia is the only Danube country which has not yet ratified the AGN Agreement (thus, the conditions of navigation on the Danube through Serbia are still perceived through the recommendations of the Danube Commission), the unavoidable acceptance of the AGN Agreement requires that its conditions should be regarded as applicable to planning the spatial development and arrangement of the international waterway. The Protocol on Combined Transport on Inland Waterways to the European Agreement on Important International Combined Transport Lines and Related Installations (AGTC, 1997) established technical and operational conditions that

should be met by river port terminals in order to be qualified as ports of importance for international combined transport. The Integrated European Action Programme for Inland Waterway Transport (NAIADES) represents an important framework for a better integration of inland waterway transport (IWT), development of appropriate waterway infrastructure, fleet modernization and upgrading with respect to the ecological requirements and use of modern information and communication technologies for improvements in navigation. One of the priority projects is to improve the waterway on Trans-European Transport Corridor VII.

Although waterborne transport is the environmentally most favourable mode of transport, the recorded negative impact of waterborne transport on the environment in Corridor VII in Serbia must be minimized in accordance with Directive 2000/60/EC of the European Parliament and the Council establishing a framework for the Community action in the field of water policy (EU Water Framework Directive – WFD, 2000), the Convention on Environmental Impact Assessment in a Trans-boundary Context (Espoo, 1991), Danube River Protection Convention (1998), Danube Commission Recommendations for the Prevention of Water Pollution of the Danube Caused by Water Navigation (1998), as well as on the basis of the European directives in the field of environmental protection.

The Convention on Cooperation for the Protection and Sustainable Use of the Danube River (Danube River Protection Convention) is the main instrument of cooperation and cross-border water resource management in the Danube River Basin, whose implementation is coordinated by the International Commission for the Protection of the Danube River (ICPDR) by establishing joint priorities and strategy for improving the conditions of the Danube and its tributaries. In 2003, the Republic of Serbia became a member of the ICPDR and ratified the Danube River Protection Convention. The major obligations of the Convention signatory countries include the strengthening of cooperation, harmonization and coordination of the measures concerning the preservation, improvement and rational use of surface waters and groundwater; sustainable development and environmental protection of the watershed; protection and rehabilitation of the ecosystems (especially the protected natural and aquatic ecosystems), hazard control and reduction of the pollution load of the Black Sea, implementation of the "polluter pays" and prevention principles. Special attention is

devoted to the significance of planning activities and measures taken to reduce the trans-border impact on the discharge of wastewaters, nutrients and hazardous substances, regulation works on the regime control of surface waters (on waterways) and groundwater, and flood protection, planned use of water power, control and reduction of the negative impacts of existing hydro-engineering structures (impounding reservoirs, hydro-electric power plants and the like) on the environment, hydrological conditions and ecosystems, etc. In that context, the following tasks being important for planning the spatial development and arrangement of the Danube River Basin and Corridor VII were highlighted: identification of groundwater sources, zones of groundwater protection and measures for groundwater prevention and reduction of pollution with nutrients, agro-chemicals and other hazardous materials; the assessment of the impact of planning activities and water quality; evaluation of the significance of different biotope elements for the river ecosystem and determination of measures to improve the ecological conditions in aquatic ecosystems and the like.

Within the scope of the activities relating to the implementation of the Danube River Protection Convention, the ICPDR adopted "The Danube Basin – Rivers in the Heart of Europe" (Danube Declaration, 2004), confirming the inter-state obligations towards implementing the EU Water Framework Directive and Directive 2007/60/EC on the assessment and management of flood risks (2007), primarily the elaboration of the Danube River Basin District Management Plan and implementation of the Flood Action Programme – Action Programme for Sustainable Flood Protection in the Danube River Basin (2004); reduction in the total amount of organic matter in the Danube River Basin until 2019 in order to achieve a good ecological status and restore the ecological sustainability of organic matter balance in the Black Sea; stopping untreated wastewater discharge from settlements with more than 10,000 EC and all large industrial plants until 2015; gradual stopping of the discharge of the materials posing the greatest risk to aquatic ecosystems in the Danube River Basin and significant reduction in the discharge of other materials, reversal of the trends towards the physical degradation of aquatic ecosystems and returning the sections of the Danube and its tributaries to their natural state (by rehabilitating flood-prone areas, reconnecting wetlands and retention areas, and minimizing the impact of new projects on the physical degradation of ecosystems); protection,

preservation and revival of biodiversity and different habitats (especially those of rare and endangered species) and the unique ecosystem of the Danube Delta; ensuring that the development of the agricultural sector does not cause the degradation of the environmental quality of the Danube and its tributaries; development of the emissions inventory and trans-border monitoring network for the Danube water quality assessment, etc.

Four countries in the Sava River Basin, the main Danube tributary in Serbia, have signed the Framework Agreement on the Sava River Basin (FASRB, 2002) with an aim to develop international navigation and introduce integral and sustainable water management, whose implementation is coordinated by the International Sava River Basin Commission (Sava Commission).

Cooperation within the activities of the ICPDR, Danube Commission and Sava Commission in the Danube River Basin is important for the implementation of the European directives and conventions. In terms of sustainable water use and protection, the implementation of the EU Water Framework Directive (WFD) is essential. It includes the obligation to prepare the Danube River Basin District Management Plan for all countries in the river basin. The WFD aims, which should be attained in the Danube River Basin and Corridor VII until 2015, include achieving a good ecological and chemical status of all surface water and groundwater bodies, or the least good ecological potential and good chemical status for significantly modified and man-made water bodies.

The aims, conditions and obligations determined by the Directive have been elaborated under the first Danube River Basin District Management Plan (DRBMP, 2009), which serves as the platform for coordinating the basin-wide implementation of the WFD among the Danube countries. It is based on the national Danube River Basin management plans, excluding the territory of Serbia whose plan still has to be prepared, together with the programme of measures. Therefore, many of Serbia's significant issues elaborated under this plan have remained non-defined and open for elaboration, especially for the period up to 2015. The most important obligations set out under the Danube River Basin District Management Plan, which are related to the Danube Region in Serbia, include the following activities and propositions for the period up to 2015 and medium-term period:

- The improvement of the water status of surface waters and groundwater – pollution reduction to the level required for a good ecological and

chemical water status: until 2015 – by reconstructing and constructing 8 municipal wastewater collection and treatment systems for settlements, and in the medium-term period – by secondary (and, exceptionally, tertiary) wastewater treatment for all settlements with more than 10,000 EC; nitrogen emission reduction by about 12% (from prevailing 6-9 kg/ha/year to 3-6– and less than 3 kg/ha/year) and phosphor by 21% (from prevailing 60-75 and 30-45 kg/km<sup>2</sup>/year to 45-60 and less than 30 kg/km<sup>2</sup>/year) by implementing best environmental practices (BEP) in agriculture and best available technology (BAT) in agriculture and industry.

- Improving the continuity of the river ecosystem and movement of fish species, by connecting flood-prone areas–wet habitats with the river ecosystem and ensuring barrier passability for fish, whereby a good ecological status or good ecological potential are not expected until 2015, but in the medium-term period – the highest priority is given to the elaboration of the feasibility study concerning the Djerdap dam passability for migratory fish species, and medium priority for the barrier (lock) on the Timis over other barriers (locks on the Timis and DTD Canal connections to the Danube). Until 2015, it is anticipated to connect flood-prone areas–wet habitats to the river ecosystem for 4 protected natural resources – wet habitats.
- One of the future infrastructure projects that may have an impact on the Danube River Basin and are subject to a special analysis in accordance with the obligations under the WFD, is the extension and arrangement of the waterway section in the zone near Apatin.

In the Joint Statement on Inland Navigation and Environmental Sustainability in the Danube River Basin (International Commission for the Protection of the Danube River, Danube Commission and International Sava River Basin Commission, 2007) – in achieving a good ecological status and good ecological potential – special significance is attached to an integral approach to planning the spatial development of the regions along the Danube and reconciliation of conflicting interests on some sections between the planned development of the waterway and impact on aquatic ecosystems and water status, as well as between the required preservation and rehabilitation of protected natural and river regions and ecosystems of high ecological value and the impact on the navigability of the international route.

Bearing in mind an exceptional concentration of natural and cultural heritage in the Danube

development belt, the implementation of the following international and European conventions is relevant for the spatial development and arrangement of Corridor VII and the development belt: Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (Berne Convention), which provides a basis for the development of the Emerald Network of Areas of Special Conservation Interest, Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention), Convention on Biological Diversity, Convention on Wetlands of International Importance (Ramsar Convention), Convention Concerning the Protection of the World Cultural and Natural Heritage, European Landscape Convention (Florence Convention), Convention on the Protection and Sustainable Development of the Carpathians (Carpathian Convention), Convention for the Protection of the Architectural Heritage of Europe (Granada Convention), European Convention on the Protection of Archaeological Heritage, Resolution CM/Res(2007)12 on the cultural routes of the Council of Europe, etc.

Cross-border cooperation, which is significant for the Danube Region in Serbia, is carried out within the IPA (Instrument for Pre-accession Assistance, for the period 2007-2013) cross-border programmes of Serbia with Romania, Bulgaria, Hungary, Croatia and Bosnia and Herzegovina. Some potential areas of trans-border (cross-border) cooperation within these programmes are the intensification of cooperation between border cities in the formation of joint space and environment information systems, joint use of public service facilities and joint construction of utility facilities; joint implementation of actions to prevent natural disaster risk in the border area; development of cooperation in trans-border employment; enhancing border space accessibility by modernizing transport routes and border crossings.

Apart from the mentioned cross-border cooperation framework, the topics of common interest for cooperation with the neighbouring Danube countries – Hungary, Croatia, Romania and Bulgaria in the spatial development and arrangement of Corridor VII and the Danube development belt can also be more precisely defined on some other basis, through the Euroregion ("Danube-Kris-Mures-Tisza", "Danube 21" and the like) and bilateral activities. Some potential areas of bilateral cooperation are: waterway arrangement and infrastructure equipping; integral management and sustainable use of waters; joint programmes and projects of energy infrastructure development, river landscape

protection, cross-border natural values and linkage of cultural inheritance, linkage of tourism supply of border spaces and the like; elaboration of joint cross-border spatial plans and regional development programmes. During the past period, the following priorities for cooperation were determined: with Hungary – infrastructure and environmental protection, economy, education and culture; with Romania – economic and social development; environmental protection and emergency response; and "people to people" actions; with Bulgaria – the development of minor infrastructure facilities and capacity building for joint planning, problem solving and sustainable development; with Croatia – socio-economic development.

### EUROPEAN UMBRELLA STRATEGIC DOCUMENT FOR THE SUSTAINABLE SPATIAL DEVELOPMENT OF THE DANUBE REGION

In spatial and functional terms, the adoption and implementation of the European Union Strategy for the Danube Region, approved by the Council of the European Union in June 2011, is especially important for the Republic of Serbia in the process of Euro-integration.

Covering a fifth of the EU (100 million inhabitants), the Danube Region is key to the well-being of the EU as a whole. The Strategy concerns 14 countries of which 8 are member states (Germany, Austria, Hungary, Czech Republic, Slovak Republic, Slovenia, Bulgaria and Romania) and 6 are non-EU countries (Croatia, Serbia, Bosnia and Herzegovina, Montenegro, Ukraine and Moldova).

The EU Strategy for the Danube Region has a strategic framework guided by the Europe 2020 Strategy and European Sustainable Development Strategy, so that its potential to contribute to the long-term objectives, such as the smart, sustainable and inclusive growth and competitiveness of the EU is ensured. The Strategy provides a sustainable framework for policy integration and coherent development of the Danube Region. It sets out priority actions to make it an EU region for the 21st century, and one of the most attractive in Europe.

The Strategy underlines an integrated approach to sustainable development. This emphasizes: better and more intelligent connections for mobility, trade and energy; action on environment and risk management; cooperation in security. There is a benefit from common work on innovation, tourism, information society, institutional capacity and marginalized communities.

The integrated macro-regional Strategy focuses on four main pillars. Each comprises priority areas, distinct fields of action, such as:

#### 1. Connecting the Danube Region, with priority areas

- To improve mobility and multimodality: (a) inland waterways; (b) road, rail and air links;
- To encourage more sustainable energy;
- To promote culture and tourism, people to people contacts.

The projects under this priority include: the removal of shipwrecks and other debris from the river bed, connection of multimodal terminals at river ports to inland waterways with rail and road transport, completion of the railway axis linking Paris-Budapest via Stuttgart, Ulm, Munich, Vienna and Bratislava, the 4Biomass project to boost renewable energies, transnational tourist packages for combined rail-cycle-boat trips along the Danube, etc.

#### 2. Protecting the environment in the Danube Region, with priority areas

- To restore and maintain the quality of waters;
- To manage environmental risks;
- To preserve biodiversity, landscapes and the quality of air and soils.

The projects under this priority include: setting up buffer strips along the river to retain nutrients, the "Blue Danube" cooperation project relating to urban wastewater treatment, reduction of pharmaceutical residuals in water, wetland restoration to enhance flood protection, implementation of a network of protected areas, etc.

#### 3. Building prosperity in the Danube Region, with priority areas

- To develop knowledge society through research, education and information technologies;
- To support the competitiveness of enterprises, including cluster development;
- To invest in people and skills.

This will take the form of joint research centers, joint programmes for professional education and vocational training, projects to increase the use of e-Government and e-Health services for citizens, initiatives to support Roma communities, etc.

#### 4. Strengthening the Danube Region, with priority areas

- To step up institutional capacity and cooperation;
- To work together to promote security and tackle organized and serious crime.



The examples of these projects include training and best practice exchange, especially with respect to public finance management, the establishment of a Danube Civil Society Forum and development of common guidelines for spatial planning.

The Strategy proposes an Action Plan to which a strong commitment from the countries and stakeholders is needed. This Action Plan (2010) sets priorities, identifies projects and proposes some deadlines. It is an indicative framework, evolving as the work progresses, making it a 'rolling' plan.

For the purposes of this paper several priority areas with fields of action, and example projects were singled out.

Good connections of the Danube Region will ensure that no part should remain peripheral. This encompasses better connections among people, especially through culture and tourism. The physical capacity of the Danube and its tributaries should be improved, and existing bottlenecks removed, to ensure the proper level of navigability, implementing the NAIADES programme and respecting environmental legislation. Targets as examples of interest for Serbia could be to increase cargo transport on the river by 20% by 2020 compared to 2010; remove existing navigability bottlenecks on the river so as to accommodate type Vlb vessels all year round by 2015[2]; develop efficient multimodal terminals at Danube river ports to connect inland waterways with rail and road transport by 2020. The example project is "To remove shipwrecks, bridges debris and unexploded weapons from the riverbed of the Danube", which should be implemented in the lower part of the Danube in Serbia.

The common history and tradition, culture and arts reflecting the diverse communities of the region, as well as its outstanding natural heritage, offer the opportunities to develop the Danube Region as a European "brand", and establish the Danube Region as an important European tourist destination. Overall sustainability should be an important criterion in developing tourism in the region. Serbia should take part in project-oriented cooperation with the neighbouring countries in the region, especially in cultural and heritage matters and inter-related topics. The areas of developing tourism, tourism infrastructure and improving tourism services, cultural heritage and intercultural dialogue are typically inter-related topics. In that context, joint actions to improve tourism planning and related infrastructure, to further develop the navigation and port system for Danube river cruise ships

and private yachts, to intensify activity tourism, as well as other actions are needed. Example projects are: "To create transnational tourist packages, such as: for combined rail/cycle/boat trips along the Danube", "To realize the Danube walking path", "To support green ways and cycle tourism" (planned as the Iron Curtain trail), "To strengthen the Danube regional potential through cultural cooperation", "To implement the Danube cultural route", etc.

Protecting the environment in the Danube Region needs good cooperation among all countries, regions and local communities. The 2020 EU target for biodiversity must be met, by halting biodiversity and ecosystems loss, and by restoring ecosystem services and reconnecting habitats. The objectives of nature protection areas, such as Natura 2000 sites (Emerald sites in Serbia), can be achieved only by paying due attention to the ecological requirements of the whole region. Targets as examples of interest for Serbia could be: to achieve the environmental targets set out in the Danube River Basin Management Plan; implement Danube wide flood risk management plans - due in 2015 under the Floods Directive - to include a significant reduction of flood risk by 2021, while also taking into account potential impacts of climate change; draw up effective management plans for all Natura 2000 sites (Emerald sites in Serbia); secure viable populations of Danube sturgeon species and other indigenous fish species by 2020, combating invasive species and reduce by 25% the area affected by soil erosion exceeding 10 tones per hectare by 2020. In that context, joint actions to develop green infrastructure in order to connect different biogeographic regions and habitats; develop and implement transnational spatial planning and development policies for functional geographic areas (river basins, mountain ranges, etc.); raise awareness of the general public, by acknowledging and promoting the potentials of natural assets as drivers of sustainable regional development, as well as many other actions are needed. A very important task for the Serbian planning system is the development of coordinated spatial planning policies focusing on the protection and, at the same time, sustainable development of functional geographic areas. The development and promotion of green, soft and eco-tourism provide an opportunity for Serbia, which could increase the perception of preserved nature as a valuable asset. Example projects are: "To implement the Danube River Network of Protected Areas (DANUBEPARKS)", "To establish fully the Mura-Drava-Danube Biosphere Reserve", "To complete the Lower

Danube Green Corridor", "To connect people with the Danube", etc.

One of the main issues of strengthening the Danube Region is the institutional capacity and cooperation. It indicates the structures and capacity for private and public sector decision-making need to improve, including good planning and international cooperation supported by a macro-regional approach. For Strategy implementation the commitment and practical involvement of all authorities is needed at the national, regional and other levels. Working together with international and cross-border organizations across the Region will encourage synergies and avoid duplication. A reinforced territorial dimension will provide an integrated approach, and encourage better coordination of sectoral policies. In that context, joint actions to build Metropolitan Regions in the Danube Region, to combat institutional capacity and public service related problems in the Danube Region, to ensure sufficient information flow and exchange at all levels, and other actions are needed. A very important task for Serbian planning and governance systems is to support the emerging Belgrade-*Novi Sad* Metropolitan Region to become part of a metropolitan network in the Danube Region in order to establish a framework for learning and developing common ideas in all areas relevant to metropolitan development. Example projects are: "To establish common guidelines for improving spatial planning", "To transfer knowledge and enhance urban technologies and strategies", etc.

Countries and regions will coordinate each priority area of work. Serbia is involved in the coordination of two priority areas: (a) to improve mobility and inter-modality, and (b) to develop knowledge society (research, education and ICT). One of the first tasks of the Priority Area Coordinators will be to agree and refine the set targets with the countries most involved in each area of work. The Commission will monitor the implementation of the strategy and will publish its first report at the end of 2012.

## CONCLUSION

The integration of the Corridor VII and the Danube Region in Serbia into the European territorial and functional context and sustainable spatial development of Serbia will be achieved by defining, promoting and adjusting the modalities of international, transnational, cross-border and regional cooperation, and implementing the provisions of European and international strategic documents. In implementing international and European

conventions, European strategic documents and directives, the implementation of the EU Danube Strategy and preparation and implementation of the National Danube River Basin Management Plan in Serbia will be of utmost direct significance for international and cross-border cooperation in the sustainable development of Corridor VII and the Danube Region.

International cooperation in the protection, spatial development and arrangement of the Danube River Basin in Serbia will be carried out within the scope of the activities related to the implementation of the Danube River Basin District Management Plan (DRBMP). Priority is given to the establishment of cooperation with the Danube countries in defining significant issues, priorities and measures to achieve the aims of the EU Water Framework Directive (WFD) and Directive on the assessment and management of flood risks in the part of the Danube River Basin in the Republic of Serbia for the period up to 2015 and medium-term period, in order to supplement the Danube River Basin District Management Plan and elaborate the National Danube River Basin Management Plan in Serbia (including the programme of measures) and action programme for sustainable flood protection. Cooperation with the Danube countries will include the development and harmonization of the assessments of the water status and effects of measures taken on the water status, evaluation of the significance of the biotope elements for the river ecosystem and landscape and elements of biological quality for the assessment of the ecological status and potential, information systems, trans-border emissions inventory and transnational monitoring network for the Danube River Basin.

Despite the fact that Serbia is the only Danube country that has not yet ratified the AGN Agreement, the inevitable adoption of this Agreement anticipates that the prescribed conditions should be regarded as applicable for planning the spatial development and arrangement of the international waterway, which belongs to waterway class VIc from the Serbian-Hungarian border to Belgrade and class VII from Belgrade to the Serbian-Bulgarian border. What is of importance for Serbia is its inclusion in the implementation of the priority European projects relating to the improvement of the waterway along Trans-European Transport Corridor VII, primarily for the development of appropriate waterway infrastructure, modernization and improvement of the river fleet so as to meet the ecological requirements, and the use of modern information and communication technologies for navigation improvement.

The management of the sustainable development of the Danube Region in Serbia will be based and harmonized with the EU Strategy for the Danube Region. It is of utmost importance for the improvement of our system and practice of sustainable development planning and management to harmonize them with a strategic approach, main pillars and priority areas of the Strategy, which provides a sustainable framework for policy integration and coherent development of the Danube Region. The Strategy brings a new and ambitious dimension to cooperation in the region based on macro-regional and integrative approach, whose implementation is crucial for directing all activities and managing the sustainable spatial development of the Danube Region and Serbia as a whole.

Cooperation within a "macro-regional" framework is intended to produce a more effective coordination. This approach does not imply new laws or institutions; rather, it strengthens links between different policies and a wide range of stakeholders. Although the Strategy does not come with extra EU finance, a considerable amount of funding is already available for the region through a various EU programmes. The aim is to use this available support – €100 billion alone has been allocated from the cohesion policy (European Regional Development Fund, Cohesion Fund, European Social Fund) between 2007 and 2013 – to a greater effect and show how macro-regional cooperation can help tackle local problems. There are also other means which Serbia can use, such as the Western Balkan Investment Framework, IPA funds as well as the international financing institutions (e.g. EIB, EBRD).

In the Strategy and Action Plan emphasis is laid on an integrated approach, namely good links between urban and rural areas, fair access to infrastructures and services, and comparable living conditions that will promote territorial cohesion, now an explicit EU objective. Therefore, numerous joint actions were proposed, including the development and implementation of transnational spatial planning and development policies for functional geographic areas. This implies reviewing and improving our strategic planning system, the coordination of strategic planning in the first place. For the EU Strategy for the Danube Region with Action Plan implementation in Serbia the key planning framework should be set by coordinated spatial planning (national and regional spatial plans) and recently proposed regional planning (national regional plan and regional development strategies). The second task is to develop the procedures and mechanisms for coordinating

sectoral planning with spatial and environmental planning at all management levels (Maksin, Milijic, 2010; Maksin et al., 2009). In so doing, it is necessary to be guided by the commitment from the Strategy that only a reinforced territorial dimension will provide an integrated approach, and encourage better coordination of sectoral policies.

Achieving the sustainable spatial development of the Danube Region in Serbia as part of the Danube Region should be based on the following pillars and facilities:

- The creation of institutional and organizational arrangements for horizontal and vertical coordination of government to support the EU Strategy for the Danube Region with Action Plan implementation. This could be achieved by allocation of tasks to new or existing departments for EU pre-accession within government bodies at national level and regional agencies, and by establishing coordination bodies at all levels of government.
- The creation of institutional and organizational arrangements for cooperation with the neighbouring countries and the countries in the Danube Region, primarily in the area of strategic planning and sustainable development, transport and energy infrastructure, water arrangement and protection, cooperation in the fields of education and culture, economic development, environmental protection, security management and the like with a view to achieving better functional integrity among the neighbouring regions.
- Following a new European regional development policy, which brought significant progress relative to the earlier approach aimed with a view to spurring the development of underdeveloped regions and enabling the growth and development of regions that should play the role of the "levers that can pull" general development (which refers above all else to the so-called. "propulsive", "innovative", "creative" and related regions, most of which belong to the part of the (most) developed regions).
- The use of the instruments of managing the sustainable territorial development of the new TA 2020 with the aim of strengthening the territorial coordination of policies and territorial cohesion implementation mechanisms, and specifically: (i) multi-level governance formats to manage different functional territories and ensure balanced and coordinated contribution of local, regional, national and EU actors in compliance with the principle of subsidiarity;

(ii) territorial coordination of sectoral policies should be supported by instruments such as the assessment of territorial impacts and integrated impact assessment for all significant EU, national and regional policies and programmes, and by coordinating planning mechanisms and territorially sensitive monitoring; (iii) contributing to territorial cohesion and cooperation at cross-border, transnational, and inter-regional levels by flexible territorial programming, which allows co-operation activities with different territorial scope to be flexible enough to address regional specificities, etc.

- A timely elaboration of strategic documents (spatial plans, regional, sectoral and other strategies and programmes), which are necessary as platforms for cooperation with EU institutions and, in particular, for achieving a harmonized, autonomous and joint approach, together with the neighbours, to EU funds, through joint strategic plans and projects in cross-border and other related cooperation.

Within the scope of its first activities and steps towards the implementation of the Strategy and Action Plan, Serbia should make use of its current advantages in advocating and promoting national and regional aims and priorities in the development of the international waterway, protection and arrangement of the Danube River Basin and sustainable spatial development of our part of the Danube Region. The first advantage is that it is one of the coordinators of two priority areas – to improve mobility and inter-modality, and to develop knowledge society. The other advantage is that the first tasks of the Priority Area Coordinators is to agree and refine set the targets with the countries most involved in each area of work.

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# CITY VS. CLIMATE CHANGES - THE FUTURE AND ITS (UN)SUSTAINABILITY: THE GLOBAL APPLICABILITY OF SARRIGUREN AND JÄTKÄSAARI?

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*The global reality, intensively exposed to the challenges caused by climate changes, demands new ideas, methods and tools which could eventually prevent or mitigate the consequences of carbon emissions. Therefore, the contemporary cities, as focal points of the new global comprehension, have become testing grounds for numerous initiatives based upon imperatives of sustainability, environmental consciousness, energy efficiency and 'green' life style.*

*In Serbia, experience in matters of the built environment has had a tendency to be formed exclusively on the basis of authentic local initiatives, aspirations, successes and failures. In the global effort for sustainable development, considering the commitments imposed by climate change and carbon emission, a greater reliance on results achieved elsewhere would be a welcome change. Consequently, this article will present and comment two eco-driven projects – Sarriguren and Jätkäsaari, both covering a wide range of useful ideas, intriguing concepts and globally applicable solutions for the challenges caused by climate shifts.*

**Key words:** climate change, cities, carbon emission, energy efficiency, sustainability.

## INTRODUCTION

Balancing between an accelerating urban development and a need to prevent further global warming, contemporary cities have been facing the consequences of carbon intensive modes of living. The importance of environmental, economic and social imperatives has been emphasized but their real influence on our living environment and low-carbon future has still to be confirmed. The numerous large and small-scale examples of the environmentally friendly practice definitely represent a valuable source of information and applied knowledge, but their most important outcome should be a profound transformation of global and individual environmental consciousness reflected in lifestyle, consumption patterns and energy transition.

Circumstances existing in Serbia, with an uneven distribution of social capital and a questionable political and financial potential for dealing with problems that are not seen as an immediate treat, might lead us to conclude that all efforts of

copping with climate change will fail. Initiatives are complicated to organize, concepts and solutions difficult to agree upon, and comprehensive projects (bottom-up and/or vice versa) almost impossible to implement (Vujošević, 2010).

## THE SUSTAINABLE PATH OF CONTEMPORARY ECO-TRENDS

The concept of sustainability, although recently upgraded by new paradigms, concepts and frameworks, has been frequently misinterpreted and/or misunderstood due to its broad and vague definition(s). Numerous mile-stone summits and agreements focused on global sustainable development remained in a domain of resonant political statements, while their implementation still lags behind. From the "United Nations Conference on the Human Environment" (Stockholm, 1972), the Brundtland Commission (1987), the Rio summit (1992), Rio+5 (New York, 1997) to Rio+10 (Johannesburg, 2002), Kyoto (1997, 2005) and COP15 (Copenhagen, 2009) different concepts related to a number of sustainable, 'eco' and energy issues have been launched in order to reduce GHG emissions and

create an acceptable level of environmental (e)quality. Consequently, UN Habitat has identified eight globally implemented innovations which, in a long run, should improve a current condition of environment and support further sustainable development. These innovations are related to a development of carbon-neutral cities, renewable energy, eco-efficiency, distribution of power and water systems, but they also tackle the issues of transportation, urban infrastructure, public spaces, photosynthetic spaces and slum areas (UN Habitat, 2009).

Nowadays, the label of eco/sustainable cities, which was coined by Richard Register (1987), is recognized as a competitive advantage and an expression of civilization progress, but it still represents an ambivalent category – depending on the preferred level and scope of integration with/in the biosphere, or the imposed framework (global, regional, local/ civic). According to

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Capello et al. (1999, p. V) a sustainable city is a concept of an urban agglomeration able to ensure 'environmentally benign development' and to achieve an equilibrium between 'economic progress, social equity and environmental quality'. It also describes an introverted, city-oriented model of continuity which is focused on the future of existing urban structures and guided by effective and comprehensive local policy-making (Capello et al., 1999).

Downton (2009) further develops the idea of a sustainable/eco city suggesting an improved and extroverted concept – the Ecopolis, which represents an 'urban system consciously integrated into the process of the biosphere with the intent of maintaining the optimum functioning of the biosphere for human purposes' (Downton, 2009, p.75).

Following the latest theoretical speculations, the contemporary cities trace their sustainability by projects which often include elements of utopian visions (Callenbach, 1975; Calthorp, 1993; Downton, 2009 etc.). The scale, scope and ambitions of these initiatives can vary, as well as the type of applied innovation or the level of sustainability, but we can distinguish three main groups of actions which are supposed to overcome problems generated by climate shift:

- new 21<sup>st</sup> century cities – as large-scale urban/social experiments (for ex. high-tech eco-cities Masdar, Dongtan, Tianjin);
- urban (re)development projects – as limited/small scale urban/social experiments (Ecocity Sarriguren, Ithaca EcoVillage, Malmö's neighbourhoods Augustenborg and the Western Harbour area, the proposal for the Jätkäsaari Climate Neutral District in Helsinki etc.);
- global and local initiatives – focusing on knowledge transfer, dissemination of practice, networking, institutional and financial international support (for ex. C40 Cities, Transition Towns, Climate Alliance of European Cities, the EcoCity project in India, 'UN-HABITAT Cities and Climate Change Initiative').

## SEARCHING FOR A UNIVERSAL SOLUTION

Due to a high diversity of regions and urban nodes, it is impossible to define a single solution for accumulated problems caused by climate change. Differences in natural and geographic conditions, various levels of economic and technological development, sensitive social contexts, as well as an increasing number of vulnerable population, certainly demand a flexible and comprehensive approach, well adjusted to local uniqueness. However, some of the already applied actions

and initiatives have a capacity to be globally transferred without significant modifications because they offer universal topics, ideas, concepts and guidelines on various levels. Simultaneously, they deal with different aspects that do not have to be mutually integrated or even connected in order to work.

Searching for relevant experiences that could help Serbia in the development of its own approach to eco-sensitive urban development led us to the case study approach – starting from results and working back towards the local situation and theoretical foundations. Circumstances in Serbia are such that the global warming problem, together with the need to build in an eco-sensitive manner, is simply not very high up in the agenda of current political, economic or culturally based activities. Therefore, the selected cases (i.e. possible role models) have to:

- provide an 'idealized'/universal model for limited/small-scale intervention;
- incorporate most of the latest eco-city requirements and imperatives;
- give us a well-defined idea(s) of expectations, goals and themes to consider and values to follow;
- suggest clear-cut solutions that might be applicable to the context of urban development in Serbia;
- represent well known examples, acknowledged in the scientific community.

According to these criteria, the development projects of Sarriguren and Jätkäsaari are underlined and analyzed, emphasizing their general aspiration in forwarding new visions, fresh approaches and innovative concepts in the design of cities for sustainable development. Furthermore, both projects were a result of more or less open competitions, where the characters of institutions that initiated and monitored the process seem to have defined, in an important degree, the scope, character and expected impact of each proposal. With flagship pretensions, these and similar initiatives enter a field that can be seen as just another utopia if understood holistically (as a packaged project), but moreover as a possibility of piecemeal engineering if dissected and broken down to various layers of aspects, concepts and solutions to be used in somewhat different circumstances existing elsewhere. The differences between two cases are also important – providing the major tools which enable us to understand them and further evaluate experiences they offer as contribution to the comprehensive design of a sustainable built environment.

## BETWEEN ACTION AND ATTRACTION: SARRIGUREN - PAMPLONA, SPAIN

Representing the first eco-city in Spain, the city of Sarriguren was an initiative of the Department of Housing and Planning of the Government of Navarra. Backed and financially stimulated by the government, the city was designed in 1998 and completely realized in 2007, providing a new environment for 5000 bioclimatic dwellings for social housing, the Innovation Park of Navarra and various urban programs. Responding to the challenges of climate change and following the required principles of environmental sustainability this project was internationally recognized as an excellent example of eco-efforts, with the distinction of 'Good Practice' by the United Nations Center for Human Settlements in 2000 and the 7<sup>th</sup> European Urban and Regional Planning Award in 2008 (category of Environmental Sustainability).

### The concept

Positioned on the outskirts of Navarra's capital Pamplona, at the north-east end of the so-called 'innovation corridor', Sarriguren represents a new node of creativity, innovation and research. It reflects elements of the regional development strategy which has transformed the region of Navarra into a highly dynamic socio-economic environment and one of the wealthiest regions in Spain and the European Union. The region has focused on new technologies, renewable energy production and environmental stability, planning to increase its connectivity to Madrid and Barcelona by high-speed trains.

According to the competition conditions for the design of the Eco-city Sarriguren, the invited architectural firms from Spain were expected to create a proposal(s) that would provide high-quality housing and public areas, simultaneously integrating the city and surrounding landscapes. The innovativeness, social accessibility and affordability of solutions were emphasized, as well as a bioclimatic approach in architecture and urban design. The selected project was designed by the Studio Taller de Ideas with the Fundación Metrópoli as a knowledge partner. The public company Navarra de Suelo Residencial S. A. (NASURSA) and the development company CRANA were in charge for management and implementation, while the Government of Navarra was actively involved in the process of implementation through a number of financial incentives oriented towards potential developers.

Focusing on major urban features – which should be sustainable, integrated, well connected and diverse – the list of design criteria stressed the



importance of clean technologies, new management, shared mobility and interaction with natural environment. The application of bioclimatic architecture and urban design was encouraged, while the imperatives of social cohesion and civic leadership were considered as a pre-condition for the gradual changes of urban life-style and full implementation of the project. As a result, the architectural and urban design of Sarriguren, which is adjusted to the local environmental conditions, includes passive and active solar systems, natural ventilation, low-impact construction, insulation and thermal inertia, centralized systems and photovoltaic technology (Vegara et al., 2009).

The knowledge partnership under the EU Pro.motion project has additionally directed sustainable transportation initiatives in Sarriguren, underlying the interaction between transportation, land use and environmental protection.

### The outcome

Based on the mixture of so-called blue and green networks, the 'ecological' design of Sarriguren is a combination of new (and diverse) architecture and public spaces, the inherited identity of the preserved historic village and recognizable landscapes and vegetation. The special feature of the eco-city (and the entire urban region) represents the Arga River and its valley, as one of important strategic corridors dedicated to recreational and leisure activities.

The residential areas were designed according to the main eco-standards and criteria, simultaneously respecting the imperatives of affordability, without loss of quality. The architectural diversity was achieved through a proposed typology related to five spatial entities (The Ecocity Gates, Ecocity Condominiums, Parkview, Ecocity Single Family Dwellings and El Pueblo) which contain low, medium and high-rise apartments, single-family dwellings and houses in the historic village.

The importance of the knowledge sector and of creative economy definitely reflects on the design of Sarriguren. Therefore, the project includes several types of innovation spaces – such as an innovation and production park and 'Cubes of Innovation'. Based on the principles of flexible architecture, 'Cubes of Innovation' could be used as independent units or grouped together for research, urban services and commercial and business activities. The innovation park represents a research and enterprise node dedicated to alternative energy development and environmentally friendly technologies, but it also contains other activities – housing, leisure and learning.

The building of the National Renewable Energy Center (CENER), which received two prizes in

2005<sup>2</sup>, is an exceptional example of the eco-principles applied in Sarriguren. The building uses a photovoltaic façade paneling, green roof, solar energy, thermal inertia and cross ventilation in order to provide a space appropriate for research, development and promotion of renewable energies.

### The follow up

Key words for this project, based on a 'top to bottom' approach, would be housing and ecology (hence, the scale of the program, involving a complete settlement of 5000 dwellings of socially affordable housing, office space and all other standard amenities). It is also important to notice that the solutions offered in the eco-city of Sarriguren were conceived in 1998, far away from the current understanding of global warming and the importance of controlling carbon emissions. However, the project has demonstrated the capacity to meet new challenges by addressing primarily the issues of environmental stability and renewable energy through a bioclimatic focus of urban design and architecture.

The viability of the Sarriguren project and recognition it gained proved that it was conceived with development in mind, with experiences transferable to other residential developments, but not to the inner city structures (Ah asociados architecture office, 2011). Furthermore, the pilot program, which implemented a Sustainable Energy Assessment, confirmed a significant reduction of energy consumption of residential buildings in Sarriguren – a 51.85% improvement over existing standards, instead of a required 25% improvement over the current energy efficiency norms per building.

Obviously, the results of the assessment have a two-fold role in the promotion of attractiveness and competitiveness of the eco-city – verifying both ecological and economic sustainability, which are essential for potential investors and buyers, but also project developers.

### TOWARDS AN ECO-TOPIA: JÄTKÄSAARI – HELSINKI, FINLAND

Initiated in 2008 by SITRA<sup>3</sup> and its Energy Program, the project of building a new carbon neutral urban district in Jätkäsaari introduced a

new vision of the comprehensive redevelopment process of former docklands in Helsinki. Elaborated by the Strategic Design team and backed by the municipality of Helsinki, the project aimed to raise the interest of city decision-makers, developers, planners and constructors for solving problems they will be facing in view of adopted policies in carbon emissions.

Searching for the best team(s) and framework which should enable a sustainable carbon-free future for the selected district, SITRA launched the Low2No Sustainable Development Design Competition in 2009. There were four main objectives – low/no carbon emissions, energy efficiency, high architectural/spatial/social value and application of sustainable materials and methods.<sup>4</sup> The participants were invited to design a strategy, to define an indicator of sustainability and to create a vision, which should facilitate application and evaluation of the development process.

The project also aimed at global recognition of globally inspired and globally applicable ideas and solutions that, on the other hand, incorporated local qualities of Jätkäsaari and Helsinki – making them even more attractive on the world stage.

### The concept

The winning entry '*C\_Life: City as a Living Factory of Ecology*' (by Arup – Sauerbruch Hutton – Experientia – Galley Eco Capital) combines seven key elements related to ecological, social, technological and economic aspects of human behaviour and community development. Considering the predicted structure of future users/inhabitants – ranging from young professionals to families and retirees, the winning proposal also suggested fifty ideas to achieve desired eco-behaviour and consequently reduce carbon emissions. Targeting different problems related to energy, transport, food and consumer goods, as well as their impact on the built environment, these ideas vary in scale and complexity. Accordingly, they are classified into four categories dealing with engagement and awareness, community actions, self-assessment and positive reinforcement and cultural leadership. The impact of this project should be significant – the estimated onsite carbon reduction should reach 37% in 2012 and 43% in 2037, while an offsite wind farm should enable a carbon negative future of the district by 2021.

The area, which is a continuation of the city centre, is surrounded by the Central Park (W), a boulevard (N), an alley (E) and a lane (S).

<sup>2</sup> The CONSTRUMAT Prize and the award for the Sustainable Building 2005 at the International Conference GBC in Tokyo.

<sup>3</sup> SITRA – The Finnish Innovation Fund was founded in 1967. Since 1991 it has been working under the auspices of the Finnish Parliament being an independent actor. Focusing on sustainable development and people, SITRA promotes stable and balanced development in Finland, as well as the growth of the national economy and international competitiveness and co-operation. More about its activities at <http://www.sitra.fi/en/>

<sup>4</sup> More competition details could be found at <http://www.low2no.org/pages/competition>

According to the proposal, it consists of five urban blocks with private gardens in their centre. The buildings are seven to eight storeys high, except the buildings on the East side which are limited to three storeys due to sunlight requirements. The urban and architectural design is guided by several principles generated from the overall concept and specific conditions of local climate – from maximising daylight, to the creation of semi-public spaces, mixed activities and combined programs. The winning project also proposes two types of C\_Life houses, as the basic module(s) which could be varied and adjusted to different contexts, and two buildings – the SITRA headquarters and the C\_Life Community Centre.

Special attention was given to the principles related to landscape and its forest layer, fruit/vegetable/herb layer and grassland scrub layer. The first one should influence the appearance and activities mostly on the ground level (public and semi-private atriums, public spaces, residential play spaces, private recreational areas, streets and the edge of the site/park). The second one should be included into southern facades of residential towers and balconies, while the grassland scrub layer was proposed for the 'green' rooftops.

The question of transport and movement required an approach which is synchronized with the official master plan and adjusted to the already developed mobility management of Jätkäsaari. In order to improve mobility and movement in and around the C\_Life district a new strategy was created, underlining the importance of imperatives related to live/work concept, connectivity, new electric vehicle plan, bio-fuels and a 'low-carbon' infrastructure and policies (ARUP, 2009).

The energy strategy covered societal, economic, environmental & technical and leadership issues, also proposing near/off-site energy systems and several development scenarios. The sustainability of materials and structures was also positioned within the low/no carbon framework, as well as the impact of food production/distribution on carbon footprint.

The C\_Life offered a list of performance indicators, covering several categories – overall measures, carbon emissions, energy, transport, quality of life and equity, and introduced new ideas for a systemic change which would include founding of the Finland green building council, the development of climate-benefiting finances and clean-tech corridor.

### The outcome

The preparations of the site for the Airut<sup>5</sup> block,

which is the result of the Low2No competition and a part of the C\_Life concept, started in 2011. It was announced that the block should be ready by summer 2013, but some of the buildings from the eco-Jätkäsaari district are already under construction. The project of the multi-storey timber building for the SITRA headquarter (by Sauerbruch-Hutton, Arup and Experientia) has won the Holcim acknowledgment award for sustainable construction in 2011.

In the meantime, Finnish entrepreneurs, together with urban enthusiasts, work on different projects and ideas which should introduce and develop innovative business and service models for the sustainable Airut block and similar initiatives which would utilise the Low2No vision. The event organized in September 2011 presented five interesting solutions which tackled the issues of urban food production, life-style and fashion based on recycling and sharing, international exchange of innovative low-carbon experiences and a new kind of a specific eco-entrepreneurship.

### The follow up

Key words for the C\_Life project would be energy, global warming and carbon emission, the urban context being only a framework in which solutions can be demonstrated. Although a small-scale project, Jätkäsaari has large-scale ambitions concerning its impact and indirect influence in matters of carbon emission. Its bottom-up and top-down approach should correlate legislation, socio-economic structure and information infrastructure providing an efficient self-sustainable setting which requires no extra funding and is concentrated on changing the attitude of participants. Comprehensive, flexible, interdisciplinary and essentially open-ended, this project was meant to initiate ideas and suggest solutions that are applicable in a diverse set of other circumstances, thus offering a manual for solving problems of carbon emission in (any) urban environment, or even any built environment.

Consequently, it seems that the basic contribution of this project could be found in the suggested methods of addressing the carbon emission problem – introducing an exceptionally diverse and still interconnected system of activities into the built environment and demonstrating their potentials and effects. Strong reliance on offsite support and important changes in financial frameworks are only reminders that sustainable development and even small-scale progress towards a low carbon emission can give important results only through the support of wider, sometimes even global networks.

However, the real onsite and offsite impacts still

cannot be measured and verified by the local community and experts because the realization of C\_Life has just begun.

## GLOBAL APPLICABILITY AND THE CHALLENGES OF SERBIAN REALITY

The projects of Sarriguren and Jätkäsaari rely on a developed national and local community, can count on the existence and further development of a solid social capital, and rely on an important surplus of good will and incentive that has been developed during a number of years of new 'bell epoch' life Europe has been living. Contrary to this, Serbia is burdened by two essential shortcomings – it is basically poor in most aspects of measurable development, and its (un)development is unevenly distributed from north to south.<sup>6</sup> To transform these weaknesses into chances is short of an act of magic, especially considering effects of the global crisis that still have to be met. However, it is possible to imagine that investment in an underdeveloped environment (Serbia) could lead to greater profit, and that investing (money, time, know-how and un-renewable prime urban land) in the most developed part of Serbia (i.e. the Belgrade metropolitan region) could have a beacon or pathfinder effect, offering innovative projects in places that can make them happen.

In the case of Serbia, these projects should have a direct economic effects, rely as little as possible on the central government while the emphasis should be placed on local factors (citizens, municipality, business, academic community) and, of course, the international community. The eco-driven projects should be flexible in matters of scale (a complex interconnected set of small-scale projects) and be able to grow. Consequently, growth would gradually incorporate various layers of incentives supported by a developing social capital, existing and future technologies, governance solutions and outside (international) backup and investment, becoming a site for learning by doing. The effects of these actions would not be immediate, but a new path for an improved perception of the living environment could be traced, its problems and challenges acknowledged and actively included into new eco/low-carbon strategies and policies.

Serbia cannot be expected, either at the local level nor the level of state initiated actions, to directly implement solutions that have been developed of initiated elsewhere. It must develop its own approach, and the first real step would be to come

<sup>6</sup> Serbia has declared its Strategy of Regional Development of the Republic of Serbia for the period of 2007 to 2012 (2005), where indicators of development and extreme differences in level of development of different regions are well illustrated.

<sup>5</sup> Airut – 'forerunner' and 'messenger' in Finnish

out of the 'paper' phase into a real time/space project, a pilot or potentially even a flagship project of its own. This was, in essence, the main motive in choosing potential useful experiences occurring worldwide during the last decade.

In this paper, we looked for projects that could initiate change by example or by illustration, projects that could be used as role models for a similar project to be developed in Serbia. It is, of course, understood that experiences offered by Sarriguren and Jätkäsaari or other similar projects are applicable to ambitious local communities with adequate potential in economic, social and land resources with adequate administrative capacities. Nevertheless, existing potentials and circumstances of public awareness in Serbia point to Belgrade, as the most developed region and the most probable starting point of such an endeavour.

Specifically, we are talking about the development of two waterfront locations in former industrial zones located in the center of Belgrade. The first one is positioned along the river Sava (about 2000 meters on the right and left bank, covering approximately 160 ha) and embedded between the traditional city center and New Belgrade. The second one, along the river Danube and in the vicinity of the historic center, covers around 48 ha and about 6000 meters on the right riverbank. The Danube development is, at the same time, part of Europe's corridor VII, that should give a boost to the projects and make them internationally visible.

Many studies concerning the future development of these locations have been made<sup>7</sup> stressing factors of technology, functionality, economy, land use and architecture. Unfortunately, none of them have, up to this moment, considered the idea of developing or identifying them as an explicit eco-city or a sustainable city showroom demonstrations of urban development which is certainly an opportunity that must not be left unexplored, especially in contexts of the latest eco-driven development trends.

A real life experience and learning by doing are not often practiced in Serbia, but should prove to be beneficial if only sufficient political courage exists. Therefore, the presented case studies and their multi-leveled applicability could provide a necessary theoretical and practical impetus for this kind of action, while their global recognition, success and universality could serve as a signpost and motivation for our local authorities in their search for a necessary international networking and funding which should support urban and eco/low-carbon development in Serbia.

## CONCLUSION

The cases of Sarriguren and Jätkäsaari certainly provide a set of useful ideas and prescriptions which could be adapted and embedded in the strategies and concepts of low-no carbon practice in different contexts. Although Serbian reality does not provide a perfect setting for the total application of these concepts, it does not mean that foreign knowledge and expertise cannot be transposed to another level and/or included in a local framework. By focusing on these examples in a separate and selective manner, we are certain to lose some of their synergetic effects but it would mean making a step in the right direction. In the end, a series of steps will achieve better results than the classical 'package' of reforms and amendments we might not be ready to implement.

In terms of possible implementation, or direct use of experiences offered by these and similar projects, basic problems center on various shortcomings in the present political, social and economic infrastructure in Serbia (Lazarević-Bajec, 2011). A prolonged crisis will, inevitably, postpone important issues, and the only way to include them would be to render them as effortless as possible for the existing administration, close to everyday interests of all participants, and independent of any major government financial intervention. This is something that can be done only through small independent projects and horizontal connections among willing participants. Top to bottom actions would be welcome but cannot be counted upon.

Obviously, the adjustment to the challenges imposed by climate changes has to be a very dynamic, interactive and innovative process in order to meet the global deadlines and achieve the high aims of sustainability, energy efficiency and a low/no carbon future. However, in spite of the raising uncertainty an effort has to be made – as a step towards a 'green' vision, a necessity for a healthier environment or a legacy for the generations to come.

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<sup>7</sup> Details related to this area and its development could be found in the Master Plan of Belgrade 2012 (2003), the Revision of the Master plan (2006) and INFO 16 (2006)

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## Information on Scientific project TURaS



Within the research framework FP7, a new research project has been launched, at the kick-off meeting held in Dublin in the period 7-8 November 2011. TURaS, which is the acronym for “Transitioning towards Urban Resilience and Sustainability”, comprises 9 Work Packages, out of which 5 are thematic ones, viz.: WP2 Greening Public and Private Urban Infrastructure; WP3 Urban / Industrial Regeneration, Land Use Planning and Creative Design; WP4 Climate Change Resilient City Planning and Climate-Neutral Infrastructure; WP5 Limiting Urban Sprawl; and WP6 Short-Circuit Economies. Also, a number of methodological and other supporting work packages are included, viz.: Geospatial ICT-Support Infrastructure for Urban Resilience; Integrated Transition Strategies; Dissemination, training and exploitation of results; and Project Management. The duration of project is 60 months, starting from October 2011. The project is led by University College Dublin. A large number of researchers and other participants has been involved, from 28 project partners, coming from 11 European countries. From Serbia, Institute of Architecture and Urban & Spatial Planning of Serbia, Belgrade based, participates in the project as a research partner.

Editors







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