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

Tijana Crnčević¹, Institute of Architecture and Urban & Spatial Planning of Serbia, Belgrade, Serbia
 Igor Marić, Institute of Architecture and Urban & Spatial Planning of Serbia, Belgrade, Serbia
 Boško Josimović, Institute of Architecture and Urban & Spatial Planning of Serbia, Belgrade, Serbia

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).

This paper is a part of research conducted through the Scientific project "Spatial, environmental, energy and social aspects of developing settlements and climate change – mutual impacts" (TR 36035), financed by the Ministry of Education and Science of the Republic of Serbia from 2011 to 2014.

¹ Bul. kralja Aleksandra 73/II, 11 000 Beograd, Serbia <u>tijana@iaus.ac.rs</u>

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/m2 out of which only 0.12 W/m2 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 CO₂ 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 indicators in agroclimatic 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-settlementecological 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 exiting 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/Imeges/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 (Fussel, 2007) the "diversity of adaptation context (climate –sensitive domains, types of climate hazard, timing, form, actors, etc...) implies that there is no one-sizefits-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	 air, nature, waste, non-renewable and renewable resources 	 air quality, protection, forest protection, improvement of waste management, rational use of non- renewable resources and greater use of renewable energy resources 	 concentrations of air pollution including ozone, CO₂ suspended particulates, SO₂, NOx, then particulate, organic and inorganic matters (µg/m³, ppm, ppb; or number (%) of days with exceeded emission limit values) annual amount of industrial and community-based solid waste generated from production and consumption (t/capita, t/1000\$ of GDP), total annual amount of hazardous waste generated by industrial and other activities, according to the definition of hazardous waste (t/unit of GDP), share of waste considered in (%), amount of energy (petroleum, coal, gas and electric energy) available to a given year (GJ/capita or tons of equivalent petroleum/capita), amount of exploited mineral raw materials relative to the total balance reserves of the given raw material (t/year or %), share of energy obtained from renewable sources of energy in the total energy consumption and increase in renewable energy share (%). 	 increase in forest cover areas, increase of share of renewable energy sources in the total energy balance of Serbia, disposal of sanitary waste and landfill gas utilization, 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, integral management of natural disasters and technological accidents, reindustrialization of cities which takes into account technological, ecological and economic effects on spatial development, development of transport and energy infrastructure and implementation of renewable energy sources and increasing the energy efficiency implementation of planned protection measures
SEA FOR SPATIAL PLAN OF THE AREA OF SPECIAL PURPOSE OF THE KOPAONIK "NATIONAL PARK"	 forests, air, strengthening of institutional competence in environmental protection 	 increasing the forest cover areas by 25% through afforestation and natural renewal of forests, increasing the forest increment, extending the rotation period and increasing the volume of wood, adequate and timely forest fire, pest and air quality protection, defining the educative programs for local administration and citizen, enabling the access to data on environmental parameters 	 % of area under forest cover, overgrown conditions, structure of diameter classes, structure of cultivated species, forest health conditions, forest increment, volume and quality of wood, emissions of SO₂ and NOx, soot, heavy metal, particles, CO₂ etc. (%) of consumption of electric energy and gas, as well as the use of alternative sources of energy, number of environmental protection development programs, number of people in charge of the environment in the National Park territory, number of information on the environment in media 	 rational use of resources, NP forest management focusing on biodiversity conservation using minimal interventions, sustainable management and use of forests and forest cover areas, improving the current state of forests and increasing the forest cover areas, reconstruction of the existing and construction of new access and internal roads in the function of NP, tourism, villages, etc., heating of buildings based on ecologically and economically acceptable fuels (gas, renewable sources), reducing the level of air pollution from furnaces up to 2010, reducing the levels of traffic-related air pollution, 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

Plan document	Area of the SEA	SEA Goals	Indicators	Adaptation and Mitigation Measures
SEA FOR SPATIAL PLAN OF THE VALJEVO MUNICIPALITY	 air quality management, land protection and use, waste management, climate change, strengthening of institutional competence in environmental protection 	 reduce the emissions of damaging matters to air, increase areas under forest cover, Improve the system of collecting, treating and disposal of sold waste, reduce the greenhouse gas emissions, Improve energy efficiency, reduce consumption of non-renewable sources of energy, improve the environmental protection and monitoring service 	 SO₂ and NO₂ emissions, % of increase of areas under forest cover, % of households included in the system , % of waste to be treated, % of waste to be disposed of in sanitary landfills, SO₂ emissions, % of reduction of energy products consumption, % of reduction of coal and petroleum derivative, consumption number of environmental protection development programs, number of people in charge of the environment in the Municipality, number of measuring points in monitoring systems 	 lower quality land will be afforested, increasing the forest cover areas by 4180 ha, improving the waste management system and safe disposal of waste, reducing the damaging emissions to air, safe methods for industrial waste management, rational consumption of energy resources, setting up an environmental management system and providing information, intensifying the use of public passenger transportation, building the new heating plant will reduce air pollution in Valjevo and improve the energy efficiency of heating system, reducing the coal consumption to reduce air pollution in winter periods, building the micro hydroelectric power plants to reduce fossil fuels consumption, improving the waste collection, recycling and treatment, as well as problems of community-based waste disposal, reducing the problems of air, land, ground water and surface water pollution through new approach to the waste management, setting up the environmental management system and improving the system of providing information for the public
sea for pdr wind Farm "Bavanište"	- reducing climate change	 increase the use of renewable sources of energy 	 % of reduction of renewable energy sources consumption 	 building 57 wind turbines with the total of 114 MW, building the auxiliary infrastructure (transformer stations, overhead power transmission lines, connection to electricity network)

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, nonrenewable 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 systemically 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 build adequate capacities for its to 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.

References

- Crnčević, T., Therivel, R. (2009), Achieving sustainability in planning: English and Serbian experiences, *Regional development, spatial planning and strategic governance, Thematic Conference Proceedings Vol.* 1, IAUS, p.83-106
- Crnčević, T., Marić, I., Bakić, O. (2010), Landscape planning and management of spas in Serbia with special reference to the selected case studies, *Arhitektura i urbanizam*, 29, pp.57-65
- Davoudi, S. (2009), Framing the role of spatial planning in climate change, Electronic working paper n.43, www.ncl.ac. uk/guru/ publications/ working/ documents/ EWP43.pdf
- European Commission, (2009), Study concerning the report on the application and effectiveness of the SEA Directive (2001/42/EC), Final report, http:// ec. europe. eu/ environment/ eia/ pdf/ study 0309.pdf
- Environmental Agency (2011), Strategic environmental assessment and climate change: guidance for practitioners, www.environmentagency.gov.uk
- Fischer, T., B. (2003), Strategic Environmental Assessment in Post – Modern times in Environmental Impact Assessment Review, 23/2, pp.155-170
- Fussel, H.-M. (2007), Adaptation planning for climate change: concepts, assessment approaches, and key lessons, Sustainability Science, 2(2), pp.265-275, http://www.ceuectp.eu/index.asp?id=109
- Intergovernmental Panel on Climate Change (IPCC), (2007a), *Climate change 2007: Synthesys Report, Summary for Policymakers*, Cambridge University Press, Cambridge
- Josimović, B., Crnčević, T. (2006), Procedura Strateške procene uticaja Plana detaljne regulacije poslovno privrednog kompleksa, (The procedure of the SEA of the Plan of the detailed regulation of buisnes - industrial complex), *Arhitektura i urbanizam*, 18/19, pp.113-117
- Law on Spatial Plan of the Republic of Serbia (SPRS), Official Gazette of the Republic of Serbia", no.88/2010,
- Law on Planning and Construction, Official Gazette of the Republic of Serbia", no.79/09, 81/09 - correction, 64/10-US and 24/11
- Law on Strategic Environmental Impact Assessment, Official Gazette of the Republic of Serbia", no.135/2004 and 88/2010
- Lazarević Bajec, N. (2011), Integrating climate

change adaptation policies in spatial development planning in Serbia - A challenging task ahead, *SPATIUM, International Review*, n.24, IAUS, pp.1-8,

- Maruna, M., Lazarević -Bajec, N., Mihajlov, V. (2011), Analysis od adaption of urban structure patterns to climate change: an example of the detailed regulation plan "Ada Ciganlija", in *Budućnost razvoja naselja u svetlu klimatskih promena, Zbornik radova*, Zonex, Beograd, pp.227-246
- Partidario, M., R., (2004), Course Manuel: Strategic Environmental Assessment – current practices, future demands and capacity-buiding needs; International Association for Impact Assessment IAIA Training Courses
- Prvi izveštaj Republike Srbije prema Okvirnoj konvenciji Ujedinjenih nacija o promeni klime (First Report of the Republic of Serbia to the UN Framework Convention on Climate Change), (2011), www.ekoplan.gov.rs/.../ Klimatske-promene-46-p2
- Republic Hydrometeorological Service of Serbia, Informacija o četvrtom izveštaju prve grupe međuvladinog panela za promenu klime (IPPC), usvojenom 1.februara 2007.godine u Parizu (The information of the fourth report of the first group of IPPC adopted 1. february in Paris), Working group I Contribution to the IPPC Fourth Assessment Report: Climate Change 2007: The Physical Science, www.hidmet. gov.rs/ latin/ipcc/index.php
- SEA for Spatial Plan of Republic of Serbia, RAPP, IAUS, Faculty of Geography, 2010
- SEA for the Spatial Plan of the Area of Special Purpose of the Kopaonik "National Park", IAUS, 2009
- SEA for Spatial Plan of the Valjevo Municipality, IAUS, 2008
- SEA for the Wind Farm "Bavanište", IAUS, 2008
- Vujošević, M. (2002), Novije promene u teoriji i praksi planiranja na zapadu i njihove pouke za planiranje u Srbiji/Jugoslaviji; (New changes in theory and practice of planning and their lessons for planning in Serbia/Yugoslavia) Monogpraphy pubished on the occasion of the Scientific meeting "Planning and implementation", IAUS, Beograd
- www. rspb. org. uk/ Imeges/ seareport tcm 9 -153343.pdf, Strategic Environmental Assessment – Learning from Practice

Received December 2011; accepted in revised form December 2011