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Strategic Environmental Assessment as an Instrument for Sustainable Development of the Danube Corridor Through Serbia

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Abstract

Strategic environmental assessment is one of the most important instruments for the implementation of sustainable development strategy in spatial planning in general. Given the importance of the Danube corridor in ecological, economic and social terms, as well as the fact that it is a significant corridor for international navigation, it is important to consider the significance and possibilities of applying SEA in planning the sustainable spatial development of this area. This paper presents the methodological framework for applying the SEA carried out for the needs of the Spatial Plan, in particular for the section of the Danube corridor passing through the Republic of Serbia. The paper focuses on the inclusion of all aspects of sustainable development in the SEA process, especially when conducting qualitative multi-criteria evaluation of the planning solutions. The results obtained indicate that the impacts (positive and negative) of the planned activities provide a basis for making decisions that should enable sustainable development of the planning area.

Keywords: Strategic environmental assessment, Danube corridor, sustainable development

1. Introduction

Amongst the many definitions of Strategic Environmental Assessment (SEA), the most comprehensive and general one describes the SEA as a systematic process of evaluating the environmental consequences of the proposed policy, plan or program initiatives in order to ensure that they are fully included and appropriately addressed at the earliest appropriate stage of the decision-making process on a par with the economic and social considerations (Sadler, Verheem, 1996). Since the 1990s, many authors (Nilsson et al., 2005; Therivel, 1992; White and Noble 2013; Maričić and Josimović, 2005; and others) have written about the role and importance of SEA in creating policies in different spheres of social activities, as well as about its role in decision-making. The issue is therefore quite interesting, from both scientific and professional perspectives, and is of great importance in creating any environmental policy.

The Strategic Environmental Assessment Directive 2001/42/EC prescribes the obligation to undertake SEA for plans and programs in different fields. By implementing the SEA in spatial planning, it is possible to consider the consequences of the proposed planning solutions and changes in space, while at the same time taking into account the needs of the users of the space and appreciating the subject environment as well as proposing adequate measures for the protection and monitoring of potentially threatened environmental elements and at the same time including public participation in all stages of the SEA process.

This paper examines the possibility of using the SEA process as an instrument by which it is possible to make adequate decisions on the sustainable spatial development of the area of the Danube corridor through Serbia.

2. Initial Position

The section of the international waterway Danube E80 (Pan-European corridor) VII which passes through the Republic of Serbia (Figure 1) is included in the Spatial plan for areas of special purpose (SPASP) as space for specific purposes. Its main special purpose is as the Danube Pan-European water transport corridor VII (or the Rhine-Danube Trans European transport corridor) and as part of the water management infrastructure; in addition, it has other special purposes, namely: sites of natural value (of national and international importance) with 35 protected areas and about 20 areas planned for protection); sites of cultural value, including arheological sites from the Neolithic period (Vinča, Lepenski Vir and other), the Roman road at Đerdap (Iron Gate), Roman

towns and fortresses (Viminacium, Diana and others); medieval fortifications (Petrovaradin, Belgrade, Smederevo, Golubac, Kladovo and others), which are not only important to Serbia, but also to countries along the Danube and also to world heritage; the tourist value of the Danube (national and international importance) – Gornje Podunavlje, Srednje Podunavlje and Donje Podunavlje; zones of special purpose with existing and planned border crossings and other border belts towards the Republic of Croatia and the Republic of Romania.

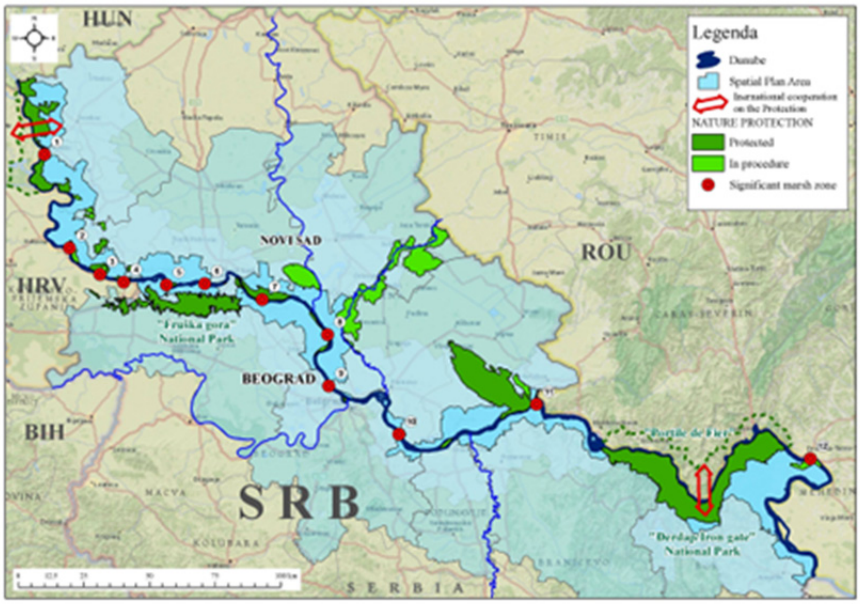

Figure 1. Protected marsh areas within the Danube river basin (Source: SPASP)

Taking into account all of the above and considering that the river Danube is an ecological corridor of international importance, which is an integral part of the Pan-European Ecological Network (PEEN), the provisions of EU Directive EU 2001/42/EC were directly applied to the SPASP and the obligation for developing an SEA was established. The concept of an ecological network applied to this space significantly contributes to the overall effort to protect, maintain and enhance the biodiversity of the area.

The role of SEA is to analyze the conditions under which it is possible for different activities in space, that is, for different planning concepts for development. The essence of the SEA is actually the protection of space, on one hand, and the development of space with all of its social and economic implications on the other (creating the preconditions for sustainable development of the area). Namely, although the area of the Danube river (the river corridor and its banks) has significant natural value, the quality of the environment in this area is, to a significant extent, under pressure from various anthropogenic influences that negatively affect its quality. All of this results in a negative impact on human health, biodiversity and the landscape.

The SEA process, which runs parallel to the planning process, should, apart from analyzing the “zero state” of the environment, also analyze the strategic directions for development defined in the SPASP (Table 1) in such a way that their implementation creates the preconditions for raising the quality of the environment, without burdening the spatial capacity. If the spatial capacity is over-burdened, there are no conditions for it to be renewed in real time, that is, we cannot talk about sustainable development. Conceptually, the SEA is based on the implementation of the priority-based strategic objectives of the SPASP until 2017.

Table 1. Priority strategic objectives of the SPASP included in the SEA process

Redevelopment of the Danube Waterway	
PS 1.1	Works on the redevelopment of the waterway with the most important buildings necessary for the regulation and supervision of the waterway
PS 1.2	Labelling and signaling of the Danube waterway and setting up other devices for safe navigation
PS 1.3	Increased freight transport

PS 1.4	Revitalization and construction of functional water transport elements and supporting facilities for users of the waterway
PS 1.5	Preparation of technical and planning documents for redeveloping the waterway and related content
Other water management infrastructure	
PS 2.1	Maintenance and renewal of water management systems
PS 2.2	Environmental protection in the corridor of the waterway, particularly ecologically sensitive habitats
PS 2.3	Protection of the river-bank area, water sources and the environment in the corridor of the waterway
PS 2.4	Preparation of technical and planning documentation for maintenance and renewal of water management systems
Economic and social development	
PS 3.1	The development of tourism
PS 3.2	Formation of the tourist, cultural and ecolgical Euroregion “Green Danube”
PS 3.3	Development of goods-transport and economic activity based on clean technologies

Source: SPASP, 2014.

The SEA is produced for the SPASP in order to direct the planning process towards the goals of sustainable development, and the results obtained are used for objective decision-making on sustainability.

3. Methodological Framework

The SEA is becoming a blooming interdisciplinary cross-sector field, in which integration and teamwork are emphasized. Generally speaking, the SEA techniques and methodologies derive from the traditional Environmental Impact Assessment (EIA) (Josimović et al 2014) and policy appraisal/plan evaluation studies, ensuring that methodologies do not become a barrier for institutional promotion of the SEA. A variety of possible techniques for conducting different steps of the SEA have been analyzed further and discussed in related literature (Partidario, 2002; Therivel, 2004).

In addition, Marsden (2002) pointed out that, in terms of methodologies, the SEA relies more on qualitative consideration and techniques than the traditional EIA, and thus, expert judgment plays a more crucial role.

The methodological framework for the SEA for the SPASP is based on a plan-based approach and the use of multi-criteria evaluation of the planned activities and strategic determinants in relation to the capacity of space as a basis for the valorization of space earmarked for sustainable development (Josimović, 2007) (Nenković-Riznić, et al., 2014)

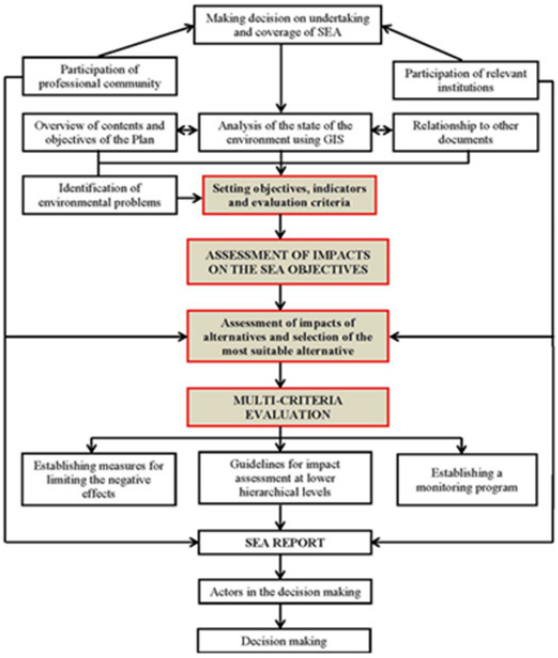

Figure 2. Procedure and methodological framework for the SEA (Source: the authors)

The methodological and procedural framework applied in the SEA process for the SPASP (Figure 2) can be divided into several main stages:

Making a decision to prepare the SEA – this is the initial phase of the SEA procedure. In this case the decision is made by directly applying the provisions of Directive 2001/42/EC considering that the space which is the subject of the SEA has great international ecological importance. Having in mind this specificity, it is justified that in this phase there is no special procedure for public participation.

Analysis on the state of the environment – This phase involved determining the "zero state" of the environment compared to what in later phases of the SEA process are evaluated as trends of possible change (positive and negative) in the space which may arise as a result/consequence of applying the strategic priority guidelines defined in the SPASP. In this phase the planning and other available documentation on the state of the environment in the area around the Danube corridor was used with the application of GIS tehnology (Higs, 2006; Josimović and Krunić, 2008).

Setting SEA Objectives, Indicators and Criteria –The SEA objectives and associated indicators are determined, and criteria for evaluation are defined on the basis of analytical work. In addition to the existing planning and strategic documents related to the area of the Danube corridor (The National Sustainable Development Strategy (2007), the Spatial Plan for the Republic of Serbia (2010), the National Program of Environmental Protection (2010) and the Regional Development Strategy of the Republic of Serbia (2005)), the following strategic European documents were consulted in the SEA process: Territorial Agenda of the European Union 2020 (2011), Gothenburg Strategy (2001), Europa 2020 Strategy (2014), European Union Strategy for the Danube Region (2010), Directive 2000/60/EC, Convention on Environmental Impact Assessment a transboundary context in – Espoo convention (1991), Convention on Cooperation for the Protection and Sustainable use of the Danube River - Danube River Protection Convention (1994), Convention regarding the regime of navigation on the Danube (1948), Roadmap to a Single European Transport Area - Towards a competitive and resource efficient transport system (2011). Setting the SEA objectives for the SPASP was also conditioned by the results and projections in the analytical section of the SEA by means of GIS tools (CORINE, 2006), which resulted in establishing 24 SEA objectives and 32 indicators against which the sustainability of solutions proposed within the SPASP were evaluated.

Table 2. The SEA objectives and indicators. Source: the authors

SEA area	SEA Objectives	Indicators
Air	- Reduction in the level of air pollution from water and road traffic - Reduction in the level of air pollution from furnaces by 2015 - Reduction in air pollution resulting from the transboundary impact of industrial zones	- Number of days with excessive emissions from vessels - Number of days exceeding ELV for soot, SO_2, NO_2, sedimentary materials - volume of traffic (vehicles/boats/hour) - type of fuel used by boats - % use of electricity, gas and RES
Water and land	- Improvement in the performance of the competent control services for waste water, - reduction in the area of contaminated soil - Development of sewage infrastructure - Improvement in the water quality by increasing control of the discharge of hazardous substances into the Danube - Revitalization of eroded areas	- quantity/losses in land/land contaminated, - quality (biological and chemical) of the Danube - % of treated sanitary water/number of WWTPs constructed - class quality assigned - quantity of material released into waterways - surface area endangered by erosive processes (ha)
Natural heritage	- Protection of the landscape - Protection of natural heritage and natural areas - Conserve biodiversity - avoid irreversible losses	- Proportion of recultivated areas in the total degraded area (%) - Size of protected natural areas - The number of endangered species of flora and fauna as a result of the implementation of planned activities
Cultural heritage	- Protection of cultural heritage, preservation of historical buildings and archaeological sites	- The number and importance of protected immovable cultural property - Type and scope of intervention in conservation and redevelopment - Type and scope of measures taken and work done regarding presentation and use
Waste	- Improvent in the utilization of waste, treatment and disposal	- The total annual amount of waste collected from the Danube corridor (T/year) - % of total waste utilized, recycled or treated
Social Development and Health	- Defining a water supply system that enables the availability of physically, chemically and biologically clean water - Regulating the evacuation of waste water - Establishing a 24-hour monitoring system At a location characterized as a hot spot - Creating conditions for rest and recreation	- % of population with adequate systems for collection and treatment of wastewater - % of population exposed to increased air pollution from fumes related to vessels and vehicles - The number measuring stations at locations qualified as hot spots - The number of recreational zones.
Economic and institutional development	- Stimulate economic development - Promote local employment - Reduce transboundary influences on the environment - Improve the service for environmental protection and monitoring and control	- The number of new jobs resulting from the planned economic development - The number of development programs for environmental protection - The number of IPPC facilities with transboundary influence - The number of measurement points in the monitoring systems - The share of funding for projects in the field of environmental protection from other sources

SEA area	SEA Objectives	Indicators
Natural resources	- Rational use of non-renewable and greater use of renewable energy resources - Increased energy efficiency - The introduction of cleaner technologies	- Final energy consumption per capita - Involvement of renewable energy in total energy consumption - Increase in energy efficiency (% reduction in energy consumption)

The objectives were defined (Table 2) in relation to environmental receptors including all aspects of sustainable development. For each SEA objective one or more relevant indicators were defined. The indicators were taken from the general set of UN Indicators of Sustainable Development, in line with the instruction issued by the Serbian Ministry of Science and Environmental Protection in April 2008. That set of indicators was based on the concept of "cause – consequence – response". The so-called cause indicators represented human activities, processes and relations influencing the environment; the consequence indicators showed the state of the environment, while the response indicators defined political and other actions aimed at changing the consequences to the environment. Based on the analysis of the possibility to consider primarily the spatial aspect, as well as the problematic aspect of potential impacts, four sets of criteria with a total of 13 individual criteria were defined. The criteria used in the multi-criteria evaluation of the planning solutions were related to: the magnitude (intensity) of the impact; the spatial dimension of the impact; the impact probability; and the frequency of the impact (Table 3). This evaluation system was applied to both the individual impact indicators and the related categories by means of the aggregate indicators and exclusively formed for this research.

Table 3. Criteria for the impact evaluation

Type of impact	Rank	Description
Intensity of impact	**Favourable (+2)**	Strong positive impact
	Positive (+1)	Positive impact
	Neutral (0)	No impact, no data or not applicable
	Negative (-1)	Negative impact
	Unfavorable (-2)	Strong negative impact (degradation of the environment)
Spatial dimension of the impact	**Transboundary (Tb)**	Potential transboundary impact
	Regional (R)	Potential impact on the region
	Local (L)	Potential impact on the municipality
Impact probability	Quite sure (Q)	Probability of the event 100%
	Likely (Lk)	Probability of the event over 50%
	Possible (Ps)	Probability of the event below 50%
Frequency of impact	Temporary (T)	Temporary – occasional
	Long-term (Lt)	Long-term – constant

The evaluation criteria for the intensity and spatial dimension of the impact of the planned solutions on the SEA objectives served as a basis for evaluating the importance of the identified impacts in achieving these objectives. The impacts of strategic significance for the SPASP were those with strong (positive or negative) effect at a transboundary or regional level (Josimović, 2010; Nenković-Riznić, et al., 2014).

Multi-criteria Evaluation of the SPASP – This is a key stage in the SEA process. It was carried out for the priority strategic planning solutions (Table 1) of the SPASP based on the SEA objectives and relevant indicators, and based on the evaluation criteria. A total of 12 priority strategic solutions was singled out and their impacts assessed in relation to objectives (24), indicators (32) and criteria (13). Only the first two sets of criteria were presented in matrices (Tables 4 and 5) as they were sufficient for the identification of strategically significant impacts (Table 6).

Table 4. Assessment of the significance of the impact of planning solutions

Planning solutions	SEA objectives						
	1			...			24
PS 1.1	-3	-2	-1	0	+1	+2	+3
⋮	⋮			⋮			⋮
PS 3.3	-3	-2	-1	0	+1	+2	+3

Table 5. Assessment of the spatial dimension of the impact of planning solutions

Planning solutions	SEA objectives		
	1	...	37
PS 1.1	Tb	R	L
⋮	⋮	⋮	⋮
PS 3.3	Tb	R	L

Table 6. Identification and evaluation of strategically significant environmental impacts of the planning solutions

Planning solution	Impact		Overview of expected impacts
	SEA objective	Rank	
PS 1.1	...	...	...
⋮	⋮	⋮	⋮
Environmental protection in the corridor of the waterway, especially the environmentally sensitive habitats (PS 2.2)	6, 7, 8, 9, 10, 12, 14, 15, 20, 21	R/+2/Lk/Lt	The planning solution is likely to have a strong long-term positive impact on the regional character along the whole Danube corridor in relation to: the preservation and enhancement of species, genetic and ecosystem diversity and conservation, the presentation and sustainable use of natural resources, as well as improving public awareness of environmental issues and establishing a system for monitoring environmental parameters. In addition to these effects the planning solution can have a positive long-term impact on the local character in relation to the conservation and improvement of the main elements of the landscape as well as reducing the effects of water erosion
⋮	⋮	⋮	⋮
PS 3.3	...	...	...

Examples of the strategically significant environmental impacts identified are shown in tabular form (Table 6) – the already mentioned strategically significant planning solutions are shown in the first column, the related SEA objectives in the second column, the environmental impact ranks based on the criteria from Table 3 are shown in the third column, while an overview of the expected impacts is presented in the last column.

Protection measures, monitoring, guidelines for the EIA – The MCE method was the basis for establishing appropriate measures for limiting the negative impacts, as well as for establishing the guidelines for the EIA (Environmental Impact Assessment) at lower hierarchical levels and in monitoring programs (Stojanović, 2006).

SEA Report and decision-making – All the results of the SEA were integrated into the SEA report (including: an analysis of the state of the environment, the results of the MCE, the defined measures of protection and monitoring, as well as public opinion obtained during a 30-day long procedure involving public participation. On the basis of this, appropriate decisions are made on how to actualize the SPASP, that is, on how to achieve the

individual strategic priorities from the SPASP. Such decisions should secure the sustainable use of space when implementing the SPASP.

4. Results and Discussion

The SPASP is a strategic development document prepared for the area of the Danube corridor through Serbia. Although because of its international ecological importance the concept of the spatial development of the area covered by the SPASP has as its priorities the protection of water and the environment and certain planned activities, as well as their cumulative impact with existing activities, it could result in certain negative trends in the environment, or create conflicts in space. The role of the SEA was actually to recognise conflicts in space and influence their relativisation that is predominantly based on:

- Analyses of the state of the environment in the area covered by the SPASP,
- Multi-criteria evaluation of priority strategic objectives,
- defining the necessary actions to minimize spatial conflicts, defining the monitoring system and ensuring preconditions for sustainable spatial development of the Danube corridor through Serbia.

In relation to this, the following key results were obtained in the SEA process:

Analysis of the state of the environment – It has been found that Serbia is one of the few Danubian countries on whose territory the quality of the water is improving. Measurements from the Meteorological and Hydrological Institute (MHI) (Džunić, Živanović-Miljković, 2014) show that the quality of the water as it leaves Serbia according to objective criteria is significantly better than when it enters. However, this fact can be misleading. Namely, the quality of water in the Danube in the section through Serbia is exposed to great pressures which have been identified in the Danube River Basin District Management Plan (Figures 3 and 4).

Figure 3. Chemical Status of Surface Water Bodies Source: Danube River Basin District Management Plan (2009)

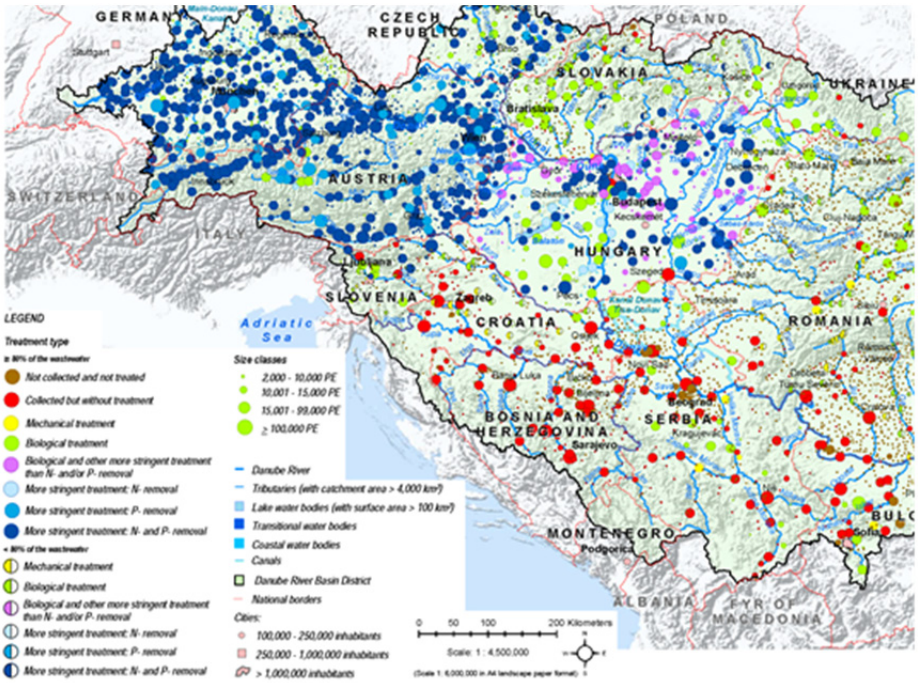

Figure 4. Urban Wastewater Discharges – Reference Situation Source: Danube River Basin District Management Plan (2009)

As seen in Figures 3 and 4, the water quality of the River Danube in the section that flows through Serbia is exposed to significant risks that are a consequence above all of the discharge of municipal, industrial and agricultural waste and waste water from vessels without any kind of pretreatment into the Danube and its tributaries. In addition, a large number of municipal landfills that do not follow the correct sanitary regulations are located along the watercourse, which represents an additional risk of contamination. One example is the central landfill for the city of Belgrade, which serves more than 2 million people, and which does not meet the minimum sanitary requirements and is located a few hundred meters from the Danube. This gives rise to the question of how it is possible for the quality of the water in the Danube to be better as it leaves Serbia compared to when it enters. The analysis conducted in the SEA concluded that for all of the given reasons the effluent pressure of pollutants on the Danube from the territory of Serbia is actually higher than in other Danube countries. However, due to the drastic increase in the flow of the Danube through Serbia (Figure 5) which occurs as a result of the confluence of large tributaries (Tisa, Tamiš, Sava, Morava, Timok) there is an increased ability for self-purification, that is, there is a direct reduction in the concentration of pollutants. Contributing to this are two reservoirs on the Danube formed as a result of the hydropower plant on the border with Romania, which have a major effect on water purification, acting like large sedimentation tanks - bioreactors. A particularly interesting fact is that the Djerdap hydropower plant has to stop work several times a day so that the floating waste that accumulates there can be collected and taken to the landfill.

Apart from the ecological aspects, the socio-economic situation was analyzed, which can be described as unfavorable, manifested in terms of economic stagnation and declining living standards and quality of life, especially in rural areas. This results in negative demographic tendencies with all of the resulting negative consequences on the spatial development, particularly in the domain of environmental pollution.

In addition to the above analysis, a degree of conflict is established through the SEA between the development of the Danube corridor through Serbia and the quality of life for the residents. Apart from the negative effects on the health of the population, which can be reduced or almost entirely eradicated by means of implementing adequate measures of protection, the planned spatial development of this area can have a number of positive impacts on economic and social development. The following can be given as examples: the creation of local employment; development of tourism; and an increase in the quality of life for local residents by providing them with access to safe drinking water and adequate wastewater treatment. Certainly, the development of a health care system and a network of health care institutions is also significant, particularly in rural areas, something which is envisaged in the SPASP. These activities achieve a significant level of social stability in the area, and they also help to prevent the given negative demographic trends that are currently evident in urban and

particularly in rural areas, especially those in the Danube corridor through Serbia. This fact is certainly an imperative and one of the basic principles of sustainable development.

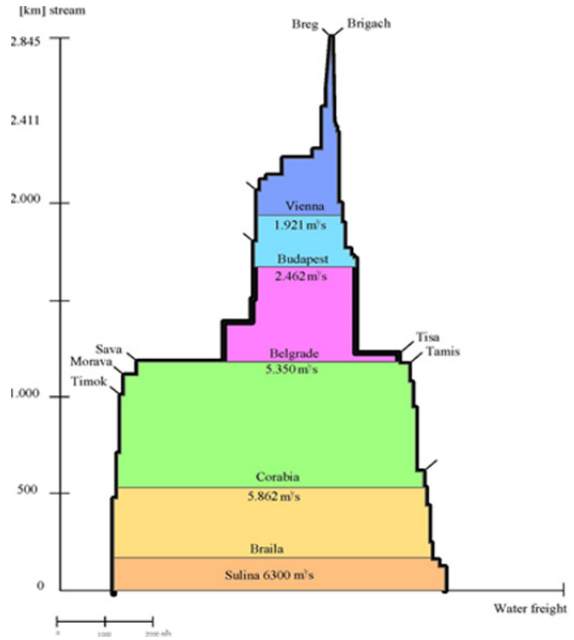

Figure 5. Average water discharge along the Danube Source: Danube River Basin District Management Plan (2009), adapted by authors

Multicriteria evaluation of strategic priority objectives – Evaluation of the planning solutions was carried out in relation to the identified "zero state" of the environment, SEA objectives (Table 2) and criteria (Table 3). The strategic priority objectives were included in the evaluation (Table 1). Using the MCE methods presented in chapter 3 the positive and negative trends in space expected as a result of implementing the SPASP were identified.

Regarding the negative impacts, no strategically significant negative impacts of the SPASP on elements of sustainable development were defined. However, a number of negative impacts of the SPASP were identified which could be a result of cumulative impact due to the interaction between the defined strategic priorities of the SPASP, or as a consequence of the interaction between the defined strategic priorities and the existing activities in the planning area. In this context in the SEA process, it was assessed that the cumulative pressures were expressed through the excessive pollution of water, air and soil products resulting from the exploitation of mineral resources in or outside of the Danube corridor, disposal of waste, further exploitation of sand and gravel and by changing the flow of the Danube. Greater anthropogenic pressure can be expected in the planned tourism development zones and cities on the river banks. The planning solution relating to the development of freight transport and construction of facilities for the regulation of the river may lead to further deterioration of the current situation regarding natural heritage, the morphology of the riverbed and the disappearance of wetland habitats (including many wetlands protected by the Ramsar Convention), the cumulative pollution of air, water and soil, especially in those locations that were previously contaminated, or are considered sensitive areas for the protection of nature. On the other hand, predominantly positive impacts of the SPASP are expected on elements of sustainable development, made possible by the integration of the SEA objectives in the planning process (integrated planning). In this way, in the planning process, creating spatial development according to sectors of the plan was directed towards environmental protection and sustainable development. As a result of this symbiosis these two planning documents can expect the following positive effects:

- wider effect on maintenance and renewal of the water management system and conservation of natural resources, rehabilitation of areas degraded as a result of the redevelopment and maintenance of the waterway;
- conservation and presentation of natural heritage, species, genetic and ecosystem diversity and characteristics of the landscape;
- protection and improvement of the condition and presentation of immovable cultural property in the planning area as part of integrated tourism packages;

- use of renewable energy sources as a substitute for traditional energy sources, which will reduce the pollution caused by burning fossil fuels;
- resolving key problems in the communal infrastructure, above all by building wastewater treatment plants, which will significantly reduce pressures on the water quality of the Danube and its tributaries;
- tourism practices which adequately preserve and present the natural heritage and immovable cultural property;
- creation of technical and organizational conditions for the implementation of programs for preserving cultural heritage and protecting the environment in the planning area.

It is possible to expect a cumulative positive impact on the SEA objectives by carrying out planning solutions concerning:

- intensifying transboundary and international cooperation in the field of monitoring the quality of the water, air, land and environment in general on the Danube waterway,
- protecting the water and protection from the water,
- developing a water management infrastructure,
- completing existing tourism packages,
- improving transport connectivity,
- improving the quality of life for residents and others.

Defining the necessary action to minimize conflicts in space and securing the preconditions for the sustainable spatial development of the Danube corridor through Serbia – Although the integrated planning process carried out in the case of the SPASP and SEA to a considerable degree creates the preconditions for the sustainable development of the Danube corridor through Serbia, the SEA defines guidelines which should be followed in order in order for these preconditions to be established in the implementation of the planning document. They are above all: respect for the water regime in the floodplains of the protected area; conservation of the natural structure of the riverbanks for sections of the watercourse through protected areas securing a constant level of water there; the conservation of fish hatcheries and conditions for lateral and longitudinal migrations of fish and other organisms; conservation and renewal or activation of the network of branches, oxbow lakes and other water surfaces as vital compensatory measures for disrupting the integrity of of aquatic habitats with the development of river transport; preservation of natural resources, rehabilitation of degraded areas resulting from the redevelopment of the waterway; limiting construction works on the waterway to a level that will not result in a change in the parameters of environmental quality and the characteristics of the natural and cultural heritage; defining the responsibility for any decrease in the water quality (discharge of wastewater and hazardous substances from vessels), regardless of the status of the perpetrator; defining the responsibilities for activities that lead to air pollution and noise in ports and harbors; directing part of the profit from the redevelopment of the waterway into funding programs and projects for the protection and presentation of the natural and cultural heritage of the area; and others.

5. Conclusions

Using SEA in the planning process certainly contributes to the sustainable spatial development of the Danube corridor through Serbia. This can be concluded from the analysis of the methodological approach presented. Namely, by analyzing the results of the SEA for the SPASP it is evident that directing the planning process with the support of the SEA process creates the preconditions for the symbiosis of existing and planned activities in the planning area.

Analysis of the space is certainly a good starting point for the planning of sustainable development in a manner that avoids spatial conflict and degradation of the area. From the analysis of space, key spatial problems were identified, and on the basis of these, the specific objectives of the SEA were defined based on the fundamental principles of sustainable development.

By using multi-criteria evaluation and the semi-quantitative method according to four sets of criteria (Table 3), as well as by presenting the results using matrices (Tables 4, 5 and 6), the results obtained were presented in a clear and unambiguous way for each planning solution considered to be strategically significant, also including different aspects of impacts (significance, spatial extent, probability, frequency of impact). The application of this method showed that planning solutions are not always the most favorable from the standpoint of ecological interest, due to the objective consideration that spatial planning must also equally include a development interest, (particularly from the standpoint of: intensification of vessels on the waterway corridor VII, ensuring spatial conditions for the construction, reconstruction, equipping and operation of the waterway with supporting facilities for the development of tourism, infrastructure of the corridor and others). This was the basis for establishing a series of planning and regulatory guidelines to minimize the negative effects of the plan, that is, to ensure sustainable spatial development of the planning area. This methodological framework served to direct the planning process towards the sustainable spatial development of the Danube corridor through Serbia, that is, to change the negative trends found in all aspects of the redevelopment of this area, especially with regard to the environment, which in this case is particularly significant. This methodological framework can have wide

application in the production of various planning documents and the creation of sectoral policies, bearing in mind that it requires the identification of specific targets, indicators and criteria for evaluation.

A disadvantage of the SPASP which directly influenced the quality of the presented SEA is that it lacked different alternatives that could be evaluated through the SEA process. Although this is not the fault of the SEA process itself or the methodological framework presented, it certainly restricted the ability of the SEA to have a more serious influence on policy making in the area of spatial development according to sectors of the SPASP, thus reducing the contribution of the SEA in this case.

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