



METHODOLOGICAL FRAMEWORK FOR THE STRATEGIC ENVIRONMENTAL IMPACT ASSESSMENT (SEIA) OF SPATIAL PLANS IN AUTONOMOUS PROVINCE OF VOJVODINA

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Abstract:

This paper provides a methodological framework for conducting Strategic Environmental Assessment (SEA) of spatial plans in Autonomous Province of Vojvodina. The main objective of Strategic Environmental Impact Assessment is to ensure environmental protection and the establishment of sustainable development by integrating the basic principles of environmental protection in the process of preparation, drafting and adoption of a Plan.

Keywords:

Strategic Impact Assessment, environmental protection

1. INTRODUCTION

Planned solutions defined in the planning documentation may have some impact on certain segments of the environment, positive and negative. In planning and organizing the space, it is necessary to pay special attention to the aspect of environmental protection as an integral part of the process taking place or will take place on the areas embraced in the plan.

Such an approach is the unique optimal way for the realization of active environmental protection, monitoring and management of certain areas in accordance with the basic principles of sustainable development [6].

The realization of this approach in accordance with the tendency of harmonization legislation in the territory of the Republic of Serbia and the Autonomous Province of Vojvodina with the legislation of the European Union, Strategic Environmental Impact Assessment (SEIA) of planning documents have the important role, as a separate instrument for implementation of environmental protection in all segments of development. This instrument is an integral part of sustainable development strategy, by which a comprehensive estimate the possible impacts of the prescribed planning solutions.

In the Republic of Serbia, a Strategic Environmental Impact Assessment is an important document, which is an integral part of planning documents, that gain legal dimension by adopting a set of the Law on Protection of the Environment in December 2004. Strategic Environmental Impact Assessment is not only important measure, but an instrument that makes the plans, programmes and policies related to the area of spatial and urban planning, agriculture, forestry, water, etc.

However, after five years of application of the Law on Strategic Environmental Impact Assessment ("Official Gazette of the Republic of Serbia", no. 135/04), experts who work on these elaborats meet with a large number of problems, especially due to the lack of established methodology and insufficient definition of current state environmental indicators and indicators of effects on the territory of the Republic of Serbia and the Province of

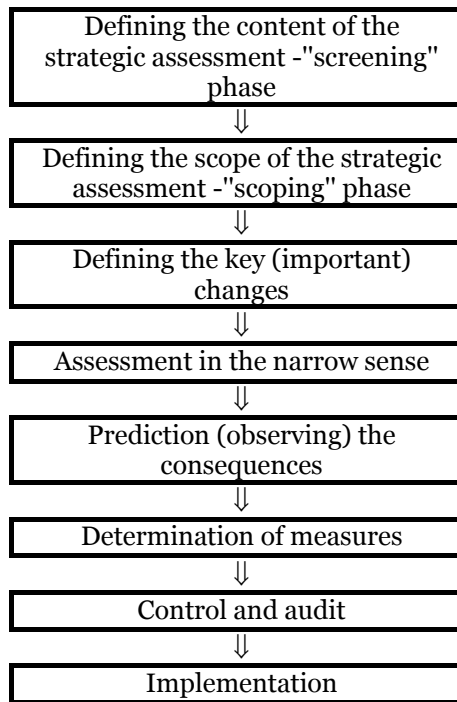


Figure 1. General methodological process of SEIA

Vojvodina, so that today there is a great diversity and unevenness. Major problem is the fact that current state environmental monitoring in our country was established only in the last few years, and only in few locations, insufficient in number, so it's often difficult to adequately define and comment the indicators of current state of the environment because of the lack of data.

2. METHODOLOGY OF STRATEGIC ENVIRONMENTAL IMPACT ASSESMENT

Experiences of the countries, members of the European Union, point to the importance of the planning process and the process of Strategic Impact Assessment of planning documentation. Strategic Impact Assessment is partially integrated into the plans and programmes if they are made in separate stages. The general methodological procedure that is used for preparing the strategic assessment consists of several general phases, as it's showed in Figure 1.

To be completely integrated, process of SEIA should be intertwined with the procedure of plans or programmes.

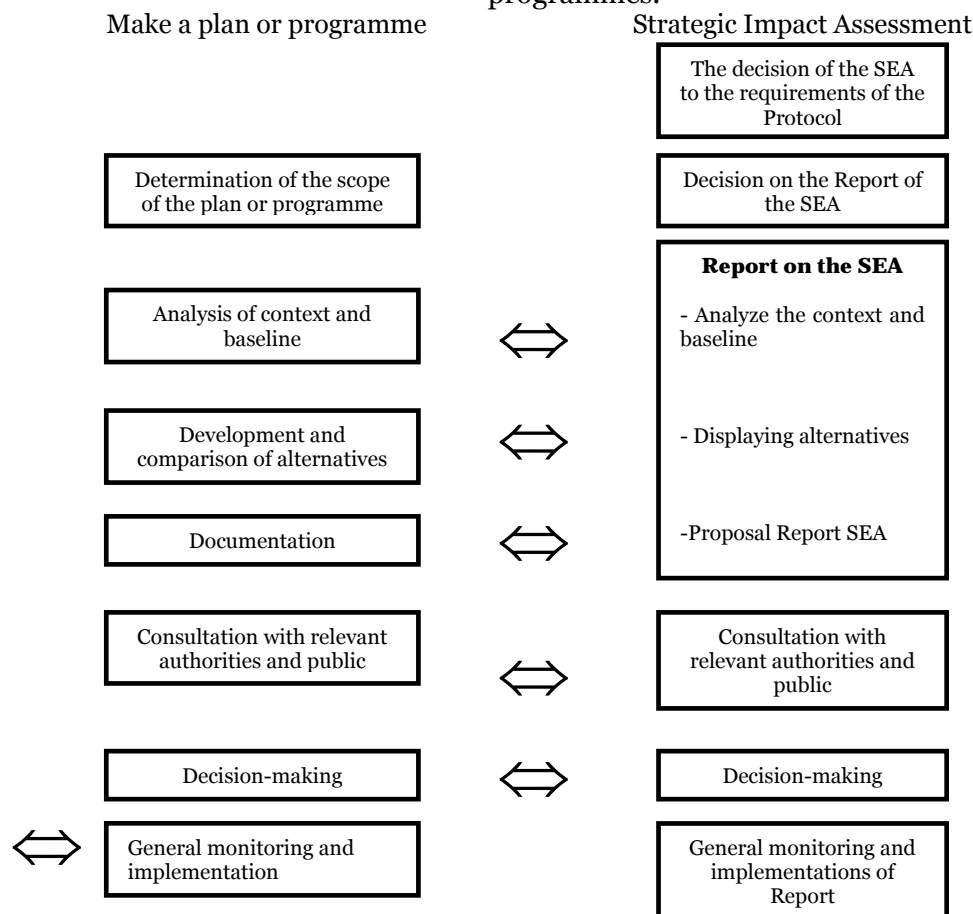


Figure 2. Links between the creating stages of plans and strategic impact assessment [5]

In terms of methodology of the Strategic Assessment Report of plans, it is necessary to note that there are several different methodological approaches regarding the way of constituting.

The main task of the SEIA in Serbia, as a developing country, is to facilitate timely and systematic consideration of the possible environmental impact at the level of strategic decision-making in plans and programmes, considering the principles of sustainable development. Integrating the process of SIA in the process of preparation and decision making, in spatial plans, allows the efficient evaluation of the instrumentalization of the strategic environmental impact in spatial and urban planning.

Content of Strategic Assessment Report, and also the basic methodological approach are defined by the Law on Strategic Environmental Impact Assessment ("Official Gazette RS", no. 135/04) and the Law on the Environmental Protection ("Official Gazette RS", no. 135/04). Strategic evaluation became important by adoption of EU Directive 2001/42/EC on the environmental assessment effects of plans and programmes, that began to implement in 2004. in Serbia, by adoption of the Law on Strategic Environmental Impact Assessment, and has started the implementation in 2005.

The Strategic Assessment Report is the document that describes, evaluates and assesses the potential significant impact on the environment, which could result by implementation of plans and programmes. It shall also define measures for reduction of adverse effects on the environment.

Report's content is in accordance with the provisions of Article 12 of Law on Strategic Environmental Impact Assessment, and shall include the following in particular:

1. The bases of the strategic assessment;
2. The general and specific objectives of the strategic assessment and selection of indicators;
3. The evaluation of likely impact with the description of measures planned for reduction of adverse effects on the environment;
4. The guidelines for elaboration of lower level strategic assessments and Assessments of environmental impact of projects;
5. The programme of monitoring of environmental status during the execution of plans and programmes (monitoring); and programmes that have already been realized are considered qualified for elaboration of the strategic assessment report;
6. The programme of monitoring of environmental status during the execution of plans and programmes (monitoring);
7. The outline of methodology applied and difficulties encountered during the strategic assessment elaboration;
8. The outline of decision making methods, description of reasons vital for selection of the given plan and programme from the aspect of alternative solutions considered and the outline of methods in which the environmental issues have been included in plans and programmes;
9. The conclusions reached in the process of strategic assessment report elaboration presented in the way understandable for public;
10. Other data of relevance for the strategic assessment [4].

3. GENERAL METHODOLOGICAL FRAMEWORK FOR STRATEGIC ENVIRONMENTAL IMPACT ASSESSMENT

Analysis of methodological framework is useful to make a comparative analysis with the methodology used for the purpose of the strategic impact report and methodological bases, which are proclaimed in the general legal framework that regulates the issues, analyzed in the Law on Strategic Environmental Impact Assessment. The main goal is consisted in efforts for adaptation the general methodology of Strategic Environmental Impact Assessment to the specific of each analyzed plan.

Strategic assessment of impact of certain plans and programmes is a new discipline and it is the result of evaluation of the environmental impact. Environmental Impact Assessment of Projects and facilities on the environment has shown insufficiency in the system of environmental protection, so Strategic Environmental Impact Assessment was developed to examined cumulative impacts on the environment.

Strategic Environmental Impact Assessment integrate ecological, socio-economic and cumulative impacts, so that it:

1. Includes maintenance on the source of environmental problems in planning stage and reduces the consequences of rehabilitation;
2. Allows to determine the need and justification from the environmental protection point of view;
3. Processing wider importance issues, and
4. Determines the context and set policies for a hierarchical framework of future Assessment of Environmental Impact of plans and projects.

The strategic assessment procedure shall be composed of the following stages:

1. The Preparation stage that shall include:
 - a) The decision on the strategic assessment elaboration;
 - b) The selection of the strategic assessment developer;
 - c) The participation of authorities and organizations concerned;
2. The strategic assessment report;
3. The decision making procedure that shall include:
 - a) The participation of authorities and organizations concerned;
 - b) The participation of the public concerned;
 - c) The report on the results of participation of authorities and organizations;
 - d) Public concerned;
 - e) The evaluation of the strategic assessment report;
 - f) The approval of the strategic assessment report. [4]

4. METHODOLOGICAL FRAMEWORK FOR THE STRATEGIC ASSESSMENT OF SPATIAL PLANS IN AUTONOMOUS PROVINCE OF VOJVODINA

Analyzing the process of Strategic assessment Report for spatial plans consists of four phases:

1. Basic, analysis and evaluation of the present situation (Land use defined in Spatial Plan and main environmental issues);
2. Possible environmental impact assessment;
3. Environmental protection measures;
4. Environmental monitoring programme.

Without detailed consideration of any single phase, it is necessary to emphasize that each phase has its own peculiarities and should not be neglected in the integrated planning of the environment.

The way of evaluation of the possible impacts of planning decisions on the environment in the Republic of Serbia is not yet sufficiently developed and methodologically confirmed. According to the generally adopted model, the significance of the impact can be compared to assess the size, i.e. intensity of the impact and spatial scale in which the impact can be made. The following table shows that planning decisions can, according to size of their impacts, be divided into one with the: higher impact, smaller impact and non important impacts. Also planning decisions can be divided to one with: positive impacts, good impacts and very good impacts. According to the intensity, planning decisions can be presented as one with: a strong

Table 1. Size evaluation of planning decisions impact on the environment

The size of the impact	Label	Description
Critical	- 3	Strong negative impact
Larger	- 2	Larger negative impact
Lower	- 1	Minor negative impact
No impact	0	No data
Positive	+ 1	Smaller positive impact
Favorable	+ 2	Larger positive impact
Very favorable	+ 3	Strong positive impact

negative impact, a negative impact, less negative impact, less positive impact, a positive impact and a strong positive impact, and there are also some planning decisions with a lack of data in some cases, so it cannot be said how big their impact can be. [2]

On the other hand, according to the size of the impact, spatial planning solutions can be divided to the one with the: global impact, national impact and regional impact, and also to impacts that have municipal and local character (Table 2).

Table 2. Spatial scale evaluation of planning decisions impact on the environment

The importance of the impact	Label	Description
Global	G	Possible global impact
National	N	Possible impact on the national level
Regional	R	Possible impact in the region
Municipality	M	Possible impact in the municipality
Local	L	Possible impact in a zone or part of the municipality

Table 3. Probability scale for the assessment of impact

Probability	Label	Description
100%	W	Predictable impact
more than 50%	V	Probable impact
less than 50%	M	Possible impact
less than 1%	N	No probable impact

It is also possible to state the probability that some estimated impact can take place in the present, and sometimes it is an important criterion for decision-making procedure in the phases of plan creating.

Probability of impact in this case can be determined by the following scale (Table 3).

As additional criteria, by which evaluation is done in Strategic Impact Assessment, some estimation is made using the duration of impact and its consequences. In this case, a temporary-periodic (P) and long (D) effects are defined. That is how are defined the important impacts for the Plan, as well as for Impact Assessment.

It is important to consider the positive impact on the environment because the emphasis is always only on the negative impacts on the environment [3]

As already noted, there is no unique methodology for Impact Assessment, in the world and also in our country, and the decision on the usage of certain methodology framework and techniques are left to experts.

In the third phase, the appropriate measures of environmental protection are prescribed in order to decrease the negative impact and improve the environment. In this phase the guidelines for plans on different hierarchy levels are defined, as well as the guidelines for Strategic Environmental Impact Assessment and Assessment of Environmental Impact of projects.

Finally, there is the phase in which the monitoring programme is defined, which includes proposed state indicators for environmental monitoring. Also, it is very important to monitor the implementation and effectiveness of the prescribed measures of protection defined in plan, and whether defined safeguards provide relevant results.

The applied technique is based on the continuous process of harmonization of the planning process with the identification of problems, the solutions for the prevention, and proposal of measures for environmental protection in all phases of design and implementation of spatial plans.

5. ENVIRONMENTAL INDICATORS

Environmental indicators are very suitable for measuring and evaluating of planning decisions, from the possible negative impact on the environment point of view, and for the determination of negative impact that is necessary to reduce or eliminate. Environmental indicators are one of the instruments for the systematic identification, assessment and monitoring, processes and environmental conditions, and consideration of the consequences. In the process of defining of environmental indicators, Serbian experts evaluated environmental indicators of sustainable development defined by European Union [6].

6. CONCLUSIONS

Strategic Environmental Impact Assessment of plans and programmes is a complex process that considers not only the preparation of the Strategic Assessment Report, but also includes the implementation of several stages that must be integrated in the appropriate procedures of creating, decision-making and adoption of plans and programmes.

The unique methodological approach for Strategic Environmental Impact Assessment is still not defined. Content of the strategic assessment of impact of certain plans and programmes and Strategic Assessment Report is defined by law, but it is not possible to identify the content and unique methodology, because the elements that define the content of

the document should contain the way in which the methodology leads to specific goals and results [6].

Table 4. Specific objectives and environmental indicators in SEA [1]

No.	SPECIFIC OBJECTIVES SEA	INDICATORS
1.	Reduction of emissions harmful substances in the air	Emissions of particles of dust, SO ₂ , NO _x
2.	Reduce exposure of inhabitants to high noise levels	Number of buildings in the zone of increased noise
3	The development of organized water supply	Increase the capacity for water supply
4	Preservation of the quality of surface and underground water	Biological oxygen for five days BPK ₅
5	Reduce the risk of flooding	% reduction of vulnerable land area jeopardized by floods
6	Conserving arable agricultural land	Conversion of soil arable surface (%)
7	Preservation of area under the meadows and pastures	Conversion of area under the meadows and pastures (%)
8	Improvement of state forests and increase the areas under forest	Conversion of forest land area
9	Detention of erosion processes	Reduction of erosion soil (%)
10	The introduction of the collection, treatment and storage of municipal waste	% of households involved in the system % of waste that is stored
11	Conserving biodiversity - to avoid losses	% permanently lost species in relation to the region
12	Preserve and avoid damage of protected natural resources	The number of the important protected area and natural resources that are damaged
13	Reclamation of degraded areas	% recultivation area
14	Preserve and protect the cultural important areas	The number and importance of vulnerable buildings and cultural heritage
15	Raising the quality of the areas	Provide infrastructure at the area (public transport and infrastructure, public facilities, standards, etc.)
16	Preservation of population- stop emigration	% reduction of population
17	The growth of employment-creating the conditions for the return of working-age population	% of employees and unemployed
18	Promote and develop the infrastructure	The number and the quality of new infrastructure elements
19	Improve public information on environmental information issues	Amount of information about the environment

Due to the complexity and the lack of a unique methodology for the Strategic Environmental Impact Assessment, particularly the assessment of possible impact on the environment in the Strategic Assessment Report, in the Republic of Serbia is still present diversity in the manner and methodology.

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