

IMPLEMENTATION OF STRATEGIC ENVIRONMENTAL ASSESSMENT IN SERBIA – CASE OF SPATIAL PLAN OF KOLUBARA LIGNITE BASIN

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Although considered as an important tool for environmental evaluation of plans and programmes, inclusion of strategic environmental assessment (SEA) in Serbian legislation was inevitable as a part of the accession process to the European Union. The first part of this paper will focus on presentation of the SEA system in Serbia and its implication as the result of current geopolitical and environmental trends.

Taking into consideration the economic importance of the mining regions, but also the damage to the surrounding environment, in the second part of this paper the authors will try to review the significance of SEA implementation in spatial planning of Kolubara lignite basin.

Keywords: *Strategic environmental assessment (SEA), spatial planning, mining region*

INTRODUCTION

Strategic Environmental Assessment (SEA) represents a significant tool which ensures that environmental considerations are taken into account in the development of plans, programmes and policies (PPP). On the other side, inclusion of mandatory SEA in Serbian national legislation is at the same time important prerequisite for harmonisation with the European Union (EU) legislation (*Acquis communautaire*), which is a necessary precondition for all countries wishing to join the EU.

The conditions for better integration of environmental protection in the process of urban and spatial planning in Serbia have been improving since the beginning of '90. The main trigger force was the recent legislation in the field of environmental protection, urban and spatial planning and construction. The current SEA system in Serbia is based on a newly adopted Law on SEA, and its main characteristics, advantages and lacks will be briefly described. Special emphasis will be on the strategic assessments of spatial plans for special purpose areas of lignite basins. Experience

of its implementation is still pretty limited, due to the short period of implementation.

From the economic point of view, lignite basins in Serbia are extremely important, but at the same time they generate pollution and damage the natural environment in all aspects. This paper will try to give an appropriate answer to the main question: will it be possible to improve the environment and provide better quality of life for people living in the mining lignite regions with the new regulation on SEA?

There is a lot of definitions of SEA, and the one given by Sadler and Verheem (1996) and often quoted, defines SEA as "a systematic process for evaluating the environmental consequences of proposed policy, plan or programme initiatives in order to ensure they are fully included and appropriately addressed at the earliest appropriate stage of decision-making on par with economic and social considerations".

In more or less the similar forms and scopes, SEA has already been applied in different countries for some time. Its foundations were laid in the USA in 1969, with the Environmental

Impact Statement developed under the NEPA – National Environment Policy Act¹ (Fischer, 2002). Following previous experience with EIA, some SEA-type approaches reflect an extension of EIA trends, and include regional assessments and reviews on the policy level as part of environmental reviews (Dallal-Clayton & Sadler, 1999).

Many European countries had different approaches to assess environmental effects of proposed plans and programmes. Since the EU Directive 2001/42/EC on the Assessment of Certain Plans and Programmes on the Environment (SEA Directive)² became effective from July 2004, the member countries had to modify their legislation in accordance with the SEA Directive.

¹ National Environment Policy Act, (1969)
<http://ceq.eh.doe.gov/Nepa/regs/nepa/nepaeqia.htm>

² <http://ec.europa.eu/environment/eia/sea-legalcon text.htm#legal>

DEVELOPMENT OF SEA SYSTEM IN SERBIA

Since June 2006 Serbia is an independent country (sovereign successor state to the Union of Serbia and Montenegro). The state union of Serbia and Montenegro didn't have legislation and institutions dealing with questions of environmental protection at the state-union level, but each of the states developed its own legislative and institutional support. Therefore, the recent changes¹ have had no actual effect on SEA system in Serbia.

The development of legislation in the area of environmental protection, urban and spatial planning and construction in the last 15 years in Serbia has gradually made conditions for better integration of environmental aspects in urban and spatial planning.

Environmental issues in urban and spatial plans were considered under the provision of the Law on environmental protection² (1991) and Law on planning and arrangement of settlements³ (1995) bases, where the second one required preparation of EIA for some land-use plans. The new Law on planning and construction⁴ (2003) considers environmental protection as one of the principles for spatial arrangement, but it failed to recognise the importance of environmental assessment of land-use plans and stipulated the feasibility study on the project level only.

Environmental impact assessment (EIA), established by Regulation on EIA of facilities and activities in 1992, represented significant tool which connected environmental protection with building and planning. But, although it had political and legislative support on national and local level (regional level is still undeveloped in terms of laws and governing), EIA was often

experienced as an administrative precondition for obtaining a building permit, instead of being an important element of planning and building (Stojanović, Spasić, 2006), which could harmonize public and private interests in an optimal way.

In December 2004, the set of environmental laws was adopted with attempt to synchronise with *Acquis communautaire*, and it included: Law on environmental protection, Law on IPPC (integrated pollution prevention and control), Law on EIA and Law on SEA.

The Law on SEA is developed in compliance with EU Directive 2001/42/EC. Unlike SEA Directive, which became effective three years after adoption and is applied to plans and programmes whose preparation started after that date, this law in Serbia entered into force right after adoption and stipulated that SEA must be applied to plans that are still in the designing process. The lack of adaptation period, associated with the fact that making of manuals or expert guidelines is not explicitly specified by Law, has big chances to lead to a lot of misunderstandings and problems in implementation of this Law. Obligation to make SEA for plans which are still in the designing process can arise two types of problems in practice (Stojanović, Spasić, 2006): how to fit SEA in a dynamic of planning design process already foreseen by the adopted programme, and what to do with the proposed plan that passed all phases, including public opinion, but it is still not formally adopted.

According to the Law, SEA shall be carried out for all plans and programmes (PPs) prepared in the fields of spatial and town planning or land-use planning, agriculture, forestry, fishery, hunting, energy, industry, transport, waste management, water management, telecommunications, tourism, preservation of natural habitats and wildlife, and shall set the framework for future development projects defined by the EIA related legislations; plans and programs which determine the use of smaller areas at the local level, or in cases of minor modifications to PPs that do not require the formal adoption procedure, as well as other PPs, if the competent planning authority determines that there is the possibility of significant impact on the environment.

In the screening phase, there is a potential risk of too bureaucratic interpretation (Stojanović, 2005) which can lead to preparing an SEA for every plan. Practice showed that authorities sometimes decide that SEA should be carried out for some small scale plans, but not for a larger-scale plans, where the possibility for inducing the negative impacts on environment is much bigger (for example the changes of the Master plan of Belgrade 2021).

On the other side, when having several plans for the same territory (e.g. regional plan for the whole municipality, master plan and several regulation plans in the same municipality), there is a possibility for duplicating the work or having conflicts between assessments on different hierarchical scale.

The biggest challenges in the scoping phase are the analyses of alternative solutions presented in the plan (with decision making process and explanation of choices) and identification of needed impacts to be assessed. Defining proper indicators and criteria for evaluation, is also a challenge hard to fulfil with no guidelines and insufficient practice.

The short practice in applying Law on SEA showed that some critical issues should be considered with special attention:

- Due to the lack of understanding, many experts still prepare SEAs like extended EIAs,
- SEA reports are sometimes too detailed, even a few times longer than the plan itself,
- SEA reports are often done in the final phase of a plan, thus unabling them to have more influence on the plan,
- The process of adoption of SEA reports can be very long and at the same time it slows down the process of plan adoption, issuing building permits and investing (two years after the Law on SEA came into effect, less than 10 SEA Reports for different levels of plans were adopted),
- Public participation is proposed for the final phase of SEA process and only in the form of public debate.

¹ the decision for dividing state union Serbia and Montenegro in two independent states was taken after the majority of Montenegro citizens voted for independence on 21st May referendum.

² Official Gazette of Republic of Serbia, no. 66/91 and 53/95

³ Official Gazette of Republic of Serbia, no. 44/95

⁴ Official Gazette of Republic of Serbia, no. 47/2003

SPATIAL PLAN OF KOLUBARA LIGNITE BASIN

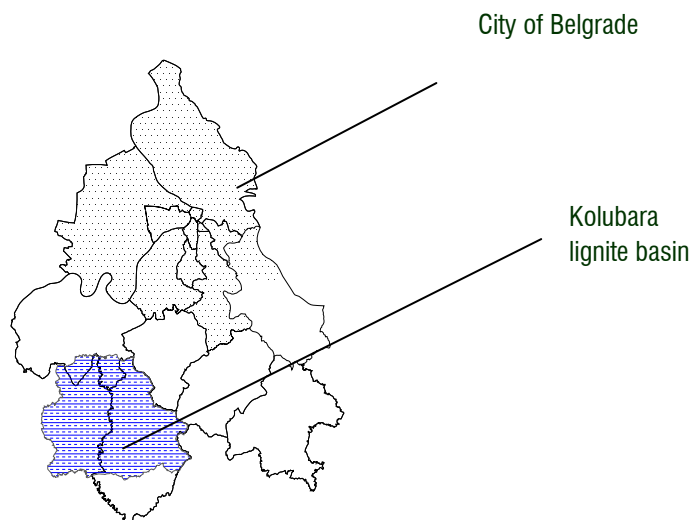
Despite the low level of economic activities in Serbia (about 60 % in comparison with 1990 basis) and the low citizens' standard of living, the consumption of final energy is pretty high, and it depends on import of almost 40%. The volume and structure of energy reserves and resources of Serbia is very unfavourable. The reserves of quality energy products, such as oil and natural gas, are small and constitute around 10 % in the total balance sheet reserves of Serbia, while the remaining 90% of energy reserves consist of various types of coal, predominantly low-quality lignite. In primary energy production, coal participates with 76%, and in the total primary energy consumption with 50% (Ministry of Mining and Energy, 2005).

The coal extraction is done from the eight underground excavation mines and open pit mines in the three mining basins: Kolubara, Kostolac and Kosovo- Metohija basin (the latter is temporarily out of function as a part of the energy system of Serbia due to the transitional status of Kosovo).

Exploitation of the mineral resources in the open pit mining basins has various aspects of environmental impacts. They can be listed as: land intake (agricultural land, forests), relocation of the settlements, water course rearrangement, repositioning of roads and other infrastructure systems, air/water/ground pollution, decrease in level of ground water, etc.

Kolubara mining basin is located 50 km southwest of the City of Belgrade (10 central municipalities), and partly encloses four municipalities (two of them belong to Belgrade suburban municipalities, map 1). It extends at almost 550 km² (25% occupied by open-pit mines and landfills) and provides 80% of coal production in Serbia (IAUS, 2003). Kolubara lignite basin comprises a lot of different types of activities and systems: settlements, open pit mines, landfills, objects for coal preparation and transformation, roads, water supply systems, waste waters treatment plant, recultivated land, agricultural land, etc.

Metropolitan Region of Belgrade



Map 1. Metropolitan region of Belgrade and Kolubara lignite basin

The biggest negative impacts on the environment have the following mining-energy objects:

- open pit mines (four existing, and another four are planned to be open)
- system for coal transport and landfills;
- thermal power plants (one operating since 1956 and another one in construction); and
- industries for coal transformation.

Two plans are currently in the designing process for the territory of Kolubara lignite basin (map 2): Spatial plan of Kolubara lignite basin and Regulation plan for thermal power plant.

Designing process of Spatial plan of Kolubara lignite basin exploitation area started in 1998, based on Decision on compilation and Programme for spatial plan of Kolubara lignite basin exploitation area, which was verified by Ministry for construction and public enterprise "Electric power industry of Serbia". Its overall aim is to provide spatial conditions for rational exploitation of lignite in Kolubara basin, and to neutralise or mitigate ecological and socio-economic negative outcomes of this exploitation. In the development of this area, the priority is given to: further lignite exploitation and transformation; rehabilitation and mitigation of damage induced by lignite exploitation and transformation; protection of social, economic and ecological living conditions of endangered inhabitants; application of environ-

mental protection measures; mitigation of unequal regional development; prevention of unplanned construction on lignite bunk. The different level of prediction was applied for different time periods. Likewise more detailed solutions are foreseen for the near future, and more general solutions are given for a long-term period.

The Regulation plan for thermal power plant¹ (TPP) was firstly initiated in 1991, but drafting its final version started in 2005. The plan aims to provide planning basis for further construction and operation of TPP, and arrangement of location for regional landfill. It spreads on 434 ha and comprises the complex of TPP, the complex of existing landfill for gyps, ash and

¹ The preparation for construction of thermal power plant "Kolubara B" started in the '80, and its location was determined on the periphery of open pits "Tamnava East" and "Tamnava West". In 1991 started the designing of detailed spatial plan for thermal power plant, but was aborted in 1992 due to sanctions by UN Security Council and disintegration of SFR Yugoslavia. The decision on continuation of construction was made in 1996, but because the new legislation on planning and construction was adopted, and because there was not enough financial resources, the whole process was "frozen" for some time.

slug in an open pit, and location for new regional landfill. With the consensus of the Ministry for capital investments and public enterprise "Electric power industry of Serbia", it was decided that regulation plan will be designed in synchronisation with spatial plan of Kolubara lignite basin.

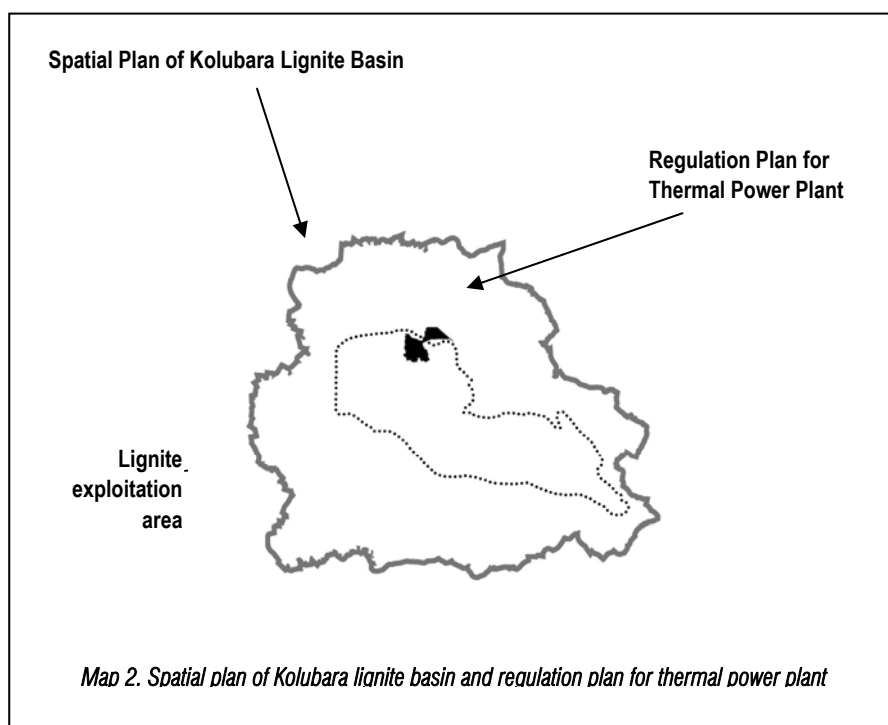
After screening (and consultations with expert organisations), authorities decided that SEA is not needed for the Regulation plan, since the SEA for the Spatial plan will be able to give a more comprehensive assessment and comprise all cumulative effects in that area.

SEA FOR SPATIAL PLAN OF KOLUBARA LIGNITE BASIN – BASIC ELEMENTS

Though the designing process of Spatial plan for Kolubara lignite basin has started 6 years before the Law on SEA was adopted and as it has not been adopted before the Law entered into force, it was obligatory to conduct a SEA for this plan. The screening for SEA of Kolubara lignite basin has been done by the Republic agency for spatial planning, in consultation with environmental protection authority and expert organisations.

The dominant sources of major negative impacts on the environment are mining activities (which comprise open-pit mines, coal preparation and transport, overburden deposits) and energetic (TPPs "Kolubara A" and "Kolubara B", landfill for gypsum, ash and slug in open pit, heating station and coal-dryer), and sub-division facilities. Mining activities induce: rearrangement of three rivers and abbreviation of two rivers, destruction of some water supply systems, relocation of certain parts of eight settlements, relocation of roads, railway and other infrastructure systems. These plan proposals, together with land recultivation and creation of regional landfill, are comprised by SEA.

Based on multi-criteria impacts evaluation of the environmental plan proposals and assessment of cumulative and synergetic effects, the major impacts on the environment have been identified, and they are shown in Table 1.



Map 2. Spatial plan of Kolubara lignite basin and regulation plan for thermal power plant

SEA proposes cooperation between all interested parties, especially the public enterprise "Electric power industry of Serbia" and local communities and implementation of the environment protection measures. Therefore, services for environmental protection need to be strengthened or established in municipalities, LEAP (Local environmental action plan) and monitoring plan of environment quality

have to be done, environmental information system needs to be created, public needs to be informed and has to participate in solving environmental problems.

SEA was composed parallel with finalisation of plan proposal. During the preparation of spatial plan and SEA, the consultations with interested authorities and organisations were made:

Table 1.

Air quality	Emissions from planned TPP "Kolubara B" will be lower than emission limits by the usage of modern technologies. Reconstruction of TPP "Kolubara A" and coal refinement could reduce current high emissions.
Water quality	Decrease in level of ground water. Problem of water supply. Water course rearrangement. Possible pollution of surface and ground water by wastewater from TPP and landfill. Mitigation measures: redirection of water courses, new systems for recycling wastewaters, technical solutions for maintaining the level of ground water, modernisation and construction of water supply systems
Land and landscape	Landscape degradation and land pollution from mining activities and landfills. Mitigation measures: capacious recultivation, recovering of agricultural land, increasing the forests area
Nature protection and biodiversity	Mining activities, land degradation and vegetation loss will cause loss of majority biotopes and relocation of animal species. Mitigation measures: land recultivation, water course arrangement
Cultural heritage	There is no cultural heritage of the big importance, mostly archaeological remnants (40), sacral (15) and traditional architecture (30). Mitigation measures: relocation or conservation
Settlements and inhabitants	Inhabitants' number and structure will decrease. 1164 households (27%) will be resettled. Endangered health. Characteristics of settlements will change. Mitigation measures: compensation of property and organised/individual movements
Infrastructure systems	Destruction of parts of some roads and rivers. Mitigation measures: spatial relocation and rearrangement
Economic development	Increase in economic development on local and regional level, in mining sector and complementary activities

"Electric power industry of Serbia", authorities and expert commissions for plan reviewing in four municipalities that plan comprises, Republic agency for spatial planning, Republic commission for plan reviewing, Ministry of science and environmental protection - Directorate for environmental protection.

Prior to submission of application for granting the SEA report approval, public shall consider the report together with plan proposal on the public insight and during the public debate.

Republic agency for spatial planning (as the competent planning authority) will compile the report on participation of authorities and organizations and the public concerned, which includes all submitted opinions and rationale for all the accepted or rejected opinions, and submit it to Directorate for environmental protection. The Directorate will evaluate and approve or refuse the application for SEA report. Only after SEA report is approved, spatial plan proposal can go into the further adoption procedure.

DISCUSION AND CONCLUSION

Development of mining regions needs to be harmonized not only with economical aspirations and goals, but also in respect to the social and environmental aspects. Making the SEA for mining regions can contribute to the achievement of sustainable development, poverty reduction and good governance, because it:

- evaluates the alternatives with potentially different environmental consequences, not just from the economic point, but also including the ecological, social and health aspects, and helps to derive the best decision;
- analyses expected effects, their character (irreversible or not), durability: long/middle/short-term, possibility, scope (local, regional, global), and induces activities stemming from a major development;
- considers cumulative impacts (caused by several projects);
- analyses direct and indirect activities and their impacts;
- focuses on maintaining a chosen level of environmental quality (instead on mitigation measures).

Serbian Law on SEA is harmonized with EC Directive and, although it was transposed a bit uncritically (without adapting to the local circumstances), it provides a good basis for improvement of impact assessment practice in Serbia. Illogically, more than eighteen months after adoption of the Law on SEA there is still no issued guidance to help the experts in proper implementation of SEAs.

The case study of SEA for spatial plan of Kolubara lignite basin showed that overlapping can be avoided: in the screening procedure it was decided that SEA for regulation plan of thermal power plant will be unnecessary since the SEA for the whole region can give a more comprehensive assessment and comprise all cumulative effects in that area.

The biggest impacts on the environment are caused by mining and energetic activities, and the industries that support them. The strongest impacts are on: air and water pollution, land, landscape and biodiversity, cultural heritage, infrastructure, but predominantly on citizens (health, monocentric economic structure) and their settlements. The most austere situation is in the settlement Vreoci, where around 70% of inhabitants need to be relocated (see: Petrić, 2005). As the main mitigation measure for this case, the relocation of the whole settlement Vreoci with financial compensation was proposed.

Because the spatial plan is of the big importance for energy supply system, the public enterprise "Electric power industry of Serbia" as a proponent has an important role. The plan and SEA are both foreseen to be adopted at the highest level.

The poor level of public participation is still characteristic for all SEA processes in Serbia. By legislation, it is only proposed in a modest form (insight and debate) and at the end of the SEA process. "Controversial" plans like this one can provoke citizens to object and they can feel frustrated and cheated by the state, if everything is not clearly and on time explained to them. Hopefully, politicians and authorities will understand the necessity of collective efforts of all stakeholders for better decision making.

In order to achieve sustainable development of mining regions in Serbia by applying SEA, we need to:

- develop our own guidelines, balanced with the local circumstances and conditions

(instead of using those from the EU countries or relying to the „common sense“),

- have statistical data about important parameters,
- develop environmental monitoring system (EMS),
- educate experts and authorities, especially on the local level,
- include public at the earlier stages of SEA process and increase public participation (to prove the reliability of drawing and implementing SEA).

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