

AN EX ANTE EVALUATION OF SUSTAINABLE DEVELOPMENT: THE CASE OF “KOLUBARA” MINING BASIN

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Abstract: The “Kolubara” Basin faces a number of complex economic, social, ecological and spatial problems, out of which some seriously hinder its future development prospects. The past development pattern, being still largely practiced, has resulted in a number of negative effects. On the other hand, already reached development level, industrial culture and abundant natural, human and other resources of the region, picture its future in a brighter light. In order to get more reliable insights in the factors at work and their impact, in this paper an *ex ante* evaluation of general development options of the region is undertaken, by applying a combined approach and method. The results of the analysis, however unequivocal, point to a general conclusion – that the region may embark upon a new mode of development, e.g., that of the sustainability paradigm, provided a number of steps are timely undertaken to remove at least some negative effects of the past development, and to diminish the impact of negative existing factors. Also, considerable support would be needed on the part of the Republican level, as the local (regional) actors, acting alone, would not be able to make best use of the “territorial capital” of this region.

Key words: ex ante evaluation of sustainable development options, a combined approach and method, lignite coal basin, assessment of “territorial capital”, environmental protection, restructuring, transition reforms

1 Introduction

The Mining and Energy Generation Basin “Kolubara” (in the sequel: MEGS “Kolubara”; the Basin) is located approximately 40 km west and south-west of Belgrade, the capital city of Serbia. Its surface area covers some 547 km², while the production area proper encompasses ca. 134 km². Industrial and related facilities and installations cover some 62 km². Out of the total area, only 12.6 km² of the previously utilized spatial complexes and some dispersed spots have so far been recultivated. The total area composed of parts of four local communes (Lazarevac, Lajkovac, Ub, Obrenovac). Total population

of the area is ca. 82,000 inhabitants. More than 30,000 people are employed, out of which some 10,500 in the mining extraction and energy generation sector [1].

On average, the annual open cast extraction of lignite coal in the Basin surpasses 27 million tons, and the average annual energy generation by its power plants reaches some 1,161 Gwh. This makes 75% of the total annual lignite coal production in Serbia, and 3.1% of its total energy production [1].

Apart from a number of positive effects, the extensive extraction of lignite and energy generation have also caused many negative impacts, which have been

only partly controlled and directed in the past [2].

In this paper the preliminary results of an *ex ante* evaluation of future development prospects of the Basin are presented, derived from a simplified analysis of its development potential and limits. The analysis combined a standard SWOT (Strengths/ Weaknesses/ Opportunities/ Threats) analysis, supplemented by a rudimentary TIA (Territorial Impact Analysis) and an initial SSIE (Strategic Spatial Impact Evaluation). The findings may serve as a starting point for further, more profound evaluation, to ultimately result in a solid knowledge base upon which sound, reliable and sustainable strategic development decisions are undertaken. Especially, more insights are needed with regard to the environmental impacts proper of various future development options. These should be researched through by preferably applying more rigorous methods and techniques of the SEA (Strategic Environmental Assessment) approach, as well as of the ISA (Integrated Strategic Assessment) approach. This is of particular relevance *vis-à-vis* the environmental protection being among the key strategic goals of the European Union [3, 4], which strongly influences the development prospects of the candidate-countries [5]. In general, the process of integration of these countries into the broader European framework will predictably introduce more rigor regarding the control of social, regional, ecological and other aspects of the mining and energy sector restructuring, all subsumed under the paradigm of sustainable development.

2 The rationale for the approach applied

The analysis learns from a more recent course in the environmental legislation of Serbia. Namely, following the application of the instrument EIA over a number of years, pertaining to particular projects, in 2004 a new instruments was introduced, which resembles a standard SEA, procedure being

applied in order to evaluate broader environmental and related impacts of strategic plans/programmes and similar development documents. Also, some elements of the SSIE have been introduced, keeping in mind that this kind of analysis is likely to play a crucial role within the strategic framework of the social cohesion and territorial cohesion policy in the European Union [6, 7, 8]. Now, the mainstream efforts tend to combine standard EIA and similar procedures, on the one hand, with the more recent TIA, on the other, with a view to reach a more integrated approach, viz., IIA (Integrated Impact Assessment). They all work on the assessment of the total “territorial capital” (“endogenous capital”, and similar)¹ of an area, focusing on its comparative advantages and competitiveness in the international competition arena.

Such an approach has been chosen for two basis reasons: first, it makes it for a more complex evaluation of the problem in question and respective options; and second, it approximates the kind of reasoning and procedures which are familiar to the foreign actors who will predictably be interested in investing in the area of the MEGS “Kolubara”, thereby providing for a better communication and interaction among all. Namely, the intention here is to compile, organize and present in a specific way a part of the existing knowledge base which may be utilized in the further considering of

¹ This encompasses a large number of measurable and non-measurable components, from five large groups of attributes, viz.: a) geographic and transport position (location) of the area/territorial entity in question; b) its physical (natural resources endowment), social and economic potential, and potential for innovation and development based on knowledge; c) institutional and organizational arrangements and communicative capacity of its society and institutions; d) total comparative advantages; and e) total competitive capacity (relative to other).

development potential and limits of the area among the interested players.

3 Key Results of the Analysis

3.1 Strengths

The area of the MEGS "Kolubara" is a highly industrialized region, with a long and well-developed industrial culture of more than 110 years of mining works in the Basin "Kolubara", which undoubtedly features as a comparative development advantage, and despite the negative impacts of the miss/events of the 1990s (dissolution of the former Yugoslavia, regional wars, international sanctions towards Yugoslavia and its isolation, etc.)

The region has is social, economic and human capital well developed, which especially pertains to the commune of Lazarevac, with the GDP per capita of some 200% of the average for Serbia [1].

Work force ("human capital") is fairly well qualified, even for some more sophisticated professional tasks, although some qualification levels and specializations are still missing, especially keeping in mind the predictable changes in the structure of the economy. In addition to this, the unemployment level is well under the Serbian average.

So far initial steps have been undertaken with regard to the privatization of property, whereas the number of private enterprises (shops, and so forth) has sharply risen in recent years, albeit variously in territorial terms. The share of private ownership in the total GDP is largest in the commune of Ub, that is, 75%.

The Basin belongs to the Broader Belgrade Area, which is the most developed part of the country. Mostly for this reason, the level of poverty and social deprivation in the Basin is well under the average for Serbia, the Broader Belgrade Area recording the lowest percentage of poverty in the Republic, viz., 10%. However, according to some indicators of more indirect significance, the poverty levels in some part of the "Kolubara" region may be well

above the Republican average, mostly in some rural parts, and/or in settlements with less educated population, and/or with the higher unemployment, and/or with older populace, and/or with a larger share of refugees in the total population [9].

3.2 Weaknesses

In general, the dominant production pattern in the Basin has been generating a poor and grossly negative "ecological footprint" on its environment, as well as a number of negative impacts on the broader regional area. On the one hand, an intensive lignite extraction and concomitant generation of energy as from the first half of 1970s, shortly followed by development of a number of supplementary activities, mostly in the secondary sector, launched few cycles of fast economic and social development in this region. On the other, for more than thirty years now, huge environmental effects of such development pattern, largely negative, have been neither controlled efficiently nor timely removed. Apart from that, the dispersion of positive and negative effects was unequal over the total regional area, resulting in its unbalanced development in territorial terms.

Following the 1980s, in effect the years of economic stagnation, the prolonged economic, social and political crisis, which started in the beginning of 1990s, has only added to the otherwise poor former economic performance (with the decline of almost all indicators of employment, production, capital and maintenance investments, closures, bankruptcies, and so forth), also causing a number of new negative spatial and ecological impacts.

The migration of rural population to urban and industrial centres, often arranged for as its re-settling in order to open new lignite open cast fields, has been intensive already as from the very first development cycle. As a consequence, now it is concentrated in urban centres of Lazarevac, Vreoci and Veliki Crljeni. Less developed, far behind them, are the urban centres of

Lajkovac and Ub. In general, the key approach and practices regarding the re-settlement of rural population to urban centres have constantly suffered from many flaws, resulting in a number of negative effects. In effects, the system worked only occasionally. As a rule, the re-settlements fail to meet a right timing, even to the extent that the programming and executing the preparatory works heavily jeopardizes regular extraction of lignite, its processing and energy generation [10]. On the other hand, the expropriated (bought-off) agricultural land for industrial purposes has almost always been underpaid, that is, well below real market values.

In sum, the economy of the "Kolubara" Basin suffers from many structural deficiencies, viz.: the overall productivity is poor and low; equipment and machinery are utilized non-sufficiently; a lack of technological research and innovation and pertinent investments, effectively, as from the end of 1980s, resulting in the now largely obsolete technology applied in the Basin; the decline in exports, as the region has experienced a loss of a number of former markets, due to the dissolution of the former Yugoslavia, as well as due to new international economic constellation following the fall of the Berlin Wall; a huge deficiency of financial resources for capital and maintenance (operative) investments; huge financial losses; insolvency; low salaries of the employed personnel (in relative terms); etc.

The prospects for the future recovery of the economy in the Basin are, however, not bright in each and every respect, especially for some deficiencies in the work force structure, viz.: the unemployment has increased in few recent years, following a number of problems in the local/regional labour market; a number of qualification brackets is missing, especially for the most sophisticated professional task in developing an economy "based on knowledge", information support activities, market research, and similar; the average age of the employed is 48,5 years; although there has been a slow-down in the

increase in wages and salaries of the employed in the region, they are still well above the Republican average for equivalent levels of qualification and competence (respectively, it used to be 2.4 times the Republican average until recently, and now is 1.2 times the average for Serbia, causing a migration of a part of the best educated and/or qualified people, predominantly younger professionals, to other places, in the first place to the capital city of Belgrade, as well as abroad, within the general "brain drain" Serbia has been experiencing for many years now); particularly are missing some engineers specializations, as well as some in the mid-level brackets; there has been a chronic lack of the most competent "strategic brains" in the field of long run development programming, directing and management; low levels of employment in the larger parts of the communes of Lajkovac and Ub (with the exception of agricultural sector, which absorbs the gross of employment) will predictably play a limitation for their more intensive development in the future; etc. A large part of the existing work force, most notably people who have been unemployed for some time, will predictably face a "structural de-qualification" of their competencies, vis-à-vis expectable changes in the future demand for a more sophisticated knowledge.

However, the ultimate hindrance has to do with **the sectorial structure of regional economy**. Namely, the so-called "mono-industrial" and "paleo-industrial" economic structure prevails, mostly the capital intensive one, reflected in a large share of coal extraction and processing, energy production, non-metal activities, construction industry (material inputs), and similar, as compared to other activities. The economic structure is poorly ramified and diversified, and the steps directed to its improving are urgently needed. Apart from that, the key activities of the mining and energy sectors are not flexible in locational terms, that is, they are not "foot-loose" enough. Consequently, this implies that enormous quantity of raw materials and primary inputs has to be processed and

transported within the region (also, some of them *in situ*), additionally causing a number of serious negative environmental effects. Also, the relative usage of natural resources, that is, physical space, water and lignite, per a unit of generated product or service (energy, industrial production, and so on), is extremely high, and is not matched by equivalent organizational capacity of the production systems and development planning/policy institutions and agencies to cope with negative ecological and other effects.

There has been another factor of similar relevance for the future development prospects of this region. Namely, technical infrastructure (i.e., for energy supply, transportation, water management, sewage, and so on) has not been sufficiently developed, to satisfy demand, which has been the case both in the past and now, and also predictably in the future, unless new construction takes place urgently. Partly, this has resulted from poor maintenance of technical infrastructure in the 1990s, and a slow recovery as from 2000 onwards. The most critical situation is in the settlements of Vreoci and Veliki Crljeni (in the commune of Lazarevac).

Next, there has been a lack of both potable and the so-called "technical" water in the region, as well as water resources needed in the agricultural production. Also, as a result of intensive coal extraction, many wells in the region have been exhausted, dried out, and, ultimately, disappeared.

In sum, the environmental situation in the Basin "Kolubara" is very poor and serious for its negative effects, consequences, and implications. This derives primarily from a high contents of sulfur components in the lignite ore, and its low caloric value, as well as from the traditional, and in some cases obsolete techniques applied in its extraction and processing. Specifically, the pollution of water, air and soils is well above more rigorous European standards, as well as well above what is stipulated for and exacted in the pertinent Serbian legislation. Additionally, for the same reason, the

quality of urban life in a number of settlements in this region is not satisfactory. Although many improvements in ecological terms have been undertaken in recent years, for examples, mounting new filters in two power plants, the gross of environmental pollution and damage that has been generated in the previous 30 or so years, has not been removed, or pollution, cleaned, so far. Especially, the percentage of lands utilized for lignite extraction and processing still does not exceed few percents of the totally converted lands (mostly from the former usage in the agricultural sector). The estimates of total costs needed for the complete spatio-ecological rehabilitation of the damage/pollution amount to many hundred million euros, albeit so far there has been no complete and in every detail rigorous assessment of the kind [2]. This problem will be mounted within the activities of Serbia to join the European Union, and, following the signing of the preparatory documents, to start the process of adjusting its environmental and spatial legislation, institutional and organizational arrangements and practices to those of the Union.

The results of the so far undertaken privatization in this region are ambiguous. On the one hand, the **privatization process** grossly lags behind the pace in other transition countries. On the other, the litigation in this respect has also, in an indirect way, kept some fine niches for more reasonable and prudent steps in the future, contrary to a number of no-well-prepared restructuring in some other sectors, especially regarding the privatization of large production complexes in the mining extraction and energy sectors. This particularly applies to the expected increase in unemployment, as one of the effects of the pending privatization of larger parts of public sector in general. As an interesting trait of locally and regionally specific industrial culture, the overwhelming majority of the work force employed within various production units of the system "Kolubara" tends to keep to the employment in the system "at any price",

thereby grossly neglecting evidently emerging chances for private initiatives, entrepreneurship and business, especially in the domain of small and medium size enterprises. Following the pending, intensified process of privatization, this characteristic of the local labour force will most probably diminish, slowly though.

Some particular problems pertain to the **rural parts of this region**: on average, the rural parts, with few exceptions only, are less developed than the industrialized parts of the Basin "Kolubara"; the average agricultural property and lot size is low, as small parcels of land predominate and thus hinder prospects for organizing a more rational agricultural production; technical support to individual farmers by public and private actors in industry and commerce is fairly poor, thereby thwarting more efficient practices; many rural areas are not well served by the network of public services; in the predominant part of the total rural area the networks of technical infrastructure are not sufficiently developed; etc.

3.3 Opportunities

Excellent geographical position, proximity to the Belgrade metropolitan area, and well developed traffic and communication connections with the neighbouring areas, all feature as a key element of the "territorial capital" of the "Kolubara" Basin region, and play prominent role in its future development prospects [11].

This area endows with large quantities of non-renewable, partly renewable and renewable natural resources, in the first: coal (lignite) deposits, non metallic raw materials, thermal water, agricultural land, and, to a lesser extent, water resources [12]. They may be utilized in many ways, and in various sectors, e.g., mining, energy, manufacturing industry, agriculture, tourism, and so forth [13]. Provided they are exploited in a way that is economically, socially and environmentally acceptable – also applying contemporary European practices, and introducing some

international obligations Serbia has recently subscribed to as well – this region has a fair potential to embark to development path which is veritably sustainable. This also includes the usage of some natural resources which have not been exploited so far.

Some traditional markets for the commodities and services this region has been supplying have been at least partly recovered, and some new are emerging. Also, a number of potential partners from other regions has demonstrated readiness to cooperate with those in the "Kolubara" Basin.

The mining corporation "Kolubara" and the power plant "Nikola Tesla" are Serbian leaders in the extraction of lignite and energy generation, which is "development and market capital" of considerable relevance. The rise of energy prices in international markets also plays a positive and stimulating role to that end. Provided some other preconditions are satisfied, the majority of commodities from this region may well become competitive in some international markets.

In recent years a number of steps have been undertaken to improve on the "systemic" position of the mining and energy sector [2, 14, 15, 16], in a way that is compatible with contemporary European practices in the sphere of industrial policy, especially with regard to support the restructuring of the coal sector. Such developments also impact the future prospects of the Basin in a positive way.

A well-developed "human capital", including an old tradition and industrial culture, is likely to play positive role, mainly in the non-traditional and/or new activities outside the lignite extraction and processing. For that side, vocational schools and training are well developed in this region.

Even the extremely complex spatial and ecological problems of this area appear to be solvable as from recently, as a number of steps have been undertaken to improve the environment in this region. A large number of international actors provided support to this end, and some investors, predictably future "strategic partners",

demonstrated readiness to exploit and process its natural resources by closely observing high ecological and other standards, that is, in a sustainable way.

In recent few years Serbia has passed a number of strategic documents that stipulated for introducing elements of sustainable development in the preparation of local and regional documents, as well as for locating strategic partners who would be ready to cooperate in this way [16]. This opened many niches for investing in new development projects and programmes in the "Kolubara" Basin as well. This trend is likely to ultimately help solve even some complex ecological and related problems that have long stayed unresolved. In this respect, the local (regional) actors might more insist at the Republican level for a larger portion of the *National investment plan (NIP)* to be directed to this region, through lobbying and similar activities. The available financial, human and other resources should be used for a more intensive development of the SME sector, preferably integrated into large production and commerce systems. Some of the already scheduled "business incubators" may well be located in this region, to serve both local (regional) and overall needs and goals. It should be noted that the "Kolubara" Basin represents a paradigmatic case of a "brownfield" area that wait for restructuring in each and every aspect.

Provided better maintenance is undertaken, and services scope and quality considerably improved, communal and housing stock may also be utilized as local assets. The companies in this sectors have always been an integral part of the entire production and service systems, particularly in the commune of Lazarevac, contributing to the development of some modes of partnership that, as appropriately modified "models", may be useful even in the future, despite the fact that the practices experienced so far have not always been successful [17]. This applies in the first place to possible partnerships in communal infrastructure (amenities, utilities, solid

waste removal and processing, district heating, etc.) [18].

The NGO sector, especially if carries a democratic legitimacy and demonstrates competence, may also play a prominent role in improving development prospects of this region.

3.4 Threats

The key threat pertains to the existing practices in the extraction and processing of lignite and energy generation, should they be kept non-changed and non-improved. Consequently, there is an imperative to accommodate current and future practices in the field to the international documents Serbia has signed recently, and concomitant obligations assumed, especially those pertaining to the macro region of South-eastern Europe [19, 20, 21].

The next imperative goes to a necessity to diversify and ramify the existing economic structure in the region, and to radically depart from its "paleo-industrial" development pattern. Namely, a veritably sustainable development path cannot be imagined without this. Should it happen that the key actors keep to the prevalent existing pattern, this will imply that neither the "territorial capital" of the area is well utilized, nor the negative effects of the past development are removed and/or cleaned.

Apart from the above, a number of other problems should be resolved, in order to prevent the continuation of some unfavourable past and current practices, viz.:

- a) The scope of rehabilitation and recultivation works has to be considerably intensified in the years to come, in order to make it for the delays in the past. In addition to this, future recultivation will have to parallel predictably intensified extraction and processing of lignite.
- b) There has been a long-standing problem of contaminated agricultural lands (soils), which seriously hinder the development prospects in this sector. In effect, there is a large number of "ecological hot spots" in

this area, and even larger land belts of the kind. This problem has not been taken into account in its all relevance so far.

c) More efforts should be put to educate and train people, in order to fill the now missing qualification brackets (gaps) in the labour force structure. This is of necessity for developing an "economy based on knowledge", that is, for introducing technological innovation. Particularly is missing proficiency in strategic development control and directing, market research, sophisticated management practices, and more developed entrepreneurship and culture.

d) Should the current unemployment rate be radically reduced, it will ultimately limit the development prospects of the "Kolubara" Basin. This is of particular relevance keeping in mind that the pending privatization of a part of publicly-owned enterprises in the mining extraction and energy production sectors will generate a new wave of unemployment, [22] by which the resolving of this problem will be additionally complicated. The problem of unemployment should be dealt with as one aspect and problem only, out of many in the sphere of social cohesion, social deprivation and social polarization, concomitant to the trends of the post-socialist transition [20].

e) Although it is primarily a local (regional) problem, the out-migration of rural population does not seem solvable by the efforts of local and regional actors only. There is a clear need for more determined actions of the Republican level to that end, and for introducing measures that are supportive to local needs and priorities.

f) The existing equipment, installations and machinery should be utilized more intensively, which is of particular relevance regarding that even harsher market competition for the majority of economic actors is likely to take place in the future.

g) A radical improvement of the systems and management practices of water supply is of crucial importance for the development prospects of this region.

h) A number of other, long-existing problems, will also have to be taken into

account and resolved, in the first place the following ones: an extensive illegal construction (building) practices; a lack of by-laws in property (real estate) management, and poor practices in this field; a lack of programmes and projects to better direct and control sustainable development; a lack of appropriate institutional and organizational arrangements at the regional level for strategic development management, etc. [15, 23].

4 Conclusion

The results presented here are of limited relevance, in the first place for the lack of all necessary data, indicators and other information. Here, of particular importance are the consequences of the pending privatization of a part of the energy sector in Serbia, which are not all ponderable at this point of time, especially regarding the predictable "risk and uncertainty" of the legislative, institutional and other steps to be foreseeably undertaken.

However, some general findings of a preliminary relevance may well be in place here, viz.: (a) In the "Kolubara" Basin there still exist a number of complex problems, mostly those which took place as a consequence of the past development pattern and poor production and environmental protection practices. Apart from that, some problems have been additionally made more complicated by the course of the events of the post-socialist transition, mostly as a result of impact of factors outside the region. Negative aspects, that is, weaknesses and threats, seem prevail over those positive, that is, advantages and opportunities. The resources and potential have not been utilized in a rational way, and many spatio-ecological negative effects of the past development pattern still exist in this region. The majority of such problems still stay unresolved; (b) Despite that, the negative effects need not appear as an insurmountable factor, provided the comparative advantages of the region are better utilized, and

development opportunities are made use of, within an appropriate, new development pattern; (c) As is the case in a number of other similar regions, sustainable development paradigm offers many options for better future development prospects, provide appropriate steps are undertaken, in the first place the following ones: 1) Priority goes to the removing of the already made damages and pollution, 2) The extraction and processing of the key natural resources in the future ought to follow more recent, spatially, ecologically and socially acceptable patterns and practices, notably those from the more developed countries of the European Union, 3) In order to define and embark upon a new development path, cooperation among various actors is urgently needed, as the key development problems of this region cannot be resolved by the activities of the local (regional) actors only, 4) Finally, introducing a number of new "systemic" measures, favourable also for the local (regional) economy and spatial and urban practices, will also help solve some most urgent problems of this region.

References

[1] *Regional Spatial Plan of Kolubara Mining and Energy Generation Basin*, Republicka agencija za prostorno planiranje, JP Elektroprivreda Srbije, Beograd, 2007

[2] Strategy of energy sector of the Republic Serbia 2015, Sluzbeni glasnik Republike Srbije, 44/2005

[3] *Competitiveness and Innovation Framework Programme 2007-2013*, European Parliament and the Council, 1639/2006/EC, 24 October 2006., OJ L 310/15, 09.11.2006

[4] European Commission, *Competitiveness, sustainable development and cohesion in Europe. From Lisbon to Gothenburg*, European Union, Regional Policy, Brussels, 2003

[5] *Green Paper Towards a European Strategy for the Security of Energy Supply*, EC, 2001

[6] Faludi, A, Polycentric territorial cohesion policy, *Town Planning Review*, 2005, p.107

[7] Zonnenveld W, Waterhout B, "Visions on territorial cohesion", *Town Planning Review*, 76(1), 2005, p. 15-27

[8] Jensen, O.B. and Richardson T, *Making European Space. Mobility, power and territorial identity*, Routledge, London, New York, 2004

[9] *Strategy for the Reduction of Poverty in Serbia*, Vlada Republike Srbije, Beograd, 2003

[10] *Programme of Long-term Exploitation in Kolubara Mining and Energy Generation Basin*, Rudarski institut, Beograd, 2002

[11] *Regional Spatial Plan of the Belgrade Administrative Area*, Urbanistički zavod Grada Beograd, Beograd, 2003

[12] *Spatial Plan of the Republic Serbia*, Sluzbeni glasnik, Belgrade, 12/1996

[13] Katić M, *Developmental programmes*, JP RB "Kolubara", Lazarevac, 2005

[14] *Programme of restructuring in energy system of Serbia*, Deloitte&Touche, PPL Electric Utilities Corporation i IRG Group, Ltd., u saradnji sa USAID, Beograd, 2002

[15] *Law of energy sector*, Sluzbeni glasnik Republike Srbije, 84/2004

[16] *Strategy for the association of Serbia to EU*, Vlada Republike Srbije, 2005

[17] Vlaović G, Consideration of transforming process in energy sector in Serbia, *Danas*, 17. jul 2006

[18] *Strategy of Local Sustainable Development in Serbia*, Stalna konferencija gradova i opština, Beograd, 2005

[19] *Agreement of the establishing energy union*, Sluzbeni glasnik RS, 62/2006

[20] Naumov R, Restructuring in Public enterprise of Energy sector in Serbia—step toward European standards, *Elektroprivreda* br.386, 10. mart 2006, XXXII

[21] Popović N, An establishing of energy union in South East Europe, *Vreme*, 25.05. 2006

[22] Kostic S, EPS is not on the sale, *Politika*, 26. Februar 2006

[23] *Law of the Mining in Serbia*, Sluzbeni glasnik RS, 34/2000